

A REVIEW OF CANADA'S SHIP-SOURCE OIL SPILL PREPAREDNESS AND RESPONSE REGIME

Setting the Course for the Future

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Tanker Safety
Expert Panel

Comité d'experts sur la
sécurité des navires citernes

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November 15, 2013

The Honourable Lisa Raitt, P.C., M.P.
Minister of Transport

Minister Raitt:

We are pleased to present our first report, *A Review of Canada's Ship-source Oil Spill Preparedness and Response Regime — Setting the Course for the Future*.

As a Panel, we had the opportunity to see firsthand the strengths of Canada's prevention regime and the level of preparedness currently in place to protect one of our greatest natural treasures: our waters.

In this first phase of our review, we have concluded that the overall preparedness and response regime is fundamentally sound, but that the Government can and should make important improvements. We make 45 recommendations that would, if implemented, set Canada on a course of continuous improvement.

Captain Gordon Houston

Mr. Richard Gaudreau

Dr. Michael Sinclair

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EXECUTIVE SUMMARY

We have completed the first phase of our review, which was focused on the current Ship-source Oil Spill Preparedness and Response Regime south of the 60th parallel. Generally, we found that the foundational principles of the Regime have stood the test of time, but that there are a number of areas that could be improved to enhance Canada's preparedness and response to ship-source oil spills. Five key assumptions underpin our recommendations for improving the Regime:

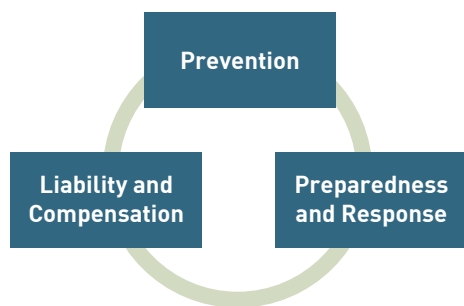
- Spill planning and the response resources allocated to prepare for spills should be based on risks specific to a geographic area.
- Potential polluters should be prepared, through their contracted Response Organizations, to arrange a response to a worst-case scenario through cascading resources and mutual assistance agreements that supplement a response organization's risk-based response capacity.

- A timely response to a spill is a key factor in mitigating its effects.
- Response planning should be focused on whatever strategies are identified for a geographic area that will most effectively limit the environmental, socio-economic impacts of a spill.
- Canadian taxpayers should not bear any liability for spills in Canadian waters.

After careful deliberation, we offer recommendations on the following pages that address our key findings and assumptions. We believe these recommendations are achievable and affordable, and will set the course to enhance Canada's Ship-source Oil Spill Preparedness and Response Regime, including its liability and compensation component.

1. BACKGROUND

Ship-source oil spill preparedness and response regimes around the world are largely based on an international framework set out by International Maritime Organization conventions. Despite this common framework, there are subtle differences in how countries have established their regimes to deal with oil spills. Canada has a comprehensive approach to ship-source oil pollution that comprises three major elements:



- **Prevention:** the suite of legislative and regulatory frameworks that govern tanker and vessel safety, including construction standards, crew certification, inspections, navigation, vessel traffic management, pilotage, as well as surveillance and monitoring, such as the National Aerial Surveillance Program. More information on Canada's prevention regime is available in Appendix A.
- **Preparedness and Response:** the array of legislative and regulatory instruments that establish and maintain an oil spill preparedness and response capability in Canada, including:
 - rules for vessels, oil handling facilities¹ and Response Organizations;
 - the oversight and monitoring of industry's compliance with these rules; and

¹ The regime includes spills at oil handling facilities when a vessel is loading or unloading oil products. If there is no vessel present at the oil handling facility when a spill occurs, it is not covered under the *Canada Shipping Act, 2001*, the guiding legislation for Canada's Ship-source Oil Spill Preparedness and Response Regime. Any references to the Ship-source Oil Spill Preparedness and Response Regime should be taken to also include spills at oil handling facilities when a vessel is loading or unloading oil products.

- the roles, responsibilities, and capabilities of federal departments and agencies in overseeing industry's response or in commanding the response in situations where the polluter is unknown, unwilling or unable to do so.
- **Liability and Compensation:** the multi-tiered, international and domestic framework for liability and compensation in the event of an oil spill, including the strict liability² of the shipowner and the cargo owner's financial contribution to the Ship-source Oil Pollution Fund and the International Oil Pollution Compensation Funds for ship-source oil spills.

The Regime Since 1995

Canada's Ship-source Oil Spill Preparedness and Response Regime provides the framework for preparedness to respond to ship-source oil spills in the Canadian marine environment south of the 60th parallel.³ In March 1989, the oil tanker Exxon Valdez struck a reef in Alaska, releasing 44,000 tonnes⁴ of oil into Prince William Sound. The Exxon Valdez spill closely followed some other high-profile spills, including the release of approximately 875 tonnes⁵ of oil from the barge Nestucca at the entrance to Gray's Harbour, Washington. In response to these events, the Canadian government commissioned a Public Review Panel on Tanker Safety and Marine Spills Response Capability (the Brander-Smith Panel).

Following the review in the early 1990s and informed by developments internationally, the Government worked in collaboration with industry

² Strict liability means that the shipowner's liability does not depend on proof of fault or negligence. It restricts the shipowner's defences to very limited circumstances.

³ The *Canada Shipping Act, 2001* defines oil as "petroleum in any form including crude oil, fuel oil, sludge, oil refuse and refined products".

⁴ "History/Chronology", Office of the Administrator of the Ship-source Oil Pollution Fund Website, <http://www.ssopfund.gc.ca/english/history.asp>

⁵ *Ibid.*



to develop a regime based on a public-private partnership. Industry, as the creator of the risk, bears the liability and responsibility to respond in the event of a marine incident in Canadian waters and therefore is charged with the operational elements of the Regime. The Government provides the legislative and regulatory framework for the Regime and oversees the industry's preparedness and actions during a spill, should one occur. Three legal instruments form the basis of the current Regime: Part 8 of the *Canada Shipping Act, 2001*, the *Response Organization and Oil Handling Facilities Regulations*, and the *Environmental Response Arrangements Regulations*. The Canadian Coast Guard oversees the private sector's response to spills.

Industry's operational role is carried out through four industry-funded and Government-certified Response Organizations, which maintain a level of preparedness, according to Canadian regulations and standards, to respond to spills. To operate in Canada, prescribed vessels and oil handling facilities are required to have an arrangement with a Response Organization as set out in legislation. Transport Canada also sets out operating standards with which Response Organizations must comply in order to operate in Canadian waters in the *Response Organization and Oil Handling Facilities Regulations*. These include a regulated preparedness capacity to respond to spills up to 10,000 tonnes within prescribed time standards and operating environments. Transport

Figure 1: Areas Covered by Certified Response Organizations



Prescribed Vessels and Oil Handling Facilities Subject to Part 8 of the *Canada Shipping Act, 2001*

Vessels:

- a) Oil tankers of 150 gross tonnage or more;
- b) Vessels of 400 gross tonnage or more that carry oil as cargo or fuel; and
- c) Groups of vessels that are towed or pushed, are of 150 gross tonnage or more in aggregate, and carry oil as cargo.

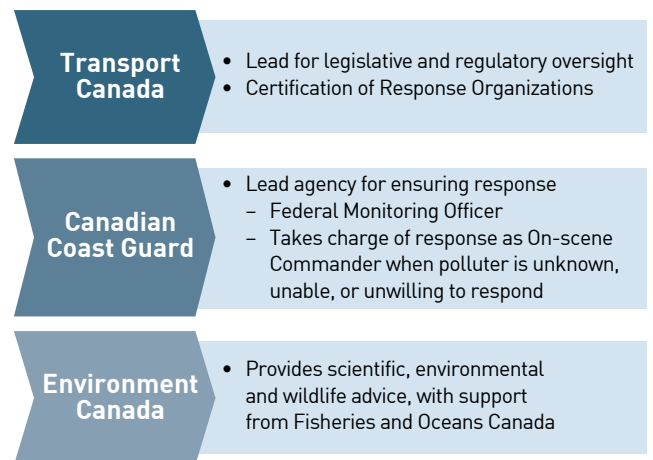
Oil Handling Facilities:

- a) Oil handling facilities operating south of 60° north latitude that received more than 100 tonnes of oil during the preceding 365 days; and
- b) Oil handling facilities that received less than 400 tonnes of oil over the last year do not need to have an arrangement with a Response Organization for oil that is loaded or unloaded to or from a vessel at the oil handling facility. However, they must meet other requirements such as having on-site plans and procedures (e.g., oil pollution and prevention plans).

Canada oversees Response Organizations' compliance with the preparedness requirements through a triennial certification process.

While Transport Canada carries out the Government's legislative and regulatory mandate, the Canadian Coast Guard plays an operational role. In the event of a spill where the polluter is unknown, unable, or unwilling to respond, the Canadian Coast Guard takes charge of the response as On-scene Commander. In any other circumstances, the Canadian Coast Guard fulfills the role of Federal Monitoring Officer. Additional pieces of legislation also set out complementary, but critical, roles for other government departments such as Environment Canada, which provides scientific, environmental, and wildlife advice and expertise in the event of a marine incident.

Federal Players in the Regime



Within this public-private structure, each sector funds its own mandate. As a result, the industry bears the financial responsibility to prepare for and respond to its spills in Canadian waters. Canada's Ship-source Oil Spill Preparedness and Response Regime is complemented by a liability and compensation framework set out in Part 6 of the *Marine Liability Act*. The Act implements a number of international conventions and establishes different liability and compensation regimes depending on the type of oil and type of ship involved in an incident. In general terms, however, ship and cargo owners share the financial burden of providing compensation for ship-source pollution incidents.

The owners of vessels, usually tankers, that carry persistent oil (e.g., crude oil, fuel oil, heavy diesel oil) in bulk as cargo are held strictly liable for any spills from their vessels up to a maximum amount that is linked to the tonnage of the vessel. If the vessel is carrying more than 2000 tons of oil in bulk as cargo, its owner is required to carry insurance to cover its liability. Those who suffer damage have a right of direct action against the insurer.⁶

⁶ The liability regime for persistent oil carried in bulk as cargo is established through the *International Convention on Civil Liability for Oil Pollution Damage, 1992*, which is implemented in Canada through Part 6 of the *Marine Liability Act*.



The owners of non-tankers (e.g., bulk carriers, general cargo ships, container ships, barges, passenger ships, etc.) that use oil for their propulsion or operation are also held strictly liable for any pollution damage caused by this oil up to a maximum related to the vessel's tonnage. Owners of vessels of more than 1000 gross tonnage are required to carry insurance to cover their liability. Victims may pursue their claims directly against the insurer.⁷

Finally, shipowners are strictly liable for damages caused by ship-source oil spills that are not covered by the two aforementioned regimes, again subject to a maximum amount based on the tonnage of the vessel. Insurance coverage is not mandatory; however, shipowners generally carry liability insurance.

In the event of a spill where the costs of damages and the cleanup exceed the shipowner's liability, claimants have access to one or more additional layers of compensation depending on the type of oil and the type of ship.

In the case of spills of persistent oil from tankers, two international funds⁸ financed by cargo interests provide up to approximately \$1.14 billion of additional compensation for a single incident. Canada's Ship-source Oil Pollution Fund can provide an additional tier of compensation worth approximately \$161 million, per incident, if the damages exceed the amounts available from the shipowner and the international funds.

For spills of non-persistent oil (e.g., gasoline, jet fuel) from tankers, spills from non-tankers, or mystery spills there is no access to the international funds, however, the domestic Ship-source Oil Pollution Fund can provide additional compensation

of approximately \$161 million per incident beyond the shipowner's liability. Both the international funds and the Canadian fund cover reasonable costs for preventive measures (to minimize or prevent a spill), clean-up, property damage, environmental damage (reinstatement measures), quantifiable economic losses (such as in the fisheries or tourism sectors) and post-spill monitoring and studies.

Finally, Canada works with other countries to further prepare for and respond to ship-source spills. Canada and the United States have been working in close cooperation on preparedness and response for cross-boundary spills since before the establishment of the current Regime. A joint contingency plan for marine pollution was first promulgated in the mid-1970s in order to coordinate an international response to an oil spill in the Great Lakes area. The plan has since been revised several times to improve the system in place, and the scope was extended to the contiguous waters of Canada and the United States. The current Canada-United States Marine Pollution Joint Contingency Plan, as revised in 2003, comprises five annexes for specific geographic regions. Joint exercises for each of these regions are carried out on a regular basis to test the system in place and ensure that it remains adequate and efficient. In recent years, Canada has also begun exchanging information, such as lessons learned, and working on planning documents together with Arctic Council countries.

Why a Review Now?

Since the establishment of Canada's Ship-source Oil Spill Preparedness and Response Regime in the mid-1990s, there have not been any major spills involving oil tankers or other vessels in the Canadian marine environment.⁹ This track

⁷ The liability regime for this type of oil is set out in *International Convention on Civil Liability for Bunker Oil Pollution Damage, 2001*, which is implemented in Canada through Part 6 of the *Marine Liability Act*.

⁸ *International Convention on the Establishment of an International Fund for Compensation for Oil Pollution Damage, 1992; Protocol of 2003 to the International Convention on the Establishment of an International Fund for Compensation for Oil Pollution Damage, 1992*.

⁹ The two largest releases of oil into Canadian waters since 1990 resulted from the *Queen of the North*, a ferry, which ran aground and sank in Wright Sound, British Columbia, in 2006, releasing 243 tonnes of bunker fuel, as well as the sinking while under tow of the disabled fishing vessel *Katschshuk*, which spilled 365 tonnes of diesel in 2002 at the mouth of Conception Bay, Newfoundland.

record can be attributed to the considerable improvements in prevention measures that have been implemented over the past two decades.

While the current Canadian spill preparedness and response Regime has met existing needs, it has not been reviewed in its entirety since its creation nearly 20 years ago, and the dynamics of oil transportation and marine shipping have since changed significantly. For one, the growth of the natural resources sector in Canada and, more specifically, of oil production, brought about an increase in oil exports. As a result, there has been an increase in both the volumes of oil transported in Canadian waters and the number and size of the vessels transporting it. Canada is currently the sixth largest producer of crude oil in the world¹⁰ and oil and gas companies account for around 5% of the Canadian GDP.¹¹ On the West Coast, Enbridge and Kinder Morgan have put forth proposals for projects that could bring an additional 600 tankers per year through the region's waters.¹² The marine transportation of other products such as diluted bitumen and hazardous and noxious substances, including liquefied natural gas, has also increased in past years and these now make up an important share of the products shipped by tankers.

Over the same period of time, Canada's ports have become busier. The volume of cargo loaded and unloaded at Canadian ports has increased 43% from 1993 to 2011.¹³ While some of this includes oil cargo carried in tankers and barges, there has been an increase in the number

of ships visiting Canadian ports generally. Although the spills would be smaller, bunker spills (i.e., spills of the fuel used to operate vessels), can occur more frequently than spills from tankers, which are subject to additional safety measures, such as double hulls. These changes in marine shipping support the need for a review on how well prepared Canada is to respond to spills, should they occur.

In addition, there have been new developments internationally in the field of oil spill preparedness and response since the mid-1990s. Regimes are implemented differently in each country, but a number of trends have emerged in leading maritime nations' oil spill preparedness and response programs. On the planning side, an increased focus has been put on risk when preparing for marine pollution incidents, and numerous regimes are implementing risk-based approaches. In addition, advances in research and development of alternative response techniques now provide responders with more options when it comes to limiting the environmental and socio-economic impacts of spills. These developments are not captured in the Canadian Regime and there has also been a gradual weakening of the Regime in other respects. For example, over time, and in the absence of any major oil spills, knowledge and skills sets within Government have eroded.

The Commissioner of the Environment and Sustainable Development also raised concerns in his Fall 2010 report about the current state of preparedness to respond to ship-source oil and chemical spills in Canadian waters. The Commissioner looked at the Government's preparedness to respond to such incidents, and how Transport Canada, the Canadian Coast Guard, and Environment Canada monitor and assess responses to these spills. The Commissioner identified a number of gaps, largely the result of insufficient data and information collection and analysis. For instance, the Commissioner identified gaps in the Government's use of risk

10 Canadian Association of Petroleum Producers (CAPP), "Basic Statistics," Canadian Association of Petroleum Producers Website, <http://www.capp.ca/library/statistics/basic/Pages/default.aspx>

11 Natural Resources Canada, "The importance of crude oil," Natural Resources Canada Website, October 2010, <http://www.nrcan.gc.ca/energy/publications/sources/crude/issues-prices/1223>

12 Trans Mountain Pipeline UCL, "Project Description for the Proposed Trans Mountain Expansion Project," National Energy Board Website, May 23rd 2013, <https://www.neb-one.gc.ca/ll-eng/livelink.exe?func=ll&objId=956916&objAction=browse&redirect=3>; Det Norske Veritas, Technical Data Report Marine Shipping Quantitative Risk Analysis Enbridge Northern Gateway Project, 2010, p. 5-56

13 "Service Bulletin — Surface and Marine Transport," Statistics Canada Website, Vol. 12 no. 5, 1996, <http://www.statcan.gc.ca/pub/50-002-x/50-002-x1996005-eng.pdf> "Shipping in Canada 2011," Statistics Canada Website, no. 54-205-X, 2011, <http://www.statcan.gc.ca/pub/54-205-x/54-205-x2011000-eng.pdf>



assessment to effectively plan for spills. Similarly, the Commissioner noted that the Government did not regularly examine the Canadian Coast Guard's response capacity, nor did the Canadian Coast Guard consistently document the effectiveness of its activities when it responded to spills. Finally, the Commissioner pointed out that Canada still does not have a national framework for chemical spills, also called hazardous and noxious substances.

More recently, the Standing Senate Committee on Energy, the Environment and Natural Resources launched a study to examine the transportation of hydrocarbons. Among other things, the Senate Committee looked at and compared domestic and international regulatory regimes for the transport of hydrocarbons by transmission pipelines, marine tanker vessels and railcars, and made recommendations to enhance the safety elements of the bulk transport of hydrocarbon products in Canada. The Senate Committee reported in August 2013, and its report can be found on Parliament's website.¹⁴

Finally, tanker safety and Canada's efforts to prevent, prepare for and respond to oil spills are of renewed interest to the public. As a result of all these factors, the Government of Canada has recently announced a series of initiatives to assess and strengthen tanker safety in Canadian waters.¹⁵

Our Mandate

On March 18, 2013, the Government appointed this Panel to review the current Ship-source Oil Spill Preparedness and Response Regime and to propose new ways to enhance it.

¹⁴ The Standing Senate Committee on Energy, the Environment and Natural Resources, "Moving Energy Safely : A Study of the Safe Transportation of Hydrocarbons by Pipelines, Tankers and Railcars in Canada," Parliament of Canada Website, August 2013, http://www.parl.gc.ca/Content/SEN/Committee/411/ENEV/DPK/22Aug13/full_report-e.htm

¹⁵ "Harper government announces first steps towards World-Class Tanker Safety System," Transport Canada Website, March 18, 2013, <http://www.tc.gc.ca/eng/mediaroom/releases-2013-h031e-7089.htm>

Given the breadth of the review, it was divided into two phases. In the first phase, we reviewed the current Regime's structure, functionality and overall effectiveness for areas south of 60° north latitude. This included assessing whether the current regulated preparedness capacity of 10,000 tonnes is adequate for actual risks; whether the current funding and fee structures that underpin the Regime are appropriate; and whether the Regime's governance structures provide adequate oversight and flexibility in today's context. We were also asked to examine the linkages between the preparedness and response Regime and marine liability and compensation. In the second phase, we will examine national requirements for hazardous and noxious substances, including liquefied natural gas, as well as the state of oil spill preparedness and response in the Arctic.¹⁶

We held targeted engagement sessions with industry stakeholders, including response organizations in Canada and the U.S., owners and operators of oil handling facilities, vessel owners and operators, ports, industry associations, Aboriginal organizations, provincial governments, U.S. officials, and federal departmental officials. These meetings, along with a number of site visits, took place between April and June 2013. We also solicited written submissions from the public via our Panel website. Lists of the organizations with whom we met, the sites visited, as well as the submissions we received are available in the appendices to this report. We are grateful for the cooperation and accommodation we were extended during our consultations. We offer our sincere appreciation to all those who took the time to meet with us or submit their comments in writing. Your comments, concerns and suggestions have given us much to consider during our review.

¹⁶ While the southern portion of Hudson's Bay, including James Bay, falls within the geographical limits of the first phase of our review, we have chosen to address this area along with our review of the Arctic and areas north of 60° north latitude in the second phase of our review.

2. KEY OBSERVATIONS

As a Panel, we had a unique opportunity to meet with stakeholders, read public submissions and consider a variety of perspectives on Canada's preparedness to respond to spills from ships and oil handling facilities. We heard about many things that are working well. Generally, we found that the original principles and foundations of the Regime have stood the test of time. We also noted some improvements that would strengthen the regime.

What Works Well

Due in large part to the strong ship-source pollution prevention measures in place, we noted that Canada has not suffered any significant oil spills since the implementation of the Regime. This includes a variety of regulated aspects of marine safety such as tanker safety, pilotage, and navigational aids, as well as voluntary industry practices, such as tanker vetting, exclusion zones, and escort tugs.

We agree that the public-private delivery model for Canada's Ship-source Oil Spill Preparedness and Response Regime provides an appropriate balance between private and public responsibilities. Response is organized and provided privately, funded and paid for by potential polluters, with government regulation and oversight to ensure the level of preparedness, as well as the effectiveness of response. This oversight provides assurance to the public, government and members of industry of a consistent approach to addressing potential spills across the country.

We were impressed by the professionalism and competency of the Canadian Response Organizations. Even in the absence of major spills, they have continued to build their expertise, readiness and linkages with other organizations.



We were struck by the world-class capability of the National Aerial Surveillance Program. This program provides a deterrent to unlawful discharges of pollutants in Canadian waters, enables enforcement action against those vessels that do discharge pollutants, and is an important spill response capability. We support the Government continuing to invest in this capability, as announced on March 18, 2013.

We also noted the strong linkages that have been built between Canada and the U.S. There are joint plans between the Canadian and U.S. Coast Guards, as well as regular cross-border exercises.

Finally, we believe that the availability of an additional tier of compensation for oil spills, through the Canadian Ship-source Oil Pollution Fund, which supplements international compensation, where applicable, makes the Canadian compensation regime more robust than those of most other countries.

Setting the Course for the Future

While these aspects of the Canadian regime are strong, we observed some areas of improvement that, if addressed, would ensure Canada is prepared for future opportunities and challenges.



First, we believe that Canada's preparedness and response to spills should be based on risks, identified and mitigated at a regional level. We do not feel that one-size-fits-all standards are appropriate for a country such as Canada, which encompasses a varied geography, industry, and environment. Ideally, planning and the level of preparedness held by Response Organizations should be based on risk. This would ensure that the proper governance and most appropriate equipment, personnel, training and procedures are in place to respond to the most probable spill scenarios in a given geographic location and that response strategies are selected to mitigate the worst potential impacts.

Second, we feel that potential polluters should be prepared, through their contracted Response Organizations, to respond to a worst-case discharge, whether it be the full cargo of a tanker or a complete release of bunker fuel on board a vessel. There should be plans that document the arrangements for cascading resources and mutual assistance agreements that would be used to supplement a Response Organization's own risk-based response capacity.

Third, evidence suggests that a critical factor in limiting the environmental and socio-economic impacts of spills is response time. A timely response to a spill site is key in mitigating the effects of spills. In our view, the current response time planning standards will not ensure the best possible outcomes in some spill scenarios. We look to a risk-based preparedness model to ensure that plans reflect the need to deploy countermeasures as quickly as possible.

Fourth, we feel that response planning should not be focused solely on mechanical recovery capacity,¹⁷ as has become the common practice under the current regulatory structure. Response planning should be focused on whatever

strategies, including a wider range of spill countermeasures, such as physical containment, in-situ burning,¹⁸ and dispersants, are identified for a geographic area that will most effectively limit the environmental and socio-economic impacts of a spill. Evidence suggests that mechanical recovery rates, in optimal conditions, are usually only between 5% and 15% of the oil spilled. Preparing for a spill when the main response objective is mechanical recovery, we believe, can be counterproductive and possibly limit the overall success of a given spill response.

Finally, we do not believe that Canadian taxpayers should bear any liability for spills in Canada. While the Ship-source Oil Pollution Fund offers additional compensation for spills, the Fund currently carries a limit to its liability for a single spill. We believe the oil cargo industry should be responsible for the full costs of spills, and as such the Ship-source Oil Pollution Fund should have no limit per incident.

Based on our consultations, research, consideration of written submissions, and discussions on these important matters, we offer recommendations on the following pages that address these key observations, along with a number of other suggestions. We believe these recommendations are achievable and affordable, and will set the course for an improved Ship-source Oil spill Preparedness and Response Regime.

Our recommendations are organized into five themes:

- Preparedness and Response
- Strengthening the Polluter Pays Principle
- Leadership and Stewardship
- Communication and Engagement
- Continuous Improvement

¹⁷ Mechanical recovery refers to the use of equipment and resources such as skimmers, spill response vessels and sorbents to pick up, transport store and dispose of oil.

¹⁸ In-situ burning is the process of burning oil slicks at sea, at or close to the site of a spill. "Alternative techniques," ITOPF Website, <http://www.itopf.com/spill-response/clean-up-and-response/alternative-techniques/>

3. RISK ASSESSMENT FOR MARINE SPILLS IN CANADIAN WATERS

In May 2013, Transport Canada commissioned a Canada-wide risk assessment¹⁹ to examine the probability and the potential impacts of ship-source spills. The risk assessment was conducted by GENIVAR, a leading professional services firm, which subcontracted SL Ross, a consulting firm specializing in the behaviour of oil and chemical spills, for portions of the work. The objective of this strategic-level assessment was to not only determine the national risks associated with ship-source spills, but to create a way of comparing the risks between regions of Canada. Like our review, the risk assessment was divided into two phases.

For the first phase, GENIVAR divided the Canadian coastline south of 60° north latitude into 29 sub-sectors, and calculated the probability and the potential impacts of ship-source oil spills for each sub-sector. Twelve separate calculations were performed for each sub-sector to estimate the probability for a spill of crude oil, refined product and bunker occurring in four potential ranges of volume: 10 to 100, 100 to 999, 1,000 to 9,999 and greater than 10,000 tonnes.

The general risk calculation was based on the following equation:

$$\text{Probability} \times \text{Potential Impacts} = \text{Environmental Risk Index}$$

In this equation, the probability of spills occurring was combined with the potential impacts to produce an environmental risk index for each sub-sector. A comparative analysis of the current risks of ship-source oil spills across Canada was conducted using the values of the environmental risk index.

To estimate the probability of oil spills of various types and sizes occurring in Canadian waters, the last 10 years of worldwide casualty data was analyzed. We were interested to note that the contractor was forced to use international spill rates to calculate the probability of medium and large-scale spills. If only historical spill data from Canada had been used, the probability of a spill over 1,000 tonnes would have been zero as Canada has not experienced any spills over this volume in the last ten years. Similarly, there would also be zero probability for crude spills of any size as Canada has had no major crude spills in the timeframe examined. The following table illustrates the estimated spill probabilities using only Canadian historical spill data (see Table 1).

Table 1: Spill Frequency Estimates (return period,²⁰ years) — Canadian data only

Volume, m ³	10 to 100	100 to 1,000	1,000 to 10,000	>10,000
Crude	–	–	–	–
Refined Cargo	1.7	10.0	–	–
Bunker	0.5	1.7	–	–
Total	0.4	1.4	–	–

¹⁹ The Risk Assessment for Marine Spills in Canadian Waters is available at Transport Canada's website, <http://www.tc.gc.ca/eng/marinesafety/menu.htm>

²⁰ Return period is an estimate of the average number of years between spills. Where no value is present, it means the probability could not be estimated due to the lack of any historical spills (in the past 10 years) in this category. This indicates that the probability of a spill in this size range and category is very remote.



The Canadian data above supports our view that Canada's prevention regime and the changes made domestically and internationally following high-profile spills in the 1970s and 1980s (such as the Exxon Valdez) have made oil transportation in Canadian waters safer.

However, wherever bulk oil is moved in Canadian waters, there is always a small possibility that a major oil spill could occur. Assuming that the history of spills worldwide might approximate Canada's future spill probabilities, GENIVAR factored this global data against the volume of Canadian oil movements. Based on the resulting calculations, GENIVAR estimated that a crude oil spill over 10,000 tonnes could occur once every 242 years somewhere in Canada (see Table 2).²¹ The assessment also indicated that areas with the highest probability of a large spill occurring were the waters around the southern tip of Vancouver Island, the Cabot Strait, including southern Newfoundland and the eastern coast of Cape Breton Island, the Gulf of St. Lawrence and the St. Lawrence River.

As refined cargo and fuel oil are usually carried in smaller quantities than crude oil, the probability of a bunker or refined cargo spill over 10,000 tonnes is very low. In fact, no spill over this amount has

occurred anywhere in the world in the past ten years. GENIVAR did find that the probability of smaller spills, especially bunker spills, is relatively high. On average, Canada has had two bunker spills in the 10 to 100 tonne range each year since 2003 and one spill of refined cargo every two years during the same period.

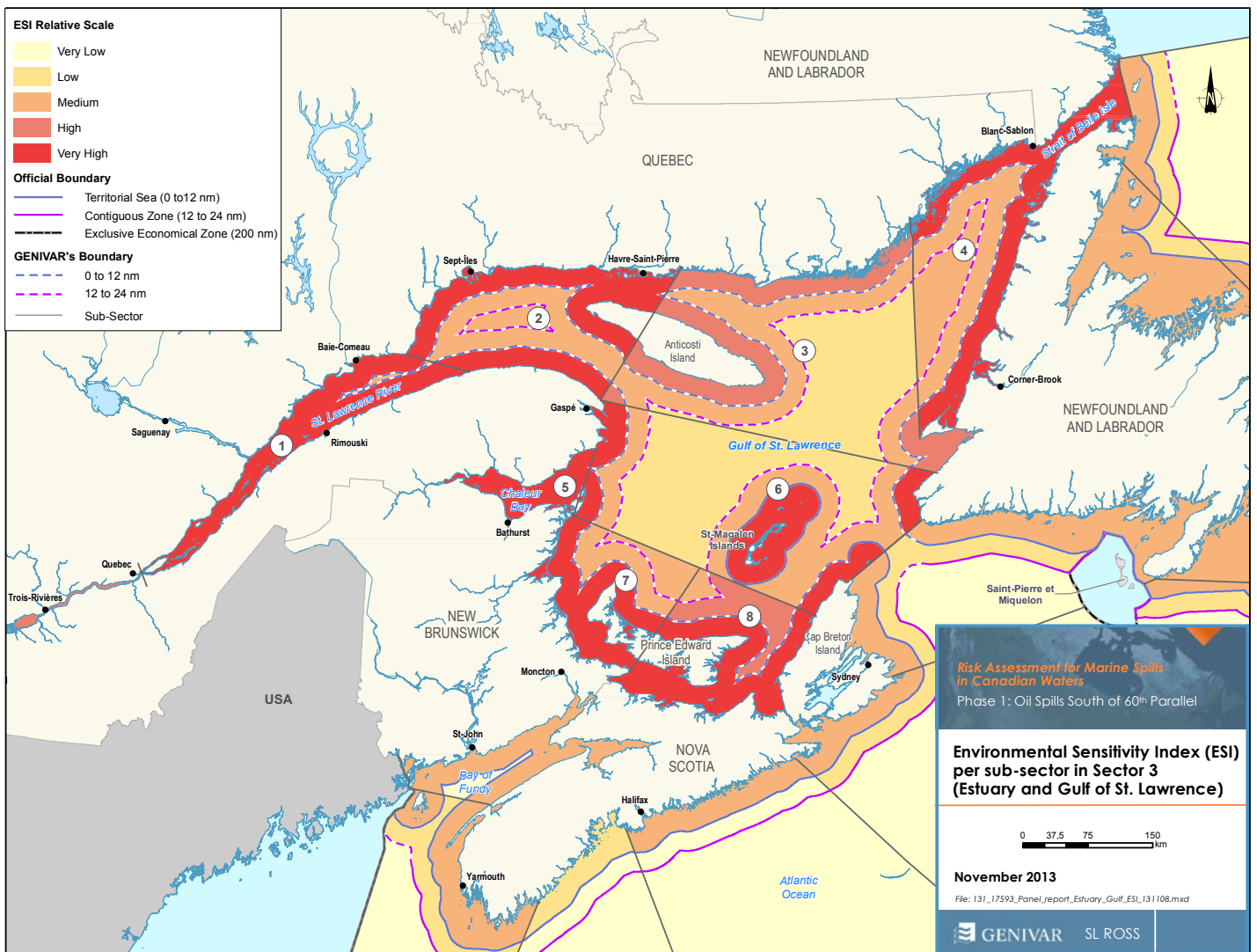
These spills have the potential to cause significant damage should they occur in a sensitive area. For this reason, probabilities alone could not be used to determine the risk to Canada's coastlines. Data on environmental (physical and biological) and socio-economic sensitivities was gathered to estimate the potential impacts of an oil spill for each sub-sector. Specifically, data describing shoreline characteristics, biological resources (including information on fish, marine mammals, protected areas, birds and reptiles) and human-uses (including tourism, marine commerce, water intakes and commercial fisheries) was analyzed. The analysis of this information revealed that the areas of highest potential impact were located in the Gulf of St. Lawrence and the southern coast of British Columbia, including Vancouver Island (for example, see Figure 2). Overall, a higher environmental sensitivity was observed in nearshore areas compared to intermediate and offshore areas.

Table 2: Spill Frequency Estimates (return period, years) — International and Canadian data

Volume, m ³	10 to 100	100 to 1,000	1,000 to 10,000	>10,000
Crude	46.4	69.2	51.6	242.3
Refined Cargo	1.7	10.0	42.2	-
Bunker	0.5	1.7	154.8	-
Total	0.4	1.4	20.2	242.3

²¹ This estimate of the frequency of crude oil spills is supported by the fact that there have only been two such spills over 10,000 tonnes world-wide in the past ten years, both from single-hulled vessels. These incidents are the Tasman Spirit in 2003, which spilled approximately 30,000 tonnes in Pakistan and the Hebei Spirit in 2007, which spilled approximately 10,500 tonnes in South Korea.

Figure 2: Excerpt — Environmental Sensitivity — Gulf of St. Lawrence

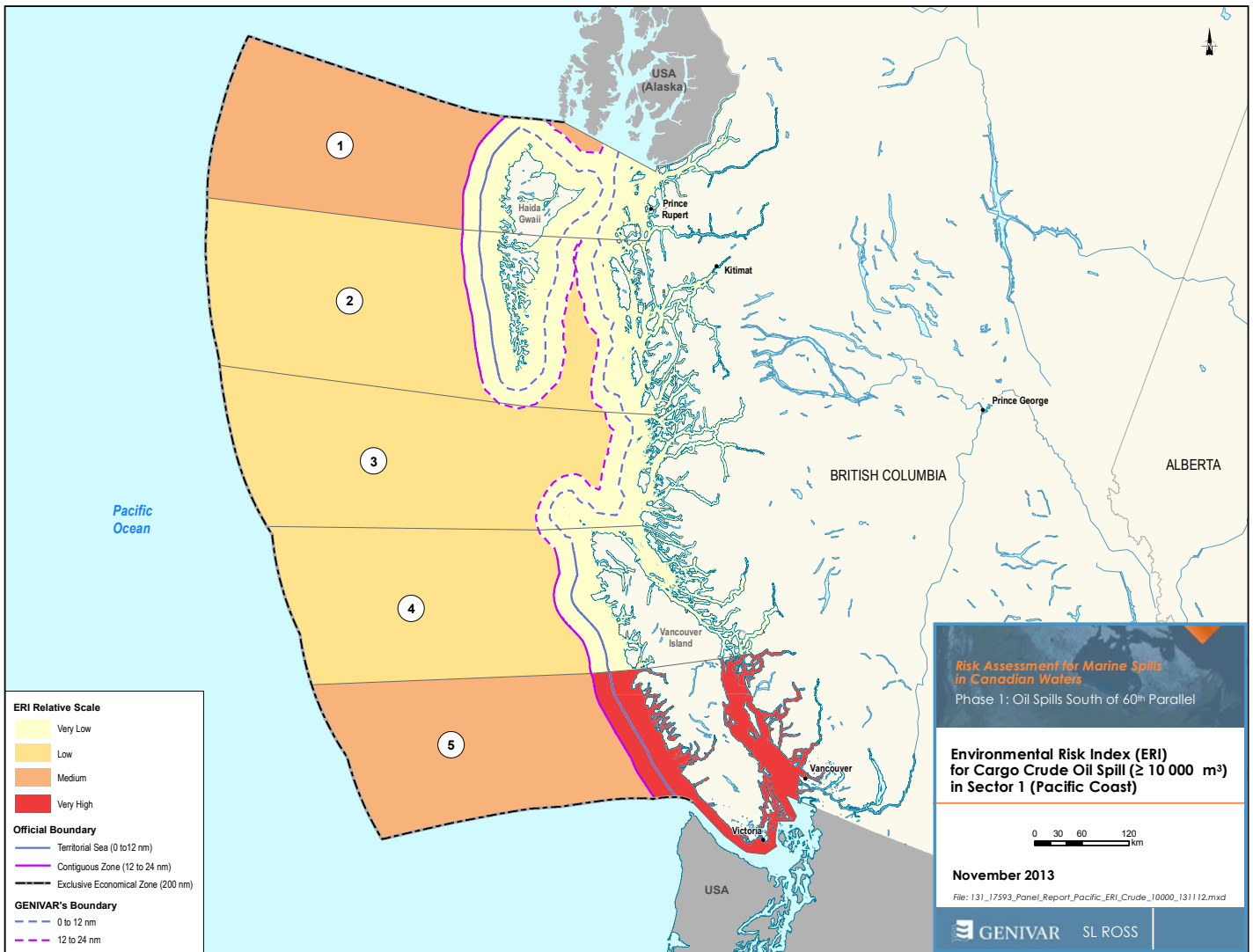


The Gulf of St. Lawrence is one of Canada’s most productive marine ecosystems and is home to large numbers of marine mammals and seabirds. Its high environmental sensitivity rating is a result of the large number of biological resources present as well as the importance of the marine environment to the local economy.

The combination of the probability and impact calculations produced the environmental risk index, which allowed GENIVAR to compare the risks for each sub-sector. The results indicated that the Gulf of St. Lawrence, the St. Lawrence River and the southern coast of British Columbia were the areas at the greatest risk from large oil spills (for example, see Figure 3). For the

rest of the country, the risk posed by spills over 10,000 tonnes was much lower. However, the study also identified that there was a higher risk of small and medium spills in every region of the country, especially those in the 100 to 999 tonne range. These smaller spills can also cause significant damage and are likely to happen much more frequently than the larger spills.

Figure 3: Excerpt — Overall Risk from Oil Spills — Pacific Sector



The sectors with the highest overall risk from oil spills were located in the Pacific and the Gulf of St. Lawrence. In the Pacific sector, sub-sector 5 was deemed very high risk due to the large volumes of vessel traffic and bulk oil movements that occur within close proximity to environmentally sensitive areas.

These results demonstrate the need for Canada to tailor its preparedness efforts for each region of the country, as the risks across the country are demonstrably different. For example, in the Strait of Juan de Fuca, Canada should be prepared for a spill of crude oil due to the volumes being moved and the environmental and socio-economic

sensitivities present. However, in the Great Lakes region, where very little crude is being moved, there is a higher risk associated with bunker spills.

The risk assessment results were the impetus behind our development of the risk-based Area Response Planning model, which is explained in the next chapter of our report.

4. PREPAREDNESS AND RESPONSE

During our review, we heard repeatedly that Canada's preparedness for oil spills could be improved. We agree.

Canada's preparedness is currently based on a rigid, national structure that fails to account for the different risks that exist along our expansive coastline, within the Great Lakes, and the St. Lawrence Seaway. These standards apply equally to all regions of the country, regardless of the volume of oil being moved or the presence of environmental and socio-economic sensitivities. This lack of flexibility is why we believe the current regime does not provide the best approach to mitigating the impacts of potential future oil spills.

We have carefully considered how best to ensure that Canada's preparedness and response Regime has the ability to adjust to changes in the future. In this chapter, we recommend a risk-based Area Response Planning model that is intended to bring a new level of flexibility and responsiveness to Canada's Regime.

We recognize that this new model represents a significant shift in Canada's approach, and we caution that the evolution towards risk-based Area Response Planning needs to be undertaken with due consideration to make it work for all Regime participants. We encourage the Government to start moving in this direction quickly, but we recognize that the full implementation of this model would take a few years.

We round out this chapter with a number of recommendations that enhance other aspects of Canada's preparedness and response to oil spills, such as better preparedness for large spills; as well as the use of alternative response techniques, improved oversight and enforcement, better exercises and enhanced immunity for responders.

Planning for Large Spills

Canada's current preparedness and response Regime requires all prescribed vessels and oil handling facilities to have an arrangement with a Response Organization certified by Transport Canada. In order to be certified, Response Organizations must develop a response plan that meets certain planning standards (e.g., response times, response capabilities, daily shoreline cleanup) including the 10,000 tonne planning standard.

These planning standards are a source of confusion and have left many Canadians uncertain about the ability of each Response Organization to respond to a ship-source oil spill greater than 10,000 tonnes. Since Transport Canada does not regulate the Response Organizations' capacity above 10,000 tonnes, there is no way to know if they are prepared to deal with larger spills.

Resident Capacity

Resident capacity refers to the resources that Response Organizations are required to maintain within their Area of Response.

These response resources are the sum of all elements, including the response governance, communications infrastructure, equipment, people, and logistical support required to limit environmental and socioeconomic impacts of spills.

We therefore recommend that the principle of preparing for and responding to a worst-case discharge, regardless of size, be clearly recognized as a key pillar in the Regime and formally incorporated into the legal and regulatory requirements for Response Organizations. We are not proposing that Response Organizations be required to maintain



the resident capacity needed to address a worst-case discharge. Instead, Transport Canada should require that all Response Organizations put in place the necessary arrangements for cascading resources and mutual assistance agreements to provide sufficient capacity to respond to a worst-case discharge for their Areas of Response.

RECOMMENDATION 1:

Transport Canada should require Response Organizations to have in place the arrangements for cascading resources and mutual assistance agreements necessary to address a worst-case discharge in their Areas of Response.

Worst-case Discharge

A worst-case discharge refers to the complete discharge of a tanker's oil cargo along with its bunker fuel, or for a non-tanker vessel, the complete release of its bunker fuel.

Area Response Planning

The probability that a worst-case discharge will occur in Canadian waters is remote. While it is prudent to have some level of preparedness for a spill of that magnitude, the primary focus of Response Organizations should be preparing for the types of spills that are likely to occur within their Area of Response. The challenge is how to determine what level of preparedness is appropriate for each Area of Response.

The current Regime has attempted to address this problem by imposing one-size fits all standards for all regions of the country, regardless of the particularities of each region. A modified approach is required to ensure Canada is prepared for the future. Canada needs a regime that can adapt to changes in vessel traffic and the establishment of new marine terminals. We also need a regime that takes into account the differences that exist between regions in Canada in regards to vessel traffic, oil movements, as well as environmental and socio-economic sensitivities.

Figure 4: Regional Breakdown for Oil Transported as Cargo in Canadian Waters
Approximate annual average over last ten years in million tonnes



Data Sources: Transport Canada and Nuka Research & Planning Group, LLC — West Coast Spill Response Study, 2013

Our proposed solution is for planning to be done at a regional level for defined Areas of Response. Our risk-based Area Response Planning model, if adopted, would allow each Area of Response to have its own tailored set of standards and requirements for Response Organizations. In the following pages we outline how this model could be implemented in Canada.

RECOMMENDATION 2:

The Government of Canada should implement a risk-based Area Response Planning model to prepare for ship-source oil spills.

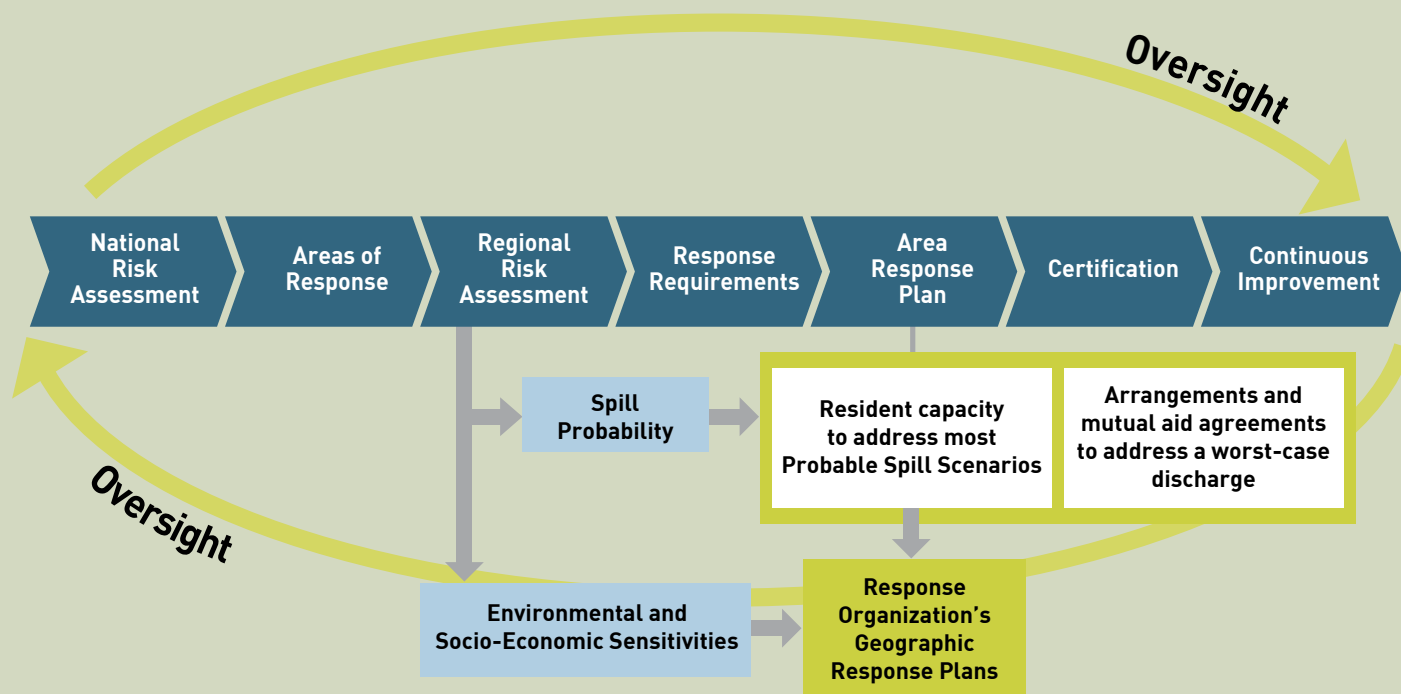
Moving from static national standards to a risk-based Area Response Planning model represents an important shift for the Canadian Regime. In the absence of any evaluation of potential changes needed to the structure and functions of Government departments, we have focussed on describing Area Response Planning through a series of detailed recommendations. We do not

see this new model as changing the traditional partnership between government and industry. Instead, it is our hope that the more rigorous planning process inherent in this model will strengthen the links between the public and private elements of the Regime and build public confidence in Canada’s ability to respond to an oil spill. The elements of the new model are illustrated in Figure 5.

The new model starts with a national risk assessment to provide a pan-Canadian perspective on the risks associated with ship-source spills, as well as a method of assessing the relative risks between regions.

This assessment should be used by the Government to inform future decisions about the Regime and could also be a valuable tool for measuring the potential risks associated with new projects that could increase ship-source traffic or the volume of oil movements.

Figure 5: Area Response Planning Model



The Government of Canada has already started this process by commissioning a pan-Canadian spills risk assessment in May 2013. We suggest that the results of the 2013-14 Risk Assessment for Marine Spills in Canadian Waters be reviewed and updated on a regular basis by Transport Canada, in collaboration with the Canadian Coast Guard and Environment Canada. The results of this assessment, as well as all future risk assessments, should be made public to increase awareness about the risks associated with oil spills.

RECOMMENDATION 3:

Transport Canada should regularly review and update the national Risk Assessment for Marine Spills in Canadian Waters and make these results public.

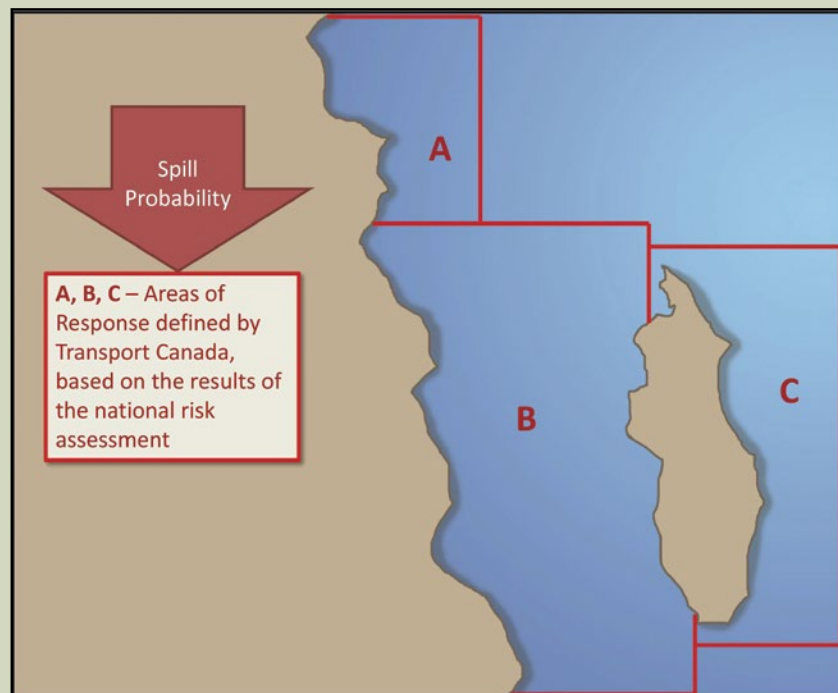
Based on the results of the 2013-14 Risk Assessment for Marine Spills in Canadian Waters, Transport Canada should create new Areas of Response.

These Areas of Response would replace the current Geographic Areas of Response which are set by Canada's four Response Organizations (see Figure 1). The new Areas of Response would become more than just the boundaries within which the Response Organizations operate. They would be the areas within which Transport Canada, the Canadian Coast Guard and Response Organizations develop specific standards and plans. We believe that creating new and strategically defined Areas of Response will facilitate better planning by requiring Response Organizations to develop multiple plans if they wish to provide services to large portions of the country.

RECOMMENDATION 4:

Transport Canada should designate new Areas of Response, based on the national Risk Assessment for Marine Spills in Canadian Waters.

Figure 6: Hypothetical example of Areas of Response



Once the Areas of Response have been established, Transport Canada should perform risk assessments for each one, incorporating information on navigational hazards, vessel movements and key sensitivities to determine the level of risk in each Area of Response. These regional risk assessments should establish the Probable Spill Scenarios that could be expected in each Area of Response along with the sites where the highest environmental and socio-economic impacts could occur in the event of a spill (Figure 7).

RECOMMENDATION 5:

Using a consistent methodology, Transport Canada should perform regional risk assessments for each Area of Response and make the results public.

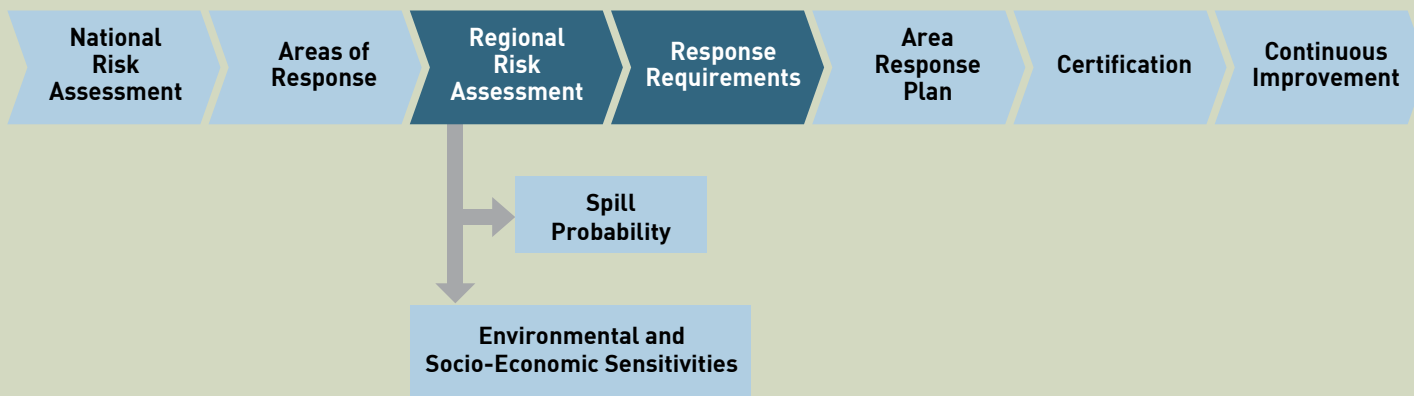
Probable Spill Scenarios

Probable Spill Scenarios are based on historical data and represent an estimate of the types and sizes of spills that are likely to occur within a given Area of Response.

The national Risk Assessment for Marine Spills in Canadian waters predicts that the vast majority of incidents in Canadian waters in the future would be smaller spills and that most would be below 10,000 tonnes. This is supported by the fact that worldwide there have only been two spills of crude oil over 10,000 tonnes in the last ten years and only one spill in the 30,000 tonne range.

When determining the response requirements for a given Area of Response, the Canadian Coast Guard and the Response Organizations should consider the Probable Spill Scenarios and their potential impact on sensitive areas. This approach would ensure that the Response Organizations' resident capacity (e.g., equipment, personnel and management systems) should be able to address at least 99% of spill scenarios in that Area of Response.

Figure 7: Regional risk assessment and response requirements within the Area Response Planning model



Integrated Planning and Certification

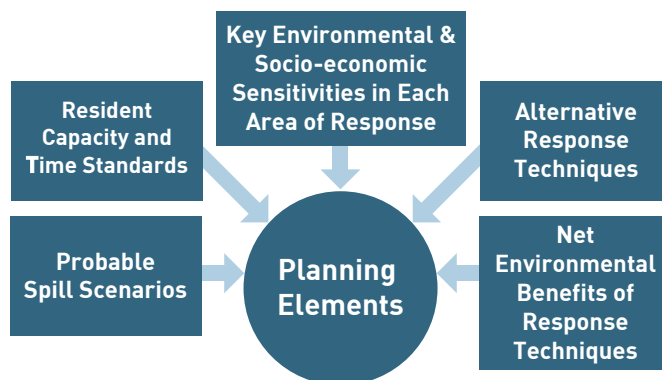
Under Canada's current Ship-source Oil Spill Preparedness and Response Regime, Transport Canada sets the guidelines and regulatory structure of the Regime while the Canadian Coast Guard's role is primarily operational, as they are responsible for ensuring adequate responses to ship-source pollution in Canadian waters. This distribution of roles between Transport Canada and the Canadian Coast Guard has led to many activities being performed in silos, which hinders the cohesiveness of the federal management of spill preparedness and response. Our solution is for both the Canadian Coast Guard and Transport Canada to be involved in the new model at every step of the process. This approach will allow both organizations to be intimately familiar with the plans and capabilities of each Response Organization.

To ensure that planning for each area of the country takes place in a similar manner, a standardized planning process is required to guide the development of the Area Response Plans for each Area of Response.

This standardized planning process should be developed by Transport Canada, in collaboration with the Canadian Coast Guard, Environment Canada and Response Organizations. We propose that Transport Canada should lead this activity because under its legislative mandate, the department would be responsible for making the necessary regulatory amendments to incorporate this process into the requirements for Response Organizations. The planning process should include standards for the following elements:

- Developing Probable Spill Scenarios for planning based on the results of the regional risk assessment;
- Translating those Probable Spill Scenarios into the required resident capacity and time standards;

- Prioritizing key environmental and socio-economic sensitivities in each Area of Response;
- Using alternative response techniques; and
- Analyzing the net environmental benefit of all response techniques.



RECOMMENDATION 6:

Transport Canada, in collaboration with the Canadian Coast Guard, Environment Canada and Response Organizations, should develop a standardized process for risk-based Area Response Planning.

During the response to a ship-source spill, the Canadian Coast Guard will act as either the Federal Monitoring Officer or On-scene Commander. In some cases, this will involve the Canadian Coast Guard working with a Response Organization to approve their response strategies and, in the future, their use of alternative response techniques.

However, the Government of Canada's oil spill planning function, including the certification process for Response Organizations, was transferred to Transport Canada from the Canadian Coast Guard in 2003. This transfer resulted in the Canadian Coast Guard losing its firsthand knowledge of the capabilities, capacities and response plans held by the Response Organizations. We see the Canadian

Coast Guard’s lack of direct involvement in the Response Organizations’ planning as a potential gap that could hinder the Canadian Coast Guard’s ability to function as the Federal Monitoring Officer or On-scene Commander for a spill where a Response Organization is involved. To remedy this problem, we recommend that, within the framework of regulations to be proposed by Transport Canada, the Canadian Coast Guard lead the planning process for each Area of Response.

RECOMMENDATION 7:

The Canadian Coast Guard should lead the Area Response Planning process for each Area of Response, in collaboration with Transport Canada, Environment Canada and the Response Organizations operating within it.

We envision this planning process as bringing together not only the Canadian Coast Guard and the Response Organizations, but also Transport Canada, Environment Canada, Fisheries and Oceans Canada, and other stakeholders who are involved in oil spill preparedness and

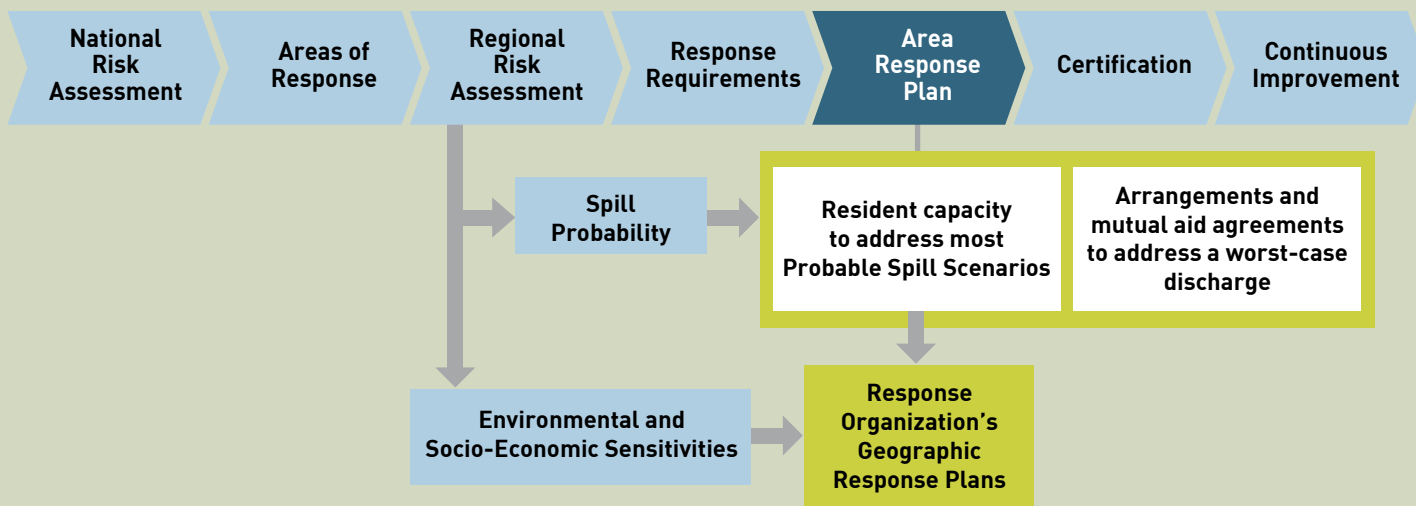
response. While the Government of Canada does not have the power to compel other stakeholders to participate in the planning process, at a minimum, they need to be invited to the table for these important discussions. The outcome of this planning process would be Area Response Plans for all Areas of Response, which would be developed and maintained by the Response Organizations (Figure 8). Response Organizations should be required to make the Area Response Plans public and should put in place a mechanism to receive public input on the plans. We view this transparency as an important opportunity to engage the public and other local stakeholders in the planning process and in the continual improvement of the Regime.

The Canadian Coast Guard could also use this planning process to develop its contingency plans.

RECOMMENDATION 8:

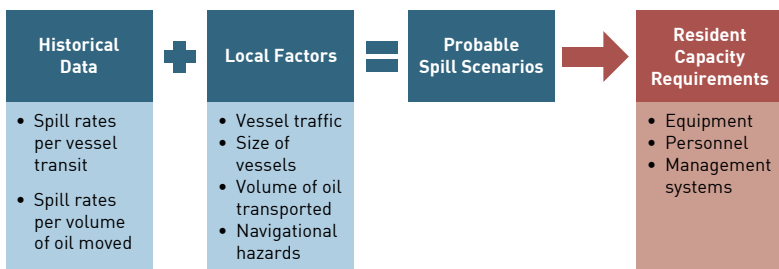
The Canadian Coast Guard should invite other stakeholders who are involved in oil spill preparedness and response to participate during the planning process. The Area Response Plans should be made publicly available.

Figure 8: Area Response Plan and Geographic Response Plans



As discussed earlier, we also believe that the requirements for the Response Organizations' new Area Response Plans must change. First, Response Organizations must clearly demonstrate in their plans how they would respond to the full range of spill scenarios that could occur in their Area of Response, including a worst-case discharge (i.e., the complete release of the full oil cargo and/or bunker carried on a vessel). Since the probability of a spill of this magnitude happening in Canada is extremely low, the Response Organization's ability to respond to a worst-case discharge should be based upon arrangements for cascading resources and mutual assistance agreements either with other Canadian Response Organizations or international partners.

Probable Spill Scenarios and Resident Capacity Requirements



The resident capacity that the Response Organizations would be required to maintain within their Area of Response should be based on Probable Spill Scenarios. These scenarios would be developed as part of the regional risk assessment process and should represent all of the Probable Spill Scenarios that could occur within the Area of Response. Under this model, Response Organizations could offer their services in several Areas of Response, as long as they have separate plans. The Response Organization

would also have to maintain sufficient resident capacity within each Area of Response to fulfill the requirements of their plans.

RECOMMENDATION 9:

The Canadian Coast Guard should ensure the Area Response Plans identify the resident capacity (e.g., equipment, personnel, management systems) required to address all Probable Spill Scenarios in the Area of Response. The plans should also include all of the Response Organizations' arrangements for cascading resources and mutual assistance agreements required to address a worst-case discharge.

The placement of the Response Organization's resources should be influenced by the environmental and socio-economic sensitivities present within the Area of Response. Geographic Response Plans, more local and detailed than the overarching Area Response Plans, should be created to protect these sensitivities (Figure 9).

Area Response Planning and Geographic Response Planning

Area Response Planning is a model where the probability and potential impacts of oil spills are used to determine the response capacity required in each Area of Response. This framework incorporates all aspects of the planning process, from a national risk assessment all the way to the certification of the Response Organizations.

We have chosen the term 'Area Response Planning' to differentiate our approach from a more detailed planning concept called 'Geographic Response Planning', which is already in use elsewhere. Geographic Response Planning is much more local and tactical, as the plans that are developed are site-specific in order to minimize environmental and socio-economic impacts. In our Area Response Planning model, Area Response Plans would be developed first from which more detailed local Geographic Response Plans would be articulated.

While Transport Canada and the Canadian Coast Guard should provide stewardship over the creation of these plans, they should be developed and maintained by the Response Organizations.

The Geographic Response Plans developed by Response Organizations should also include time standards that apply to the specific sites included in the plans. In the event of a spill, a timely response is critical to minimizing the environmental and socio-economic impacts. There was general agreement among the stakeholders we consulted that the current uniform time standards for Response Organizations do not reflect this principle and are not an appropriate planning standard. Instead, time standards should be tailored to each Area of Response and outlined in the Response Organization's Geographic Response Plans.

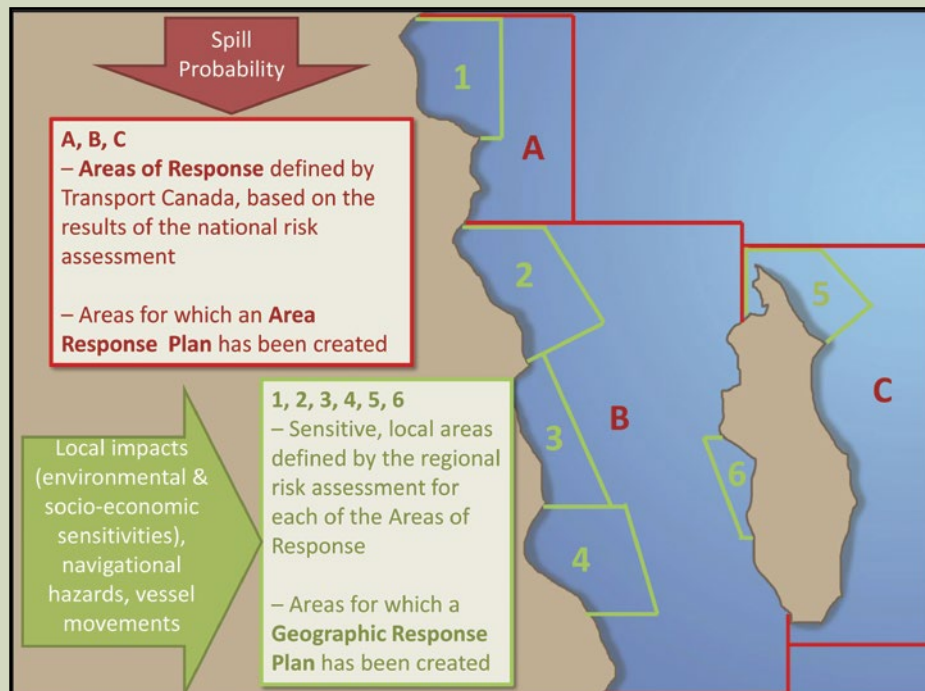
RECOMMENDATION 10:

Transport Canada should require Response Organizations to develop detailed Geographic Response Plans to minimize potential spill impacts to key environmental and socio-economic sensitivities. These Geographic Response Plans should include specific time standards and identify the response resources that would be maintained locally.

Observation on Planning for Spill Response from Offshore Oil and Gas Platforms

Through our consultations and reading of the written submissions, we heard various suggestions for merging the preparedness and response regimes for ship-source and offshore oil and gas platform spills. While such a recommendation is outside our mandate, we do note that the risk-based Area Response Planning model we have proposed could, theoretically, be extended to help plan for and integrate response to offshore platform spills.

Figure 9: Hypothetical Example of Areas of Response and Local Areas with a Geographic Response Plan



Both the Area Response Plans and their associated Geographic Response Plans should be submitted to Transport Canada, which would use these plans to certify the Response Organization (Figure 10).

Mechanical recovery is an important element of oil spill response, but it should not be the only option. Indeed, in some sea conditions, mechanical recovery is not even a viable option. We believe alternative response techniques should be available and used if there is a net environmental benefit. These techniques, such as in-situ burning and dispersants, should also be factored into the certification of Response Organizations so that their regulated resident capacity takes into account all of the tools at their disposal.

RECOMMENDATION 11:

Transport Canada should certify Response Organizations based on their Area Response Plans and Geographic Response Plans, which may include the use of alternative response techniques.

Oversight and Enforcement

Stronger oversight is also needed for the training activities, exercises, and post-incident reviews conducted by Response Organizations. Transport Canada does not currently possess the necessary enforcement tools should it find that a Response Organization cannot fully implement its plans to ensure compliance with the planning standards. While the department can remove the Response Organization’s certification or prosecute for non-compliance, these options are not always ideal. The Government needs more flexible enforcement tools to ensure the country is adequately prepared for spills. This could include new powers, such as the ability to levy administrative monetary penalties against Response Organizations or issue conditional certifications.

RECOMMENDATION 12:

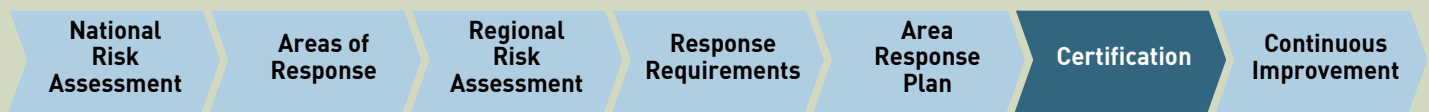
Transport Canada should be granted additional enforcement and oversight tools to ensure that Response Organizations meet the requirements outlined in their Area Response Plans.

Observation on the Need for Partnerships to Address Ship-source Oil Spills in Unsheltered Waters

Through our consultations and the written submissions we received, we heard that the capacity of the Response Organizations to respond to ship-source oil spills is limited in certain situations. It is not clear if the Response Organizations have timely access to ocean-going response vessels that would be required while addressing incidents in some unsheltered locations. We will consider this issue in the context of the second phase of our review.



Figure 10: Certification of Response Organizations



Better Planning for the Full Response Effort

In our view, there are two areas of preparedness where the current planning is particularly lacking: waste management and oiled wildlife. The responsibility for oily waste and oiled wildlife is clearly the polluter's; however we feel there is inadequate planning for these facets of spill response and that this lack of planning could hinder the response to oil spills.

There is no established strategy within the Regime to ensure adequate preparedness for waste management and the disposal of oily waste, which can seriously limit response efforts if not managed effectively. Currently, the Response Organizations are only responsible for oily waste until they have collected it and brought it to shore. At that time, it becomes the responsibility of the polluter to make arrangements for its disposal, in consultation with the province or territory involved. If oily wastes are not disposed of in a timely manner, they can tie up Response Organizations' storage capacity, possibly preventing further oil recovery. Consultations with the provinces and territories are needed to develop a national strategy for the disposal of oily waste and incorporate the results of this strategy into the Area Response Planning process.

RECOMMENDATION 13:

The Government of Canada, in consultation with the provinces and territories, should develop a strategy for the timely disposal of oily waste, and incorporate the results of this strategy into the Area Response Planning model.

Similarly, while various Response Organizations and private entities have made preparations for responding to oiled wildlife, the current Regime lacks a cohesive framework for defining aid to wildlife strategies for a response.

The only requirements that currently exist for Response Organizations are related to scaring away wildlife in an attempt to prevent them from becoming oiled. However, there are no strategies related to cleaning and rehabilitating animals that do become oiled. The Government should work collaboratively with the provinces and territories, as necessary, to determine a national strategy for aid to wildlife and incorporate the results of this strategy into the Area Response Planning process.

RECOMMENDATION 14:

Environment Canada and Fisheries and Oceans Canada should develop and implement a strategy to provide aid to wildlife and incorporate the results of this strategy into the Area Response Planning model.

Exercises

Currently, there is no comprehensive national framework in place for training and exercises for ship-source oil spill preparedness and response in Canada that involves all key stakeholders. As a result, various government departments and stakeholders carry out their own programs, often independently from each other. While Response Organizations conduct exercises for various sizes of spills, these are not prioritized based on defined risk scenarios



Photo credit: Fisheries and Oceans Canada

or learning objectives, and are not set up to fully test all capabilities. Exercises help to attain the coordination required for effective responses in real situations. Ideally, exercises should include not only federal departments, Response Organizations, shipowners, oil handling facilities, but also provincial and municipal governments, communities, and support organizations, such as wildlife organizations. While exercise planners with the Response Organizations and the Canadian Coast Guard cannot force these stakeholders to participate, the planning process should encourage willing parties to participate.

A more robust exercise program is needed, with exercise priorities linked to the results of the risk assessment and the related response planning process, and should form part of the overall certification process.

RECOMMENDATION 15:

The Area Response Planning model should include requirements for a multi-jurisdictional exercise program for each Area of Response. Regular exercises should be conducted in each Area of Response to test specific components of the Area Response Plans.

Resourcing Risk Assessment, Planning, Preparedness Capacity and Oversight

The recommended changes for the Regime are extensive and if accepted, would take a few years to implement. As a result, we feel that these changes should take place over a three year period. As well, there will likely be additional costs as Canada's Response Organizations train new personnel, re-position equipment or invest in new capabilities to implement the results of

this new planning process. The Government of Canada should work with industry to determine the level of investment required to meet new requirements and the best mechanism for potential polluters to fund these costs.

RECOMMENDATION 16:

Transport Canada should collaborate with Response Organizations and other industry partners to determine the new costs associated with implementing the Area Response Planning model. All parties should then work together to develop a fee structure that will fund this new model.

As mentioned above, regular risk assessments need to be one of the foundations of Canada's Regime. The Government needs to know if it is prioritizing its collective efforts and resources based on where risks are the greatest.

As Transport Canada would lead these risk assessments, a core unit within the department would be required to lead, manage and evaluate the national and regional risk assessments. This unit could also advise or feed into the building of risk-based scenarios for use in the Area Response Plans within each Area of Response.

RECOMMENDATION 17:

The Government should ensure that Transport Canada has the appropriate resources and competencies to deliver risk assessments and risk advice in support of oil spill planning and preparedness.

Inspections are one of the most important tools for promoting and verifying compliance with the Regime. During the course of our consultations, we noted widespread concern over the fact that Transport Canada's regional offices have not had the inspection capacity to adequately oversee the oil handling facilities that fall within the Regime. The growth of oil handling facilities has outstripped Transport Canada's capacity to bring adequate oversight to some of these regulated entities. While Transport Canada has committed to inspecting oil tankers annually, we believe added attention should be given to oversight of oil handling facilities. This would provide added assurance that mitigation and preparedness measures are in place.

RECOMMENDATION 18:

The Government should proceed with its recently announced plans to increase the effectiveness of the legislative and regulatory framework governing oil handling facilities, including a more stringent inspection and enforcement program.

The role envisioned for the Canadian Coast Guard in leading Area Response Planning is a departure from its current function in the Regime. The implementation of the Area Response Planning model will require new planning functions and resources for the Canadian Coast Guard.

RECOMMENDATION 19:

The Government should properly resource the Canadian Coast Guard to lead planning in the Area Response Planning process.

Alternative Response Techniques

The overall objective of oil spill response is to implement strategies aimed at reducing or eliminating adverse effects to environmentally and economically sensitive resources. In the event of an oil spill, responders must assess the characteristics of both the product spilled and the environment in which the incident has occurred and decide on the technique that would best minimize environmental, social and economic consequences. Mechanical recovery has been the predominant spill response technique used in Canada. However, this technique is effective only under relatively calm conditions. Alternative response techniques exist, such as spill treating agents²² and in-situ burning, which, if employed and approved for the right conditions, can prove more effective at limiting environmental and socio-economic impacts.

In Canada, there are a number of federal and provincial laws that prohibit the release of pollutants or deposit of deleterious substances in water. As currently articulated, these laws and associated regulations impede the use of many alternative response techniques, as well as decanting,²³ even when there would be a net environmental benefit to their employment in a spill situation. While Environment Canada has approved the effectiveness of certain spill treating agents for potential use in a spill, Canada has not yet implemented the necessary legal framework to allow for their use where they will result in a net environmental benefit.

RECOMMENDATION 20:

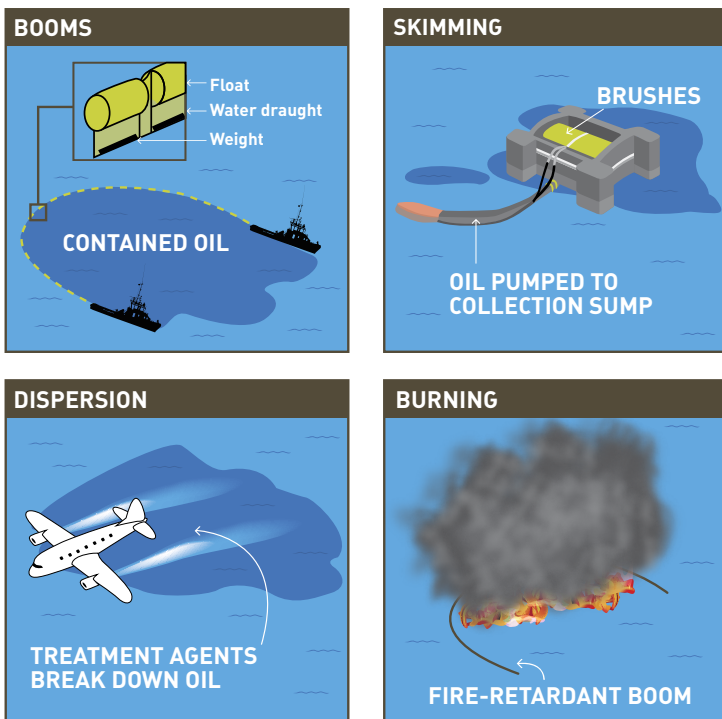
The Government should remove the legislative impediments for the use of alternative response techniques.

²² Examples of spill treating agents include: solidifiers and gelling agents, demulsifiers, elasticity modifiers, herders, biodegradation agents, dispersants, and shore-line cleaning agents.

²³ Decanting is the process of draining off recovered water from portable tanks, internal tanks, collection wells or other storage containers to increase the available storage capacity for recovered oil. "Decanting," Alaska Department of Environmental Conservation Website, https://dec.alaska.gov/spar/perp/permits/pdf/ADEC_Decanting.pdf

While alternative response techniques can prove very effective to respond to oil spills under the right conditions, they cannot be used at all times or in all environments. In order to determine whether alternative response techniques should be used to respond to a spill, a Net Environmental Benefit Analysis is conducted. A Net Environmental Benefit Analysis is a comparison of the impact of a spill on the environment factoring in the response technique employed. If a particular response technique can mitigate the impacts of a spill better than other techniques or natural dispersion,²⁴ then it should become the approach used to address the spill.

Response Techniques



Adapted from a BBC News image.

Conducting this analysis takes time and requires a lot of information. Given the limitations on the window of opportunity in which these techniques may be used effectively, the potential use of alternative response techniques should be studied well in advance of a potential spill; and the circumstances and conditions in which a spill treating agent might be used in a particular region examined through the Area Response Planning process. This would enable the Government to provide provisional pre-approval for spill treating agents and other alternative response techniques in regions where they may provide a net environmental benefit. It would also allow government to explicitly define where such treating agents cannot be used given certain sensitivities.

In the event of an actual spill, consideration would only be given to the use of response techniques that were pre-approved for use through the Area Response Planning process. This would enable the Canadian Coast Guard in its role as Federal Monitoring Officer or On-scene Commander to take timely decisions on the use of alternative response techniques, such as spill treating agents.

RECOMMENDATION 21:

The Canadian Coast Guard should be the final authority to approve the use of spill treating agents and other alternative response techniques, and should be supported by a standardized process taking into account the net environmental benefit concept, as an element of the Area Response Planning process.

²⁴ Natural dispersion refers to the movement of spilled oil from the water surface down into the upper layers of the water column, caused by natural wave action. "Glossary of Terms" NOAA Office of Response and Restoration, <http://www.itopf.com/information-services/data-and-statistics/statistics/>

Immunity for Responders

We heard from several sources that Canadian Response Organizations and their U.S. oil spill response organization counterparts were reluctant to respond to certain types of spills in Canadian waters because they felt the current language in the *Canada Shipping Act, 2001* does not offer sufficient protection from liability in certain circumstances, in particular, under the following scenarios:

- A Canadian Response Organization responds to a spill in Canadian waters from an oil handling facility where a ship is present.
- In support to a Canadian Response Organization, a foreign oil spill response organization responds to a spill in Canadian waters from a ship or from an oil handling facility where a ship is present.
- A Canadian Response Organization responds to a spill in Canadian waters originating from an oil handling facility (without a ship present), another land-based facility, a pipeline, a railway car or other surface vehicle.
- A foreign oil spill response organization responds to a spill in Canadian waters originating from an oil handling facility (without a ship present), another land-based facility, a pipeline, a railway car or other surface vehicle.

In addition, we also understand that there are some concerns that the liability protections in the *Canada Shipping Act, 2001* may not extend to vessels of opportunity, such as fishing vessels.

The Government's proposed amendments to the *Canada Shipping Act, 2001*, presented in the *Safeguarding Canada's Seas and Skies Act* would, if adopted, address the concerns of stakeholders in the context of the first two scenarios, as well as for fishing vessels.

RECOMMENDATION 22:

The Government should proceed with its proposed amendments to S. 181 (2) of the *Canada Shipping Act, 2001*, through the *Safeguarding Canada's Seas and Skies Act*, which would extend liability protection to responders and their agents and mandataries, in the context of ship-source spills and spills at oil handling facilities when loading or unloading a ship.

However, in the context of the last two scenarios, where the spill does not originate from a ship, or when no ship is present at an oil handling facility, Response Organizations, the Canadian Coast Guard and any responders would be acting outside the ship-source Regime set out by the *Canada Shipping Act, 2001*. Therefore, they would not benefit from immunity, nor would they benefit from the Marine Liability Act's compensation regime. We have made an observation on this point in our chapter on Leadership and Stewardship.



5. STRENGTHENING THE POLLUTER PAYS PRINCIPLE

Canada's Regime firmly entrenches the principle that polluters are responsible for any pollution they may cause. This principle is supported by international conventions that set financial liability limits for shipowners (strict liability both for tankers carrying persistent oils and for non-tankers), but also maintain funds to help compensate parties that suffer oil pollution damage resulting from maritime incidents involving tankers carrying persistent oils once the shipowners' liabilities have been exceeded. Canada has established liability limits for spills involving non-persistent oils and has also established a separate tier of compensation with its Ship-source Oil Pollution Fund. This domestic fund provides additional compensation for spills of persistent oil from tankers, as well as compensation for bunker spills from non-tankers, for spills of non-persistent oils and for mystery spills.

Beyond ensuring that polluters pay for spill response, Canada's Regime also ensures that potential polluters are *prepared* for spills. This is accomplished through legislative provisions that require vessels and oil handling facilities to have arrangements with Response Organizations and by requiring those Response Organizations to have plans and capacity to address spills, should they occur. Like the costs associated with spill response, the costs of potential polluters' preparedness capacity are borne by the shipping and oil cargo industries. The Government, on the other hand, bears the costs of overseeing both the preparedness and the response to incidents, as well as providing sound scientific and environmental advice. In addition, the Government maintains its own preparedness capacity, in order to protect the environment from

ship-source spills that fall outside the regulated Regime, and to support or assume command of industry spills, if necessary. Government bears this responsibility in order to provide assurance that Canada's interests with respect to safe shipping and a clean environment are upheld; in essence, the Government provides this oversight as a public good.

This balance of responsibilities and funding is appropriate and should continue to underpin Canada's Regime. However, we have identified some improvements to the Ship-source Oil Pollution Fund that would ensure the current balance between private and public investment in the Regime is maintained.

Ship-source Oil Pollution Fund

The core function of the Ship-source Oil Pollution Fund is to provide compensation for claims for ship-source oil pollution. The Fund is governed by the *Marine Liability Act*, which identifies three classes of spills:

- Spills of persistent oils from tankers (i.e., those that fall within the Civil Liability Convention,²⁵ its Fund Convention,²⁶ as well as the Supplementary Fund Protocol²⁷);
- Bunker spills from non-tankers (i.e., those governed by the Bunkers Convention²⁸); and
- Ship-source oil pollution not governed by the international regimes, including spills of non-persistent oils and "mystery spills" where the polluter is not known.

²⁵ *International Convention on Civil Liability for Oil Pollution Damage, 1992*

²⁶ *International Convention on the Establishment of an International Fund for Compensation for Oil Pollution Damage, 1992*

²⁷ *Protocol of 2003 to the International Convention on the Establishment of an International Fund for Compensation for Oil Pollution Damage, 1992*

²⁸ *International Convention on Civil Liability for Bunker Oil Pollution Damage, 2001*

The Fund's reserve is currently approximately \$400 million. Between 1972 and 1976, a levy of 15 cents per tonne was collected from oil companies, power generating authorities, pulp and paper manufacturers, chemical plants and other industries that imported or exported oil in excess of 300 tonnes per year to or from Canada by ship.

The Ship-source Oil Pollution Fund is available to pay compensation for reasonable claims for oil pollution response costs or preventive measures taken to minimize damage caused by the discharge of oil from a ship, of any class, in Canadian waters. Any incident caused by an oil tanker carrying persistent oil as cargo would be covered under the international regime, and be eligible for compensation coverage up to a maximum of \$1.14 billion. In the case of a catastrophic spill that exceeds this available international compensation, the Canadian Ship-source Oil Pollution Fund could provide additional compensation, if needed. The Canadian Fund may also be used to compensate costs from spills from vessels other than tankers, including bunker spills from vessels for which there is no international compensation fund available, only the shipowner's insurance and the shipowner's own assets. However, despite the Ship-source

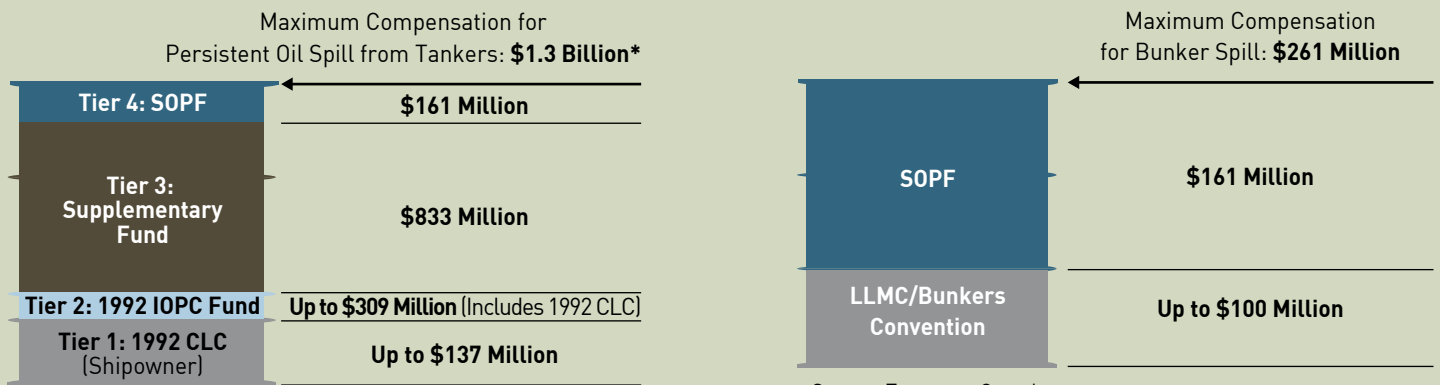
Oil Pollution Fund having a current reserve of approximately \$400 million, its total liability for claims for any one spill is approximately \$161 million.²⁹

Some of the stakeholders with whom we met, or who provided us written submissions, expressed concerns that costs associated with a major spill could exceed the maximum compensation available through the international funds and the Ship-source Oil Pollution Fund.

In keeping with the "polluter pays principle", the responsibility for all costs associated with oil spill response operations should rest with the polluter (i.e., the shipowner) and the oil cargo industry. The Fund should be used to pay for all reasonable costs associated with oil spill response operations, over and above the shipowner's limit of liability and the compensation provided by international conventions, where applicable. Thus, we are of the opinion that Canada's Ship-source Oil Pollution Fund should not have a liability ceiling.

²⁹ The liability limit of the Fund (i.e. the maximum payout for all claims from one spill) is set out in the *Marine Liability Act*, at \$100,000,000 for the year 1990. It is indexed annually to the Canadian Consumer Price Index. As of April 2013, the maximum liability of the Ship-source Oil Pollution Fund was \$161,293,660.00. "International Regime" Ship-source Oil Pollution Fund Website, <http://www.ssofund.gc.ca/english/internationalregime2.asp>

Figure 11: Liability and Compensation



*Total Available Compensation in Canada as of April 1, 2013
Source: Ship-Source Oil Pollution Fund website

Source: Transport Canada

In the event that admissible claims for a major spill exhaust the Fund's current reserve, a mechanism should be in place to allow the Fund to continue to process claims, while the Government reinstates levies with which to replenish the Ship-source Oil Pollution Fund. For this, we propose that the Fund be enabled to borrow additional funds from Canada's Consolidated Revenue Fund. The Ship-source Oil Pollution Fund would be liable to repay amounts borrowed, with appropriate interest payments, through reinstatement of levies on the movement of oil to, from or within Canada.

RECOMMENDATION 23:

The current limit of liability per incident within the Ship-source Oil Pollution Fund should be abolished. The Fund should process and pay for all admissible claims, subject to the Consolidated Revenue Fund's consent to loans in favour of the Ship-source Oil Pollution Fund for amounts sufficient to allow all admissible claims to be paid to claimants. The loans would be reimbursed with interest to the Consolidated Revenue Fund from future revenues of levies on oil transported by ship to, from and within Canada.

While Canada has not had a major spill in decades, international events have provided some lessons. In the event of a large-scale spill, decisions need to be taken and executed quickly, and even though these decisions are informed by well developed contingency plans, there may be instances where early access to funds by federal authorities could accelerate the response. The United States maintains an emergency fund

of \$50 million, which enables the Federal On-Scene Coordinator (United States Coast Guard) to determine what assets, services or actions are needed for immediate response to a spill, and to draw funds to support these measures in consultation with and with the approval of the domestic fund manager.

Canada does not have an emergency fund that can be drawn upon to further support immediate response operations. As part of the public-private foundation of Canada's Ship-source Oil Spill Preparedness and Response Regime, the responsibility of on-scene command is held by the responsible party. While it would be difficult to justify providing the polluter with access to an emergency fund, in the event of a major incident where the Canadian Coast Guard may be called upon to assume on-scene command, such as a mystery spill, or where the polluter is unable or unwilling to respond, access to an emergency fund would guarantee the Canadian Coast Guard with resources for reasonable expenses, early in the event to initiate and maintain the response. Providing this fund through the Ship-source Oil Pollution Fund would insulate taxpayers from these costs.

RECOMMENDATION 24:

The funding activities of the Ship-source Oil Pollution Fund should be broadened to allow the Fund to establish an emergency account to support oil spill operations undertaken by the Canadian Coast Guard when it assumes the role of On-scene Commander.

6. LEADERSHIP AND STEWARDSHIP

As we conducted our review, we noted that the federal departments and agencies involved lack a sense of ownership of the Regime. Indeed, the Regime is meant to be a partnership, both with industry, but also among key federal departments and agencies. However, in the event of a spill, Canadians expect to see a strong federal presence on the water, monitoring spill response and ensuring the job gets done and done well. The Regime will continue to require close coordination between Transport Canada, the Canadian Coast Guard, Environment Canada, and Fisheries and Oceans Canada. We make several recommendations to strengthen federal coordination within the Regime.

As the 'face' of the Regime and its federal on-water presence, the Canadian Coast Guard must continue to sustain its leadership within the Regime. We sense that, if implemented appropriately, the Incident Command System will give the Canadian Coast Guard and its federal partners the right tools to show true leadership in the event of a spill. The Canadian Coast Guard has been invested with spill response skills and capabilities, which need to be maintained to help mitigate the environmental and socio-economic impacts of spills, wherever they may occur in the marine environment.



Photo credit: Fisheries and Oceans Canada, P. Dionne

Further, we noted that many stakeholders held the impression that the Government's leadership role in providing scientific and environmental advice in the event of a spill has diminished recently. The provision of advice on environmental sensitivities, fate and effects of oils in water, and spill modelling is as integral to the response as is deploying countermeasures. We make several recommendations to strengthen the presence of Environment Canada and Fisheries and Oceans Canada within the Regime.

Federal Integration within the Regime

Canada's Regime for oil spill preparedness and response is a complex endeavour involving multiple authorities, programs and participants. This complexity creates some challenges.

One of the challenges, and one brought up on multiple occasions during the course of our consultations, is that Regime participants outside the federal government become confused about who is responsible for what and perceive that there is no clear federal leadership. This situation is exacerbated when one or more federal Regime participants retreat into a narrow interpretation of their respective mandates and abdicate leadership for areas of joint or unclear responsibility.

An additional challenge is that systemic weaknesses in the Regime are not detected and addressed and that opportunities for continuous improvement are missed. If federal authorities only know what is going on in their own domain, they will not immediately notice system-wide gaps and will be uninformed on how their own decisions and actions can impact the other areas of the system. A resource decision or a perceived innovation in one area may have unintended negative consequences in another.

The federal 'lead participants' in our Regime are Transport Canada, the Canadian Coast Guard and Environment Canada. Together, they need to take ownership of this Regime and ensure that any confusion in roles and responsibilities is dealt with, efforts and resources are prioritized jointly, weaknesses are detected and addressed, and opportunities for continuous improvement are seized. To this end, we recommend the establishment of a high-level coordinating body.

RECOMMENDATION 25:

The Government should create a senior-level Interdepartmental Committee to provide enhanced stewardship of the Regime. The Committee should be composed of the lead departments (i.e., Transport Canada, the Canadian Coast Guard and Environment Canada). Its Terms of Reference should include:

- **Ensuring individual departmental mandates are properly coordinated;**
 - **Ensuring that joint planning and prioritization efforts are occurring, including the development and maintenance of a comprehensive national contingency plan;**
 - **Ensuring efficient allocation of resources within each department, including: training, oversight and enforcement of regulation, capital investments, and research and development;**
 - **Ensuring regular coordinated interdepartmental exercises;**
 - **Ensuring succession planning and bringing attention to the need for appropriate distribution of skill sets related to oil spill preparedness and response within relevant organizations; and**
 - **Providing routine reporting and advice to their three Ministers on the functioning and continuous improvement of the Regime, including cyclical reviews of the Regime.**
-

Incident Command System and National Contingency Planning

Many stakeholders, particularly from industry, emphasized the importance of the Government of Canada's announcement in March 2013 of the Canadian Coast Guard's adoption of the Incident Command System. There are concerns that the Canadian Coast Guard's current incident management system, Response Management System, may not meet the command and control needs for a major spill. Further, it is not necessarily compatible with other Regime participants' incident management systems or with those of our international partners.

An Incident Command System is a standardized, on-scene emergency management concept. It is a way to organize people, equipment, operations, and communications activities to more effectively manage emergencies. It can also be a useful tool to increase inter-jurisdictional cooperation. When used by responders from different agencies and jurisdictions it allows everyone to use common concepts and terminology. Furthermore, it is scalable to any complexity or size of event. When an Incident Command System is led through a Unified Command, it allows different agencies and jurisdictions to work together towards common objectives, without affecting individual authorities and accountabilities. Many stakeholders, such as provincial governments, Response Organizations, major oil companies, as well as the United States Coast Guard, already use an Incident Command System to manage their operations related to spills and other emergencies. For these reasons, we support the Canadian Coast Guard's adoption of the Incident Command System model, and hope that it will proceed quickly to full implementation.

However, for the full benefits of the Incident Command System model to be realized, other federal authorities as well as the Response Organizations should also employ, be trained in,

and exercise using an Incident Command System and its concepts. In our view, the full articulation of how federal agencies will collaborate under the System, their roles, responsibilities and accountabilities in the response to a spill should be articulated through a joint National Contingency Plan. Additionally, Response Organizations' certification should assess their compatibility with the Incident Command System.

RECOMMENDATION 26:

The Incident Command System model should be incorporated into a joint National Contingency Plan, which clearly defines the roles and responsibilities of all federal participants in the response to a ship-source spill.

RECOMMENDATION 27:

Transport Canada, in its certification of Response Organizations, should ensure that Response Organizations use, train their personnel in, and exercise with an incident management system that is compatible with an Incident Command System.

RECOMMENDATION 28:

Building on the regional exercise programs, the Canadian Coast Guard should develop annual exercise objectives to systematically test various components of the National Contingency Plan and all management functions under the Incident Command System model. These objectives should expand outside current Canadian-U.S. exercises, with special focus on the Canadian Coast Guard's role as On-scene Commander.

We support the Government's decision to fund the Canadian Coast Guard to ensure proper training and exercises across the organization, as well as the procurement of an information technology system to implement an Incident Command System across the Canadian Coast Guard's regions and in headquarters. However, this shift will have impacts

on other federal departments. We encourage the Government to ensure the necessary investments are made in other departments to enable them to fully participate in the Incident Command System and use it to assert strong federal leadership in the event of a ship-source pollution incident.

RECOMMENDATION 29:

The Government should ensure that Transport Canada and Environment Canada have the appropriate resources to adopt and integrate the Incident Command System at the regional and headquarters levels of their organizations.

Federal Leadership in All Oil Spills in the Marine Environment

In our review, we noted a problematic gap at the intersection of federal and provincial jurisdictions in certain oil spill scenarios that fall outside the *Canada Shipping Act, 2001*.

In our view, there is an opportunity for the federal government to bring to bear, for the benefit of Canadians, its capacity and expertise in these spill situations, even if it does not have a clear mandate to do so.



Photo credit: Fisheries and Oceans Canada

For example, if there were an oil spill, originating from a provincially-regulated land-based facility (e.g. a tank farm) that leaked into the marine environment, the provincial government would have the main jurisdiction and, as such, would be responsible for providing oversight of the polluter's response and that of any hired responders. In such cases, the Canadian Coast Guard would not intervene until an official request from the provincial government is made, likely through the authorities of the *Emergency Management Act*.

Observation on Response Organizations and Marine Oil Spills Outside the Ship-source Regime

Non-ship-source spills are not within the mandate of this Panel. However, the response intervention by the certified response organizations and their agents and mandataries to land-originating oil spills that result in marine pollution and marine spills outside the *Canada Shipping Act, 2001* is desirable. The Response Organizations have the experience, personnel and equipment to help limit the impacts of such spills, when they occur. It is also a benefit to them in testing their readiness and an opportunity to integrate lessons learned into their planning.

Currently, there are concerns that the Response Organizations' activities outside the ship-source Regime could have negative implications on their preparedness and capacity to respond to a ship-source spill or a spill at an oil handling facility during loading or unloading operations, should such an incident happen concurrently with a non-ship-source marine spill.

The Response Organizations' primary responsibility is to the shipowners and oil handling facilities with which they have made arrangements under the *Canada Shipping Act, 2001*. To limit any potential impacts on the regulated ship-source regime, we suggest that:

- 1) the Response Organizations be required to demonstrate to Transport Canada their capacity to respond to multiple incidents concurrently; and
- 2) any contracts between the Response Organizations and third parties (i.e., parties outside the *Canada Shipping Act, 2001* regime) must include a clause giving the Response Organization the ability to withdraw from their response activities for a third party:
 - a) at any time such that their capacity to respond to a spill from a ship or an oil handling facility (occurring during loading or unloading operations) with which they have an arrangement under the *Canada Shipping Act, 2001*, is jeopardized; or
 - b) when an arrangement is activated by a shipowner or oil handling facility upon the occurrence of a spill covered under the *Canada Shipping Act, 2001*.

We would also expect the Response Organizations to proactively make appropriate contractual arrangements with third parties to exclude their liability and to provide for the payment of their services.

Our observations of recent land-originating spills indicate that spill response programs outside the federal ship-source Regime could benefit from additional support. It is clearly in the public interest for the Canadian Coast Guard to support the response to oil on water incidents, regardless of the source of the spill. If the Canadian Coast Guard is in the vicinity of a spill, and is available and able, it should act in the interest of Canadians and deploy efforts to assess, control or mitigate environmental and socio-economic impacts of such a spill, particularly when the polluter's response assets are not yet on scene. We do not believe this fundamentally expands the Canadian Coast Guard's mandate into the realm of "first response" on behalf of other jurisdictions. Rather, it is a broader interpretation of their mandate, as set out in the *Oceans Act*, for marine pollution response.

For this to occur, the Canadian Coast Guard would need prior assurance that it does not assume any liability and that it could seek due compensation from the other jurisdiction to cover any expenditures. These new parameters of response should be defined and authorized as soon as possible.

RECOMMENDATION 30:

The Government of Canada should clarify its policy on the authority of the Canadian Coast Guard to intervene or support the response to land-originating oil spills that result in marine pollution.

Leadership in Scientific Capabilities related to Spill Preparedness and Response

Environment Canada and Fisheries and Oceans Canada have a variety of scientific capabilities and authorities that can be used in responding to a ship-source oil spill. In particular, Section 42 of the *Oceans Act* enables Fisheries and Oceans Canada to conduct marine-related science activities in general, and the *Canadian Environmental Protection Act, 1999* enables Environment Canada to conduct environmental and scientific activities relating to pollution prevention and the protection of the environment and human health.

Scientific capabilities include detection of spills through aerial surveillance and satellite imagery (a collaborative program between Environment Canada and Transport Canada), to enable early detection and timely response. In addition, Environment Canada, with support from Fisheries and Oceans Canada, can provide scientific advice to the On-scene Commander or Federal Monitoring Officer to reduce impacts on the environment during and after a spill. This includes:

- spilled material fate and behaviour information, spill trajectory and dispersion modeling, spill clean-up priorities and countermeasures (including treating agents);
- meteorological, sea-state and ice forecasts and warnings;
- location and sensitivity of wildlife and ecosystems;
- scientific support teams with personnel trained in emergency response and utilizing specialized equipment (portable instruments and mobile laboratories);

Triggers — Environmental Emergencies Science Table

The environmental emergency or incident is significant in terms of impacts on the environment and/or complexity/severity;

The incident has an international or cross-jurisdictional component; or

The need to coordinate information impedes the lead agency at fulfilling its response monitoring role.

- performing post-emergency analyses and providing advice on ecosystem recovery objectives;
- Shoreline Cleanup and Assessment Technique; and
- expertise on marine mammals, such as whales and seals, and their sensitivity to oil spills.

Previously, Environment Canada, through their chairmanship of the Regional Environmental Emergencies Teams (also known as REETs), were not only used during a response to an incident, but also filled a leadership void and played a role in the preparedness of industry stakeholders and the relevant government agencies with respect to technical and scientific information required for oil spill incidents. The annual Regional Environmental Emergencies Teams preparedness meetings provided a platform for information exchange, identification and update of sensitive areas, addressing regional environmental issues, and agency coordination and networking.

Currently, for environmentally significant events, Environment Canada's National Environmental Emergencies Centre in Montreal chairs an Environmental Emergencies Science Table, which has replaced the former Regional Environmental Emergencies Teams that previously existed in each of the regions. Today, Environment Canada



can convene the Science Table when one or more triggers are met, and when requested by the lead agency. However, with the Science Table only being convened in response to an environmentally significant event, there has been a clear shift away from preparedness to a focus on response, with a reduction of resources previously held by the Regional Environmental Emergencies Teams across the country. In this new model, we feel there is a risk that the necessary scientific leadership and involvement is not available for preparedness activities related to scientific capabilities, including:

- disaster planning, including provision of planning guidance for government and private-sector facilities;
- creating new interdepartmental contacts locally with responders;
- building and maintaining linkages between industry and government;
- provision of training and education to industry, government and the public on shoreline clean-up;
- local, on-ground experts in the regions (regional experts have currently relocated to Montreal, and can currently provide regional expertise; however, knowledge could be lost with staff turnover); and
- participation in exercises by scientific and environmental advisors, and multijurisdictional participants to test contingency plans.

RECOMMENDATION 31:

Environment Canada should strengthen its commitment to providing leadership in scientific and environmental advice related to spill preparedness activities, through active and sustained participation in Area Response Planning at the regional level, and with Fisheries and Oceans Canada as a source of scientific advice.

Although there is a stronger focus on response with the Science Table, we are concerned that it does not provide the On-scene Commander with an immediate single point of contact on-scene, who would have the necessary local expertise to provide up-to-date and balanced environmental and scientific assessments of impacts, advice, and leadership. The new model needs to be further monitored to assess if it allows for the efficient and timely interpretation of the guidelines for the use of alternate response techniques, advice on end point issues, and access to Geographic Information System (GIS) data on environmental issues.

In addition, the triggers articulated by Environment Canada do not all allow for convening the Science Table for smaller incidents. In such cases, the On-scene Commander is not guaranteed immediate leadership from Environment Canada to integrate local efforts and knowledge to provide environmental and scientific expertise and advice, potentially jeopardizing the Net Environmental Benefit Analysis upon which spill response decisions are based. This leadership and integration of local expertise should be established as a part of Area Response Planning.

Finally, it is our view that the coordination and delivery of Environment Canada's scientific capability would be enhanced by their on-site presence when requested by the On-scene Commander, which would also have the benefit of fulfilling training needs for their personnel.

RECOMMENDATION 32:

The Canadian Coast Guard, in its role as either On-scene Commander or Federal Monitoring Officer, should have the authority to request and obtain a scientific and environmental advisor from Environment Canada, to be on-site during a response to provide local environmental and ecological advice, with scientific support from Fisheries and Oceans Canada.

Formalizing Environment Canada's Role in the Regime

While the scientific and environmental advice provided by Environment Canada to decision-makers in planning for and responding to oil spills is a core and critical part of Canada's preparedness and response to oil spills, it is not formalized in the Regime. Whereas the roles and responsibilities of Transport Canada and the Canadian Coast Guard are articulated in Part 8 of the *Canada Shipping Act, 2001*, the legislative basis for the Regime, there is no mention of Environment Canada. Given the importance of its role, we would like to strengthen Environment Canada's explicit role in the Regime.

RECOMMENDATION 33:

Environment Canada's role in the Regime should be formalized by including, in Part 8 of the *Canada Shipping Act, 2001*, its responsibility to provide scientific and environmental advice in the planning for and response to ship-source oil spills.



7. COMMUNICATION AND ENGAGEMENT

During our consultations, we noted the many challenges that industry and the Government are facing to obtain acceptance for major resource development and transportation projects. It is our view that some of these challenges can be mitigated through stronger engagement of Canadians on all aspects of this debate, including the risks and strategies associated with ship-source oil spills.

Some Canadians, due to the lack of information available to them, are skeptical of the nation's ability to prevent, prepare for, and respond to oil spills. In fact, events in other modes of oil exploration, production and transportation, such as the offshore drilling, pipeline and rail sectors, have sometimes clouded perceptions of the ship-source Regime. Many people do not understand the ship-source spill prevention, preparedness and response programs already in place, and therefore underestimate our nation's ability to address these risks. In addition, there has not been a national risk assessment for ship-source spills in a long time. As part of our review, Transport Canada commissioned a national risk assessment, which has provided us with a current picture of the areas of risk in Canada. This type of information, if shared with the public, will help build an objective understanding of the scope and scale of the ship-source spill risks that Canada faces.

In addition to introducing a new level of transparency to the Regime, there is a need to engage interested parties, including municipalities, local communities, and Aboriginal organizations, in the planning for spill events.

While spill planning and preparedness is a technical domain and usually one for subject matter experts, there is an opportunity for dialogue between planners and the people who live and work in coastal communities, particularly in cases where the latter can bring unique or in-depth local knowledge to the discussions. Our vision for Area Response Planning would help bridge that gap.

Public Outreach: Getting the Message Across

The growth of the energy sector and marine transportation in Canada has refocused public attention on the Government's ability to maintain the high level of marine pollution oversight and performance Canadians expect. Through our consultations with stakeholders across the country, it was clear that there is not a shared understanding of the regulated regimes in place to prevent, prepare for and respond to ship-source oil spills. In fact, we heard a general consensus that there is no coordinated and comprehensive explanation of the Regime available to the public and that this has led to many misconceptions about the various components of the Regime, their effectiveness, and the risk of ship-source oil spills in Canada. In contrast to the public view, many of the stakeholders we spoke with, both domestic and international, consider Canada's Ship-source Oil Spill Preparedness and Response Regime to be comprehensive and effective.

There is a lack of public knowledge about the Regime's fundamental principles and its overall structure, including roles and responsibilities. There is uneven awareness of how the 'polluter

pays principle' is integrated throughout the Regime, leading some to assume it is taxpayers, through federal funding of the Canadian Coast Guard, covering the cost and responsibility for clean-up operations. In fact, the availability of Canada's Ship-source Oil Pollution Fund means Canada provides more coverage than many other nations who are part of the international liability and compensation regime. Although our mandate did not include a review of the prevention regime for oil spills, our consultations revealed a similar lack of knowledge about the prevention measures in place. More information on these prevention measures is available in Appendix A.

It is in the public's and the Government's interests for there to be a clearer understanding of these important regimes to build and maintain public confidence in industry's and Government's ability to manage the safe transportation of oil as cargo or fuel. While the *Canada Shipping Act, 2001* provides for an external body to promote public awareness and understanding of issues and measures with respect to preparedness, it is our view that this is the responsibility of the Government and that it should not be delegated to an external body.

RECOMMENDATION 34:

With a view to fostering public confidence in the Regime, Transport Canada and the Canadian Coast Guard should conduct regular outreach to the public to communicate the level of risk that Canada faces. Transport Canada should also explain how the various components of the system function, including prevention, preparedness, response, and liability and compensation.

Furthermore, we support the recommendations made by the Standing Senate Committee on Energy, the Environment and Natural Resources in its report, *Moving Energy Safely: A Study of the Safe Transport of Hydrocarbons by Pipelines, Tankers and Railcars in Canada*, to enhance transparency in the Regime by making information on spills available to the public.

RECOMMENDATION 35:

The Government should make information on spills and their causes available to the public in a timely manner.

As mentioned earlier, there is not only a lack of awareness among the general public and among some industry players, but also many misperceptions about the fundamental components of the Regime. Outreach would be less challenging if Transport Canada could refer to a foundational document that outlines the essential elements of the Regime.

The general public, Aboriginal organizations, municipalities, provincial counterparts, international partners, and even Regime participants would benefit from a clearer articulation of Canada's preparedness and response Regime, as well as its compensation and liability arrangements, in one document. This document should identify and define the underlying principles of the preparedness and response Regime, such as the public-private partnership and the 'polluter pays principle'; describe its overall structure; and explain the roles of the key players.

RECOMMENDATION 36:

We recommend that the Government develop and publish a National Framework for Ship-source Oil Spills.



Regional Advisory Councils

Finally, we would like to comment on the Regional Advisory Councils. Under Part 8 of the *Canada Shipping Act, 2001* the Minister of Transport may establish an advisory council in any geographic area of the country to represent the communities and interests that may be impacted by an eventual oil spill. There are currently six Regional Advisory Councils across the country. They possess a public education function which, in our view, is more appropriately led by government itself. The Area Response Planning model requires the Response Organizations to solicit input from provincial, municipal and Aboriginal entities. It also requires the Response Organizations to provide the means for public comment on the plans. Recommendations 34, 35, and 36 require the Government of Canada to explain to the public how the Regime works, provide information on spills, and share the results of the response efforts.



Photo credit: Fisheries and Oceans Canada

The Regional Advisory Councils also have a second key function: to provide advice to the Minister of Transport on an adequate level of oil spill preparedness and response in each region. It is our sense that this approach is not optimal for providing expert advice on the adequacy of oil spill preparedness and response in each region. If implemented effectively, the Area Response Planning model, including its requirement for broader engagement, along with the strengthened federal coordination that will result from the Interdepartmental Committee, will provide the Government with necessary vehicles for input and engagement. Further, in our recommendation on the creation of a senior-level Interdepartmental Committee, we mandated the Committee to ensure cyclical reviews of specific elements of the Regime and to report back to Ministers.

RECOMMENDATION 37:

The Government should disband the Regional Advisory Councils.

8. CONTINUOUS IMPROVEMENT

A commitment to continuous improvement sets the world's best safety programs apart from the rest. A world class oil spill preparedness and response Regime should be informed by continuous assessment and feedback. This requires listening to stakeholders. We encouraged this type of engagement in our previous chapter.

Continuous improvement also necessitates a commitment on the part of federal partners to regularly review the programs that make up the Regime. We see an opportunity here for the proposed senior-level Interdepartmental Committee to play a strong stewardship role in ensuring Canada's Ship-source Oil Spill Preparedness and Response Regime continues to meet the needs of Canada. Strong stewards need to ensure that the critical aspects of the Regime are assessed for their performance and that the right expertise is brought to bear in helping detect and address systemic problems.

A commitment to support the continuous improvement of the Regime will provide the Government with the ability to assess the impact that broader economic and social changes may have on the Regime and whether adaptations to the Regime are required. Where there are major shifts in trends, risk assessments will provide government and industry alike, with the information necessary to make timely enhancements to the Regime. Through our review, we identified some concerns with the government's collection and management of the types of data that would feed directly into both assessments and decisions around preparedness and response. The Government and industry will require data on the movement of vessels and oil, spill trends, as well as information on the key environmental and socio-economic sensitivities to oil spills. We noted that while some of this information is currently being collected and analyzed by government, there are

many gaps that require attention, especially with regard to the consistency and sharing of data between federal departments. The Government should put in place better structures so that it can continuously assess the performance of the Regime and adjust it as needed to face the opportunities and challenges of the future.

Finally, we note that Canada's Ship-source Oil Spill Preparedness and Response Regime would be strengthened by the integration of state-of-the-art research and development. We note the current lack of coordination and advancement in this area and propose that there are opportunities here for further partnerships between industry and government.

Regular Reviews of the Regime

Through our review, we found that Canada's Ship-source Oil Spill Preparedness and Response Regime had remained relatively static over the past twenty years, even as some of the original assumptions around the level of marine traffic, oil transportation volumes, the types of products being transported, response tools and technologies, and risk tolerance had begun to shift. A regular review of the government programs that form Canada's prevention, preparedness and response to ship-source oil spills, including liability and compensation, is a central prerequisite to maintaining the effectiveness of Canada's Regime.

With our recommendation to establish a senior-level Interdepartmental Committee to provide stewardship for the Regime, we see an opportunity for government to continuously improve Canada's preparedness and response for ship-source oil spills. We envision the Interdepartmental Committee leading reviews, through the use of independent expertise. Reviews should evaluate the performance



of critical aspects of the Regime with a view to identifying any systemic problems. Reviews should also look to international lessons learned and benchmark Canadian programs against their equivalents in other countries.

The Interdepartmental Committee would identify specific areas of the Regime for review, so that over a cycle of a few years, all aspects of the Regime will have been examined and proposals for improvements will have been brought to the attention of the Government. The Area Response Planning model that we propose is a new process, with many changes to be managed. There will inevitably be challenges that will arise if it is implemented. To ensure that these challenges are properly addressed, the model would need to be reviewed after a few years to determine if improvements or modifications are required.

Similarly, we noted earlier our concerns with the capacity of the Government to provide scientific and environmental advice during spill incidents. The Government should review the effectiveness of the Environment Canada-led Science Table once it has been in operation for a couple of years. Other elements of the Regime will necessitate similar review, as determined by the Interdepartmental Committee.

RECOMMENDATION 38:

On a routine basis, the senior-level Interdepartmental Committee should appoint experts to conduct in-depth reviews of specific aspects of the Regime and report back to their respective Ministers.

Data Management

Effective decision-making requires that up-to-date and comprehensive information be available. This is true in both oil spill preparedness and response. For example, information on vessel

movement and historical spills is important when determining the probability, potential impacts, and overall risk of oil spills in Canadian waters. However, we have noted that reliable, up-to-date information, or data, is not always available to the parties involved in these decisions.

We heard that while information on vessel movements is collected by the Canadian Coast Guard, it is not available in a format that is easy to use by key departments to feed into risk assessments or statistical analyses. There is a need to improve the collection of data on the movement of vessels that fall within the Regime. This is an important metric in understanding whether trends necessitate new or updated risk assessments, as well as being a key input into risk assessments.

Similarly, we noted concerns with the systems that the government uses to track historical oil spill data. Ship-source spills in Canadian waters must be reported to the Canadian Coast Guard, for input into their Marine Pollution Incident Reporting System for recording and tracking marine pollution incidents and response actions. It is intended to capture data on incidents including, among other information, the size, location, date and outcome of the spill. The *2010 Fall Report of the Commissioner of the Environment and Sustainable Development* found that the Canadian Coast Guard's database did not clearly and consistently capture information pertaining to the level of effort employed by the Canadian Coast Guard in responding to spills. It also does not record the results of response efforts (e.g., the estimated amount of oil recovered), the environmental impacts resulting from the spills, or post-incident assessments. As a result, the database is unable to provide a complete picture of historical spills in Canadian waters, which is a key input to risk assessment activities, as well as a valuable source of information for the analysis of trends and the further refinement of spill response techniques.

It would be important to base future risk assessment, prevention and preparedness activities on more reliable and comprehensive information. It would be particularly important to obtain information on the causes of spills in order to create Area Response Plans that reflect local conditions and hazards.

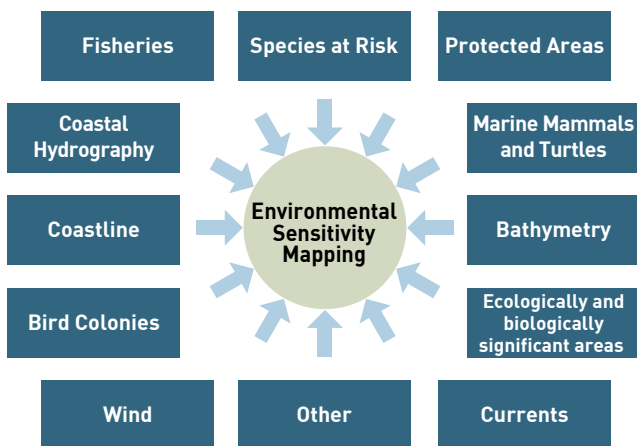
RECOMMENDATION 39:

The Canadian Coast Guard should work in close collaboration with Transport Canada to improve the information collected on ship-source spills and vessel movements in Canadian waters, and to put in place appropriate quality assurance measures to ensure the accuracy of the recorded data.

RECOMMENDATION 40:

The Canadian Coast Guard, jointly with Transport Canada, should analyze spill data on a regular basis to identify lessons learned and to improve the Regime.

Environmental sensitivity mapping is another example of information that feeds into decision making at both the preparedness and response phases. Environmental sensitivity maps identify locations where important biological and socio-economic resources exist. In Canada, the collection of data elements that feed into environmental sensitivity mapping is presently



being conducted by multiple organizations, including Environment Canada, Fisheries and Oceans Canada, provincial departments, the oil industry and Response Organizations.

Environment Canada maintains the National Environmental Emergencies Management System (also known as E2MS), which incorporates a number of geospatial datasets into one web application to support effective responses to environmental emergencies in Canada. The System has the potential to be a good source of information, however Environment Canada has indicated that many of the datasets are outdated and do not cover the entire country. As well, information sharing agreements that Environment Canada has with specific federal departments and non-governmental organizations do not allow the information to be shared with other federal departments, other levels of government or Response Organizations, for the purpose of emergency response.

Area Response Planning is contingent on a solid understanding of a geographical area's environmental sensitivities. Environment Canada, as the lead department for providing scientific advice in the preparedness for and response to a ship-source spill, should collect environmental sensitivity information for each Area of Response with the support of Fisheries and Oceans Canada. This information should be available to responders, other levels of government and the public.

RECOMMENDATION 41:

Environment Canada, in collaboration with Fisheries and Oceans Canada, should collect and collate environmental sensitivity information for each Area of Response and make this information publicly available.



National Inventory of Spill Response Resources

In an incident, the On-scene Commander must have access to accurate, timely and relevant information in order to have total awareness of the overall response operation and make operational and strategic decisions. In the case of a significant oil spill, one of the critical pieces of information needed is a complete inventory of all available oil spill response resources. Such an inventory would be integral within an Incident Command System, to facilitate the effective planning and coordination of logistics associated with the response.

Currently, the Canadian Coast Guard's Environmental Response Program uses a life-cycle management system to ensure a nationally consistent and effective state of preparedness. While Response Organizations post a list of all available equipment on their websites, this has not been incorporated into an overall national response resource inventory list. This lack of harmonized information could pose significant problems for the On-scene Commander in large-scale spills.

Furthermore, to effectively prepare for responding to an oil spill, it is necessary to ensure that the appropriate spill response resources are available. A national inventory would enable the Response Organizations and Canadian Coast Guard to determine what resources are currently held, and what additional resources could be prioritized.

RECOMMENDATION 42:

The Canadian Coast Guard should create and sustain a spill response resource inventory to include resources held by Response Organizations, oil handling facilities and offshore oil and gas platforms across Canada. The new system should include up-to-date response equipment data and be kept current to account for equipment movement or relocation.

Post-Incident Monitoring

When everything that can reasonably be done as part of the response is completed, the post-incident recovery period begins. This is the period during which the natural environment returns to its pre-spill state. Depending on a number of factors, recovery of the natural environment can be a long term process. This stage may be marked by periods of further degradation as unrecovered or undispersed oil gradually reaches shorelines, or oil can ultimately re-surface from the ocean floor. In each case, the variables will be different, from the timelines involved for recovery to the degree of intervention that can reasonably be made to aid the recovery process.

Our review has revealed that neither industry nor the Government appear to have a formalized process in place for monitoring the longer term environmental recovery. It is unclear who would be responsible, for how long, and with what type of resources. There is a role for government in conducting post-incident monitoring of recovery, with a view to learning more about the impacts of spills, as well as long-term impacts of the response techniques used to address spills.

RECOMMENDATION 43:

The Government should ensure that post-incident environmental monitoring is conducted to evaluate any potential long-term impacts of oil spills, and to ensure that oil spill preparedness and response continues to learn from past experiences to reduce the environmental and socio-economic consequences of spills.

Potentially Polluting Wrecks in Canadian Waters

There are estimated to be thousands of sunken vessels in Canada's marine environment. They lie forgotten by time, dormant until corrosion reawakens their potential threat to the marine

environment. Not all wrecks pose the same level of risk to the marine environment. Factors such as location, age, condition of the vessel and presence of pollutants on board contribute to the risk of marine pollution.

The Canadian Coast Guard plays a reactive role in dealing with wrecks by monitoring, removing pollutants and patching the sunken vessels. A clear understanding of the hazard posed by sunken vessels, including their location, their condition, the type and quantity of pollutants on board, could lead to a national strategy to proactively manage these risks.

RECOMMENDATION 44:

The Government should conduct a risk assessment of wrecks in Canadian waters to identify potential pollution sources and to inform future policy decisions.

Research and Development Coordination

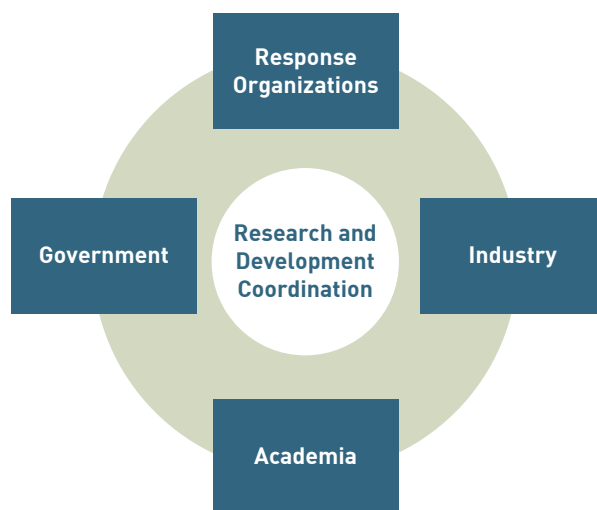
The science and technology around both the movement of oil and spill response has advanced significantly over the past several decades. We feel that while some aspects of the Regime have kept pace with these developments, in some areas, Canada has fallen behind world-leading countries like Norway and France. This can be attributed to a general lack of investment in research and development as well as the lack of coordination between industry and government over research priorities.

The Government of Canada should work closely with industry to establish a national research and development program for oil spill preparedness and response. The program should be co-funded by industry and the Government, and the research priorities should be set through a collaborative process that involves academia, where possible. Like the Regime itself, we view this program as a partnership between industry and government.

Observation on Scientific Research on Non-conventional Petroleum Products

We understand that Environment Canada and Fisheries and Oceans Canada are conducting scientific research on spills of non-conventional petroleum products. We look forward to considering their report(s) during our second phase of deliberations, as their analyses will most certainly inform a number of key research and development priorities.

We envision that this program would also seek to leverage the work being done internationally on oil spill preparedness and response. The program should seek to establish partnerships with other world-leading countries in order to stay current on international advances and new technologies.



RECOMMENDATION 45:

The Government of Canada should collaborate with industry to establish and together fund a Canadian research and development program for oil spill preparedness and response. Research priorities should be identified through collaboration between industry, government and academia.



9. CONCLUSION

The foundational principles of the Regime, such as the public-private delivery model and the adherence to the polluter pays principle, remain at the core of Canada's preparedness and response to ship-source oil spills. We have identified a number of recommendations that would strengthen Canada's ability to prepare for and respond to ship-source oil spills. We have made recommendations to further strengthen Canada's liability and compensation regime for ship-source oil spills. We have also made recommendations to enhance Canada's leadership and stewardship of the Regime, as well as to improve communication and engagement with Canadians on these important matters. Finally, we have made recommendations that would ensure Canada's Regime continues to improve and serve as a model worldwide.

In the coming months, we will turn our attention to the second phase of our review, as we examine the requirements for oil spill preparedness and response in Canadian waters north of the 60th parallel, as well as the challenges of addressing spills of hazardous and noxious substances in the marine environment.

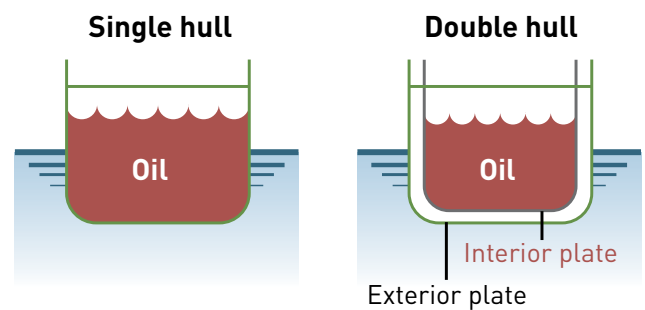
APPENDIX A — MARINE SAFETY AND SPILL PREVENTION

A wide range of marine safety measures are in place to ensure the safety of marine transportation in Canada. These measures are also the best protection against ship-source oil spills in Canada. The state of oil spill prevention in Canada is strong due to robust federal safety regulations and innovative industry practices. These prevention measures have helped to ensure that Canada has not experienced a major oil release since the establishment of the Ship-source Oil Spill Preparedness and Response Regime in 1995. Worldwide, despite increases in the number and size of oil tankers, the frequency of spills has declined, and when they have occurred, the volume of oil released has declined by 75%, on average over the last decade.³⁰

On every voyage to, from, or within Canada, a vessel, whether a container ship, crude tanker, or other, is subject to numerous safety requirements and regulations. Canada is a Party to several conventions negotiated under the auspices of the International Maritime Organization, such as the *International Convention for Prevention of Pollution from Ships* (also known as MARPOL) and the *International Convention for Safety of Life at Sea* (SOLAS), as well as its 1998 International Safety Management Code, which provides more rigorous standards than ever before for the safe management and operation of ships and for pollution prevention.

The Canadian government implements these world-wide safety standards, under regulations that govern the design, construction, and operation of vessels built in Canada or operating in Canadian waters. Oil tankers are subject to additional standards and scrutiny. As part of these global standards, Canada requires any oil

tanker operating in Canadian waters to be double hulled³¹ thereby minimizing the amount of oil that could be released in the event of a hull breach. Since the early 1990s, with the global phase-in of double hulls, the average number of spills greater than 700 tonnes from tankers worldwide has decreased from around 7.8 spills to 1.7 spills per year.³² Canada also regulates the certification of the crew manning these vessels to ensure they are properly trained and medically fit.



In addition to Canadian and international safety standards, the Oil Companies International Marine Forum requires that all tankers owned, operated or chartered by its members meet the requirements of several safety programs, including the Ship Inspection Report Programme,³³ the Enhanced Survey Programme, the Condition Assessment Program and the tanker management and self assessment practice rules for vessel operators. The compliance by shipowners with these programs and rules is verified through inspections called tanker vetting.

A variety of requirements also ensure the safe operation of vessels while at sea. The use of technology in marine activities has proved

³¹ This requirement applies to all tankers built since July 1, 1993.

³² "Oil Tanker Spill Statistics 2012," ITOPF Website, <http://www.itopf.com/news-and-events/documents/StatsPack.pdf>

³³ More than 180,000 inspection reports (following a uniform inspection protocol) have been submitted to this voluntary industry program.

³⁰ IHS Cera, "Assessing Marine Transport for Oil Sands on Canada's West Coast", p. 5.

vital in helping to reduce human error and the occurrence of incidents and spills worldwide. Fisheries and Oceans Canada provides a plethora of devices or systems, external to a vessel, to help mariners determine position and course, to warn of dangers or obstructions, or to mark the location of preferred routes. For example, the Canadian Coast Guard maintains an extensive system of over 17,000 aids to navigation to facilitate safe vessel traffic.

Once in Canadian waters, a variety of measures come into place to ensure the safe passage of vessels in our coastal areas. To mitigate the navigational risks posed by the Canadian coastline, Transport Canada and local ports implement a variety of policies that regulate vessel movements. Four pilotage authorities offer the services of experienced local pilots in various regions of the country to help ships traverse Canadian waters safely. Pilotage services are mandatory in areas where the level of risk is heightened.

The West Coast has additional measures in place, including a voluntary Tanker Exclusion Zone for laden tankers transiting from Alaska to Washington State and a Transport Canada policy that prevents tankers of over 40,000 tonnes deadweight from using the southern portion of the Inside Passage, specifically the Johnston Strait and Discovery Passage.

There are also requirements for oil tankers to be escorted by tugs when moving through certain areas, such as when transiting the Haro Strait and Boundary Pass on the West Coast, and when entering or leaving major ports such as Vancouver, Saint John and Québec. Port authorities have additional powers related to shipping, navigation, the transport of people and the transport, handling and storage of goods. For example, they can implement traffic control measures and collect fees. Harbour Masters may also order that vessels be escorted or towed, if they deem necessary.

Canada also tracks and monitors ships while they transit Canadian waters. One such program is the National Aerial Surveillance Program. The Program's three specialized aircraft patrol Canada's three oceans, the Great Lakes and the St. Lawrence Seaway monitoring vessel transits and watching for potential unlawful discharges. In 2011-2012, crews observed more than 12,000 vessels and detected 135 pollution occurrences. Environment Canada also participates in the Integrated Satellite Tracking of Pollution Program (also known as ISTOP), which uses satellite imagery analysis to detect oil spills. Between 2010 and 2011, ISTOP analyzed 972 images and detected 18 possible spills. When regulatory agencies have evidence of illegal pollution violations, they have the power to prosecute the offenders or to issue administrative monetary penalties, which are a non-criminal enforcement tool available to deal with pollution incidents. Since 2003/2004, evidence gathered by the National Aerial Surveillance Program has led to 34 charges as a result of 29 incidents, and approximately \$1.86M in penalties resulting from successful prosecution. Evidence clearly shows that the National Aerial Surveillance and Integrated Satellite Tracking of Pollution Programs continue to act as a strong deterrent to ship-source pollution.



Photo credit: Paul Minnaar



Upon arrival at a Canadian port, ships are subject to detailed inspections by Transport Canada, ensuring that they meet the high domestic and international standards. Canada, along with many other nations, is a participant in the Port State Control program, an inspection program that involves boarding and inspecting foreign vessels entering Canadian ports to ensure they comply with major international maritime conventions. Vessels that do not meet safety standards are detained until their deficiencies are corrected, thus helping to ensure that only ships that meet the highest safety standards operate in Canadian waters. In 2011, marine inspectors conducted 1,033 inspections, finding 431 deficiencies, temporarily detaining 34 ships.³⁴ Of the ships inspected, 358 were tankers, 147 of which carried oil, and only two were detained: one oil tanker and one chemical tanker. Marine Safety

inspectors are also tasked with inspections of Canadian flagged vessels, known as Flag State Control. Finally, Transport Canada administers a “Ships of Particular Interest” program, targeting certain foreign ships banned from entering other foreign partners’ ports. The program allows Transport Canada to target its inspections to vessels that are more likely not to meet safety standards and regulatory requirements.

The implementation of these numerous prevention measures greatly contributed to decreasing the number of incidents occurring in Canadian waters, acting as a first line of defense against ship-source pollution. The Government’s continued investments in marine safety, such as those announced in March 2013, will continue to strengthen Canada’s oil spill prevention.

³⁴ “Port State Control – TP 13595 – Annual Report,” Transport Canada Website, October 2012
<http://www.tc.gc.ca/eng/marinesafety/tp-13595-menu-4218.htm>

APPENDIX B — BIOGRAPHIES OF TANKER SAFETY PANEL MEMBERS



Gordon Houston **Panel Chair**

Captain Gordon Houston is the former President and CEO of the Vancouver Fraser Port Authority. He attended Edinburgh University's Nautical Campus receiving the designation of Master Mariner in 1975. He also holds a nautical science diploma from Aigburth Nautical College. After a seagoing career spanning three decades, Captain Houston joined the Prince Rupert Port Corporation as Harbour Master in 1988. Later, he joined the Vancouver Port Authority, as Deputy Harbour Master, and then as Harbour Master where, among his other duties, he represented the Port during the creation of Canada's current Ship-source Oil Spill Preparedness and Response Regime.

In 1996, he moved into the Port's executive ranks, as Vice President, Operations. After five years in this role, Captain Houston was appointed President and CEO of the Vancouver Port Authority where he oversaw the amalgamation of the three ports in the Lower Mainland.



Richard Gaudreau **Panel Member**

Mr. Gaudreau practiced law from 1969 until the end of 2012. His experience includes all activities related to maritime and admiralty law, particularly ship purchasing/selling/financing/chartering, carrier liability, environmental law, collisions, salvage and all aspects of marine and Protection and Indemnity (P&I) insurance. He also practiced in all activities related to international trade. He has vast experience before Canadian and Québec courts, including the Supreme Court of Canada.

He was the chairperson of several Québec and Canadian marine-related organizations, including the St. Lawrence Economic Development Council. Mr. Gaudreau has been involved in numerous arbitrations, both as a lawyer and an arbitrator. He has chaired a number of public inquiries and has studied and contributed to the drafting of maritime and port legislation and regulations in Canada and abroad.

From 2000 until 2010, Mr. Gaudreau taught postgraduate courses in marine transportation management at l'Université du Québec à Rimouski. He served as a Lieutenant in the Canadian Naval Reserve. Mr. Gaudreau was an active member of the National Coalition on the Coast Guard Recovery Program and the Canadian Bar Association.



Michael Mackay Sinclair **Panel Member**

Dr. Michael Sinclair is the former Director of the Bedford Institute of Oceanography in Dartmouth, Nova Scotia. He holds a Ph.D. in Oceanography from the University of California's Scripps Institution of Oceanography. He also attended Queen's University in Kingston, Ontario and Southampton University in the U.K., where he earned his B.Sc. and M.Sc., respectively.

After positions at the Scripps Institution of Oceanography and the Université du Québec à Rimouski, Dr. Sinclair joined the Bedford Institute in 1978. By 1988, he was appointed to the position of Director, Biological Sciences Branch for the Department of Fisheries and Oceans at the Bedford Institute. In 2000, Dr. Sinclair was appointed Director of the Bedford Institute and Regional Director of Science, Maritimes Region, for the Department of Fisheries and Ocean.



APPENDIX C — TERMS OF REFERENCE FOR THE REVIEW OF CANADA'S SHIP-SOURCE OIL SPILL PREPAREDNESS AND RESPONSE REGIME

Background

As a result of the *Exxon Valdez* oil spill and growing public concern for the marine environment, the Government of Canada appointed the Public Review Panel on Tanker Safety and Marine Spill Response Capacity (Brander-Smith Panel) in June 1989. The three-member panel was given the mandate to review and evaluate: (i) the measures currently in place to ensure the safe movement of oil and chemicals by tanker and tank barge through Canadian waters; (ii) Canada's ability to respond to marine spills of these products and, (iii) the Canadian and international legislation and Conventions which regulate the movement of oil and chemicals including the provisions for compensation for damages resulting from spills.

The Government implemented a large number of the Panel's recommendations, which led to the development of Canada's current Ship-source Oil Spill Preparedness and Response Regime. While the Regime has met existing needs, the dynamics of oil transportation have changed appreciably since then; oil shipments have increased significantly, as has the transport of potential pollutants such as liquefied natural gas and other hazardous and noxious substances. These changes, as well as new proposed marine terminals on Canada's West Coast, make it an opportune time to conduct a review of Canada's current Ship-source Oil Spill Preparedness and Response Regime.

Budget 2012 provided funding for a number of measures to create a world-class tanker safety preparedness and response Regime. A key component of these measures will be the creation of a Panel, which will review Canada's current Ship-source Oil Spill

Preparedness and Response Regime and make recommendations to the Government of Canada on the development of a world-class tanker safety and oil spill preparedness and response Regime.

Panel Composition

The Panel will be comprised of a Chair and two Panel members. Candidates for appointment should have a range of technical, legal, and/or practical expertise in ship-source spill preparedness and response. Special advisors may also be appointed to support the Panel's work north of 60° latitude and to assist in engaging Aboriginal Groups in the review. The Chair and Panel members will work part-time, although they may be required to work full-time during certain phases of the project.

Scope of the Review

The Panel is mandated to conduct a broad review of the current Regime as it pertains to oil handling facilities and ship-source oil spill preparedness and response. The Panel will assess the Regime's structure, functionality and the overall efficiency and effectiveness of the system, as well as analysing the requirements for hazardous and noxious substances, including liquefied natural gas. It will also examine the linkages with the marine liability and compensation regime. Once the review is complete, the Panel will submit their findings, along with recommendations on how to improve Canada's Ship-source Oil Spill Preparedness and Response Regime to world-class status, to the Minister of Transport for consideration.

The review will have two components. The first component will focus on the Regime currently in place south of 60° north latitude, while the second component will focus on the requirements needed for the Arctic as well as a national review of the requirements for hazardous and noxious substances, including liquefied natural gas.

Elements of the Review

Review of Ship-source Oil Spill Preparedness and Response Regime

— The Panel will conduct a broad review of the current Regime for oil handling facilities and ship-source oil spill preparedness and response. Based on this review, the Panel will write two reports and submit their findings, along with any recommendations, to the Minister of Transport, Infrastructure and Communities. The review will assess:

- **Current capacity of 10,000 tonnes** — examine if the current regulated response capacity of 10,000 tonnes is a world-class standard, as well as the costs and benefits, including market access, of changing this requirement;
- **Regime structure and key components** — Governance structure — including such elements as the private-public model; funding; and fee arrangements; cascading resources; placement of response assets; how preparedness and response links to liability and compensation; and

- **Regime coverage** — the need for and financial implications of: creating a cost-effective preparedness and response regime in the North; and extending the current Regime to, hazardous and noxious substances, including liquefied natural gas as well as new or unconventional oil products.

Pan-Canadian Risk Assessment — In support of the Panel, Transport Canada will commission an objective, evidence-based risk assessment of the potential for a ship-source oil or hazardous and noxious substances spill, including liquefied natural gas, in Canadian waters. The risk assessment will provide a documented, credible base of risk information, for use in the review of current arrangements for spill prevention, preparedness, response, and recovery.

Background technical research and analysis

— Transport Canada will develop a series of technical papers and studies on Canada's Ship-source Oil Spill Preparedness and Response Regime, as well as models in other jurisdictions, to establish a technical foundation and to assist the Panel in understanding key issues.

Stakeholder Engagement — The Panel will meet with provincial and territorial governments and industry stakeholders, including Response Organizations, owners and operators of oil handling facilities, vessel owners and operators and industry associations. The Panel will also meet with key Aboriginal organizations and will seek input from First Nations in coastal areas. A web portal will also be established to accept public submissions. The Panel will also have the option to conduct a limited number of targeted engagement sessions with individuals or organizations who submit through the web portal. No sessions open to the general public will be conducted.



Review Panel Secretariat

A full-time Secretariat will be established within Transport Canada under the direction of an Executive Director. The Secretariat will have key responsibilities in supporting the fulfillment of the Panel’s mandate. It will develop a workplan, research plan and engagement materials for the Panel’s approval. It will receive and analyze stakeholder submissions and provide support to the Panel as it prepares the reports. The Secretariat will also be responsible for administration, communications, organizing engagement activities; and managing the research program. The Secretariat will provide the link to Transport Canada, other government departments and central agencies.

In addition, the Marine Safety and Security Directorate will provide the Panel with in-house technical expertise and analysis in the area of oil spill preparedness and response and the administrative resources as required.

Key Deliverables and Timelines

The Panel will be appointed in March 2013 and will be required to submit two reports. The first report will provide an assessment of the Regime south of 60° north latitude and must be completed by November 15, 2013. This report will be followed by a second report, due by September 2014, on the requirements for an Arctic regime and a national regime for hazardous and noxious substances.

March 2013	Information sessions, and finalize Consultation and Research Plans
April–July 2013	Panel conducts public engagement, research and analysis (for Regime south of 60° north latitude)
August–November 2013	Panel deliberations and drafting of first report for the Regime south of 60° north latitude
November 15, 2013	Panel submits report for the Regime south of 60° to the Minister of Transport
January–April 2014	Panel conducts public engagement, research and analysis (for an Arctic regime and a national regime for hazardous and noxious substances)
May–September 2014	Panel deliberations and draft of second report for an Arctic regime and a national regime for hazardous and noxious substances
September 2014	Panel submits report for an Arctic regime and a national regime for hazardous and noxious substances to the Minister of Transport

APPENDIX D — LINES OF INQUIRY FOR PHASE 1: CURRENT REGIME SOUTH OF 60°

General

1. Does the current oil spill preparedness and response Regime meet today's needs in the event of a worst-case scenario? What about future needs? What elements of the current Regime could be improved to make it world-class?
2. Does Canada's current Regime, which is based upon a public-private response model where industry-funded Response Organizations take the lead in preparing for and responding to an oil spill, continue to make sense for Canada? What changes, if any, would improve the model to world-class status?
3. In terms of oil spill preparedness and response, are the current roles and responsibilities for government and industry clear? Are they appropriate? What changes would you suggest to improve roles and responsibilities under the current Regime?
4. What future trends or emerging developments (for example, new petroleum products, new response techniques or increased vessel traffic) should be taken into account to enhance the current Regime to world-class status?
5. There are currently six Regional Advisory Councils (RAC) and one National Advisory Council (NAC) which provide advice and feedback to the Government of Canada on the current Regime. What could be done to improve this feedback mechanism? Are the roles and responsibilities of the RAC and the NAC clear? Is this structure a best practice?
6. Canada's current Regime is standardized across the country, with all ports, shipowners, oil handling facilities and Response Organizations operating under the same legislation, regulations

and guidelines. Is this an appropriate model for Canada? What improvements could be made to the current model?

7. Does the current preparedness and response Regime clearly define how it interacts and links with Canada's liability and compensation regime? What changes, if any, would improve the current framework to world-class status?
8. Canada currently has two regimes for marine oil pollution: one for ship-source oil pollution and one for oil pollution from oil exploration activities and offshore platforms. What are the benefits to having two separate regimes? What are the risks to having two separate regimes?

Preparedness

1. Are the preparedness requirements for ports, shipowners, oil handling facilities and Response Organizations adequate? What changes, if any, would improve the system to make it world-class?
2. Does research and development play a strong enough role in the current Regime? Who should be responsible for funding and conducting research and development related to the oil spills?
3. Is there a need for a greater degree of coordination between government departments, between different levels of government (federal, provincial, municipal and international) and between government and the industry in respect to training, exercises and research and development? What could be done to make the coordination of these activities more effective? What steps should be taken?



4. How should risk information related to the potential for an oil spill and its possible impacts be used to inform the elements of the Regime? What other information should be taken into consideration when government and industry formulate their preparedness and response plans?
5. What other preparedness requirements should be incorporated into the Regime?

Response

1. What could be done to make the response to oil spills more effective and efficient?
2. Is there adequate oversight of the Response Organizations under the current regulatory framework? Are the current *Response Organizations Standards* adequate? What, if any, changes should be made? Is the certification process adequate and is there sufficient expertise present during this process?
3. Is the current regulated response capacity of 10,000 tonnes sufficient or should it be increased? What could be done to improve on this current model for regulated response capacity? Does it represent a world-class standard based on practices in other jurisdictions?
4. What could be done to increase the capacity to respond to spills of unconventional oil products (e.g. diluted bitumen)?
5. What role should the Canadian Coast Guard take during the response to an oil spill?
6. What improvements could be made to better integrate government and non-government stakeholders into the overall management of a response?

7. Is there a role for other parties to play in the response to an oil spill, particularly in more remote areas of the country? What factors would need to be considered if there is an increased role for them?
8. The current response Regime is based around mechanical recovery. Are there alternate response techniques that should be considered in addition to mechanical recovery for spill response? What are the pros and cons of these alternative mechanisms? How could these additional methods be included into the current Regime?

Liability, Compensation and Funding

1. How should a world-class oil spill preparedness and response Regime be funded?
2. Is the current fee structure fair, reasonable and transparent and does it meet the current Regime's requirements?
3. Canada's liability and compensation regime provides coverage for the costs associated with responding to an oil spill from a ship. Are there specific costs where the coverage for responding to an oil spill is potentially not adequate? Are there current limitations on the coverage that may impact a response to a spill?
4. There exist several models for funding the preparedness costs to an oil spill as well as providing access to emergency funds during an ongoing response. Would the dedication of a set amount of emergency funds similar to what is in place in the United States be an improvement to the capability to effectively manage a large spill? What improvements should be made?
5. Could the Ship-Source Oil Pollution Fund be used more effectively for the purposes of preparedness and response?

APPENDIX E — STAKEHOLDER DISCUSSIONS AND SITES VISITED

Stakeholder Discussions

Listing of Canadian organizations with which the Panel held discussions:

- Aboriginal Affairs and Northern Development Canada
- Alberta Energy
- Algoma Central Corporation
- Atlantic Emergency Response Team (ALERT)
- Atlantic Pilotage Authority
- BC Chamber of Shipping
- BC Coastal Pilots
- BC Ferries
- Bedford Institute of Oceanography
- Canada-Newfoundland & Labrador Offshore Petroleum Board
- Canada-Nova Scotia Offshore Petroleum Board
- Canadian Association of Petroleum Producers
- Canadian Coast Guard
- Canadian Marine Pilots Association
- Canadian Maritime Law Association
- Canadian Shipowners Association
- CanShip Uglan Ltd.
- CanTerm Canadian Terminals
- Chevron Canada
- Coastal First Nations
- Corporation pilotes Saint-Laurent Central
- Council of Marine Carriers
- Cruise Lines International Association, North West & Canada
- Department of Environment and Conservation, Newfoundland
- Department of Environment, Nova Scotia
- Department of Natural Resources, Newfoundland
- Department of Natural Resources, Nova Scotia
- Department of Transportation and Infrastructure Renewal, Nova Scotia
- Department of Transportation and Works, Newfoundland
- Eastern Canada Response Corporation
- Enbridge
- Environment Canada
- Fisheries and Oceans Canada
- Great Lakes Pilotage Authority
- Halifax Port Authority
- Imperial Oil
- IMTT Québec
- Island Tug and Barge
- Jerry Rysanek, Consultant
- Kinder Morgan Canada
- Laurentian Pilotage Authority
- Manitoba Conservation and Water Stewardship
- Manitoba Infrastructure and Transportation
- Manitoba Innovation, Energy and Mines
- Ministry of Environment, British Columbia
- Ministry of Transportation and Infrastructure, British Columbia
- Montreal Port Authority
- Musqueam First Nation
- Nanaimo Port Authority
- North Atlantic Refining Ltd.
- Norton Rose Canada
- Nunavut Impact Review Board
- OmniTRAX Canada
- Ontario Ministry of Environment
- Ontario Ministry of Transportation
- Ontario Regional Advisory Council
- Pacific Pilotage Authority
- Pacific Regional Advisory Council
- Petro-Nav
- Point Tupper Marine Services
- Port of Argentina



- Prince Rupert Port Authority
- Quebec Ministry of Sustainable Development, Environment and Parks
- Quebec Ministry of Transportation
- Quebec Port Authority
- Quebec Regional Advisory Council
- Regional Advisory Council (Maritimes)
- Rigel Shipping Canada Inc.
- Saint John Port Authority
- Seaspan Marine Corporation
- Shell Canada
- Shipping Federation of Canada
- Ship-Source Oil Pollution Fund
- SMIT Marine
- St. John's Port Authority
- St. Lawrence Seaway Management Corporation
- St. Lawrence Ship Operators
- Teekay Shipping Canada
- Transport Canada
- Transshipment Ltd.
- Ultramar
- Vancouver Port Authority
- Western Canada Marine Response Corporation
- Woodward's Group of Companies

Listing of organizations from the United States with which the Panel held discussions:

- Association of Petroleum Industry
- Bureau of Safety and Environmental Enforcement
- Delaware Bay and River Cooperative
- Environmental Protection Agency
- Spill Control Association of America
- U.S. Coast Guard
- U.S. Department of Transportation

Sites Visited

- Atlantic Emergency Response Team (ALERT) facilities in Saint John
- Canadian Coast Guard Environmental Response Base (Mount Pearl, Newfoundland)
- Canadian Coast Guard South Side Base (Marine Communications and Traffic Services (MCTS) Centre (St. John's, Newfoundland)
- Canaport Terminal
- Eastern Canada Response Corporation Base (Mount Pearl, Newfoundland)
- International Matrix Tank Terminals Ltd. (IMTT NTL, Ltd).
- Oil Spill Response Vessel DELRIVER (United States)
- Pollution Patrol Flight (National Aerial Surveillance Program) — British Columbia
- Port Metro Vancouver

APPENDIX F — SUBMISSIONS RECEIVED

The following organizations provided a written submission/documentation to the Tanker Safety Expert Panel.

- Alliance des Villes des Grands Lacs et du Saint-Laurent
- BC Ministry of Environment
- British Columbia Coast Pilots Ltd.
- Canada-Nova Scotia Offshore Petroleum Board (CNSOPB)
- Canadian Coast Guard, Quebec Region
- Canadian Marine Pilots' Association
- Canadian Marine Pilots' Association — Atlantic Region
- Canadian Maritime Law Association
- Canadian Merchant Service Guild
- Canadian Shipowners Association
- Chamber of Shipping of British Columbia
- Chevron Canada
- City of North Vancouver
- City of Richmond
- Corporation des Pilotes du Bas-Saint-Laurent
- District of North Vancouver
- District of Ucluelet
- District of West Vancouver
- Eastern Canada Response Corporation (ECRC)
- Enbridge Inc.
- Georgia Strait Alliance
- Gitga'at Nation
- Government of Quebec
- Great Lakes St. Lawrence Seaway System
- Haisla Nation
- Hammurabi Consulting
- Horseshoe Bay Marine Group
- IHS CERA
- Imbibitive Technologies
- Imperial Oil
- International-Matex Tank Terminals (IMTT) — Québec
- Island Tug and Barge Ltd.
- Islands Trust & Joint: Islands Trust Council/ San Juan County
- International Tanker Owners Pollution Federation Limited (ITOPF)
- Kinder Morgan
- Laurentian Pilotage Authority
- Les amis de la Vallée du Saint-Laurent
- Manitoba Infrastructure and Transportation
- Ministère du Développement durable, de l'Environnement, de la Faune et des Parcs (Québec)
- Niagara Region
- Nova Scotia Department of Environment
- Ocean Group
- Oiled Wildlife Trust
- Ontario Regional Advisory Council
- Pacific Northwest LNG
- Port de Québec
- Prince Rupert Port Authority
- Quebec Regional Advisory Council (RAC)
- Seaspan Marine
- Shipping Federation Of Canada
- Société de Développement Économique du Saint-Laurent (SODES)
- St. John Port Authority
- St. Lawrence Ship operators
- Suncor Energy Services
- Union of British Columbia Municipalities (UBCM)
- Vancouver Port Authority
- Vela Marine Services
- Wave Point Consulting Ltd.
- Western Canada Marine Response Corporation (WCMRC)

In addition to these organizations, the Tanker Safety Expert Panel also received three written submissions from the general public.



APPENDIX G — GLOSSARY OF TERMS

Area of environmental sensitivities: An area containing threatened, vulnerable or endangered species or locations of cultural or high socio-economic significance. (*Response Organizations and Oil Handling Facilities Regulations*)

Areas of Response: The defined geographical area within which a Response Organization operates and implements an Area Response Plan.

Area Response Plan: An oil spill response plan that includes the resident capacity to address most Probable Spill Scenarios within an Area of Response, as well as a plan consisting of the arrangements for cascading resources and mutual assistance agreements necessary to address a worst-case discharge. The plans are an output of the Area Response Planning process.

Area Response Planning: A risk-based spill preparedness model where the probability and potential impacts of oil spills are used to determine the response capacity required in each Area of Response. This framework incorporates all aspects of the preparedness process, from a national risk assessment of ship-source oil spills to the certification of Response Organizations by Transport Canada.

Consolidated Revenue Fund: The account into which taxes and revenue are deposited, and from which funds are withdrawn in order to defray the costs of public service.

Dispersants: A group of chemicals designed to be sprayed onto oil slicks to accelerate the process of natural dispersion. (*International Tanker Owner Pollution Federation — ITOPF*)

Double-Hulled Tanker: A type of tanker where the bottom and sides of the vessel have two complete layers of watertight hull surface. This is a requirement that applies to all tankers built since July 1, 1993.

Geographic Response Plan: A detailed, local spill response plan developed to protect key environmental and socio-economic sensitivities.

Hazardous and Noxious Substance: In the context of ship-source spills, a substance other than oil which, if introduced into the marine environment from a vessel or vessel related activities, is likely to create hazards to human health or to harm living resources and marine life.

In-situ Burning: A technique used to contain oil spills that consists of burning spilled oil on the water.

International Maritime Organization: The United Nations specialized agency with responsibility for the safety and security of shipping and the prevention of marine pollution by ships.

Liquefied Natural Gas: Natural gas — primarily methane with small quantities of ethane and propane — that has condensed into a liquid state. (*Canadian Centre for Energy*)

Mechanical Recovery: The use of equipment and resources such as skimmers, spill response vessels and sorbents to pick up, transport, store and dispose of oil.

Net Environmental Benefit Analysis: The process of considering advantages and disadvantages of different spill response options (including no response) to arrive at a spill response decision resulting in the lowest overall environmental and socio-economic impacts.

Oil: Petroleum in any form including crude oil, fuel oil, sludge, oil refuse and refined products. (*Canada Shipping Act, 2001*).

Oil Handling Facility: A facility, including an oil terminal, that is used in the loading or unloading of oil to or from vessels. (*Canada Shipping Act, 2001*).

Oil Tanker: A vessel constructed or adapted primarily to carry oil in bulk in its cargo spaces and includes a combination carrier (a vessel designed to carry oil or solid cargoes in bulk), an NLS (noxious liquid substances) tanker and a gas carrier that is carrying a cargo or part cargo of oil in bulk. (*Environmental Response Arrangements Regulations*)

Pilotage: The rules requiring vessels operating within specified waters to take on board a marine pilot with local knowledge of the waterway to help guide the vessel safely to its destination.

Probable Spill Scenarios: The likely types and sizes of spills that could happen in a given Area of Response. Probable Spill Scenarios are determined through regional risk assessments that look at local hazards and historical data on spill types, frequency and size.

Resident Capacity: The resources that Response Organizations are required to maintain within their Area of Response. These response resources are the sum of all elements, including the response governance, communications, infrastructure, equipment, people, and logistical support required to limit environmental and socio-economic impacts of spills.

Response Organization: A qualified person to whom the Minister of Transport issues a certificate of designation under subsection 169(1) of the *Canada Shipping Act, 2001*. (*Canada Shipping Act, 2001*).

Ship-source Oil Pollution Fund: A compensation fund created under the Marine Liability Act to pay claims for oil pollution damage or anticipated damage at any place in Canada, or in Canadian waters including the exclusive economic zone, caused by the discharge of oil from a ship.

Tonne: In the context of oil, the equivalent of about 1,100 litres or about 7 barrels of oil (this may vary depending on the type and density of oil). (*Report of the Commissioner of the Environment and Sustainable Development*)

Vessel : A boat, ship or craft designed, used or capable of being used solely or partly for navigation in, on, through or immediately above water, without regard to method or lack of propulsion, and includes personnel and other assets, either contracted or owned, utilized to conduct monitoring and/or response operations (*Canada Shipping Act, 2001*).

Worst-case Discharge: The complete discharge of a tanker's oil cargo along with its bunker fuel or, for a non-tanker vessel, the complete release of its bunker fuel.



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APPENDIX I – LIST OF RECOMMENDATIONS

Number	Recommendation
1	Transport Canada should require Response Organizations to have in place the arrangements for cascading resources and mutual assistance agreements necessary to address a worst-case discharge in their Areas of Response.
2	The Government of Canada should implement a risk-based Area Response Planning model to prepare for ship-source oil spills.
3	Transport Canada should regularly review and update the national Risk Assessment for Marine Spills in Canadian Waters and make these results public.
4	Transport Canada should designate new Areas of Response, based on the national Risk Assessment for Marine Spills in Canadian Waters.
5	Using a consistent methodology, Transport Canada should perform regional risk assessments for each Area of Response and make the results public.
6	Transport Canada, in collaboration with the Canadian Coast Guard, Environment Canada and Response Organizations, should develop a standardized process for risk-based Area Response Planning.
7	The Canadian Coast Guard should lead the Area Response Planning process for each Area of Response, in collaboration with Transport Canada, Environment Canada and the Response Organizations operating within it.
8	The Canadian Coast Guard should invite other stakeholders who are involved in oil spill preparedness and response to participate during the planning process. The Area Response Plans should be made publicly available.
9	The Canadian Coast Guard should ensure the Area Response Plans identify the resident capacity (e.g., equipment, personnel, management systems) required to address all Probable Spill Scenarios in the Area of Response. The plans should also include all of the Response Organizations' arrangements for cascading resources and mutual assistance agreements required to address a worst-case discharge.
10	Transport Canada should require Response Organizations to develop detailed Geographic Response Plans to minimize potential spill impacts to key environmental and socio-economic sensitivities. These Geographic Response Plans should include specific time standards and identify the response resources that would be maintained locally.
11	Transport Canada should certify Response Organizations based on their Area Response Plans and Geographic Response Plans, which may include the use of alternative response techniques.
12	Transport Canada should be granted additional enforcement and oversight tools to ensure that Response Organizations meet the requirements outlined in their Area Response Plans.
13	The Government of Canada, in consultation with the provinces and territories, should develop a strategy for the timely disposal of oily waste, and incorporate the results of this strategy into the Area Response Planning model.



Number	Recommendation
14	Environment Canada and Fisheries and Oceans Canada should develop and implement a strategy to provide aid to wildlife and incorporate the results of this strategy into the Area Response Planning model.
15	The Area Response Planning model should include requirements for a multi-jurisdictional exercise program for each Area of Response. Regular exercises should be conducted in each Area of Response to test specific components of the Area Response Plans.
16	Transport Canada should collaborate with Response Organizations and other industry partners to determine the new costs associated with implementing the Area Response Planning model. All parties should then work together to develop a fee structure that will fund this new model.
17	The Government should ensure that Transport Canada has the appropriate resources and competencies to deliver risk assessments and risk advice in support of oil spill planning and preparedness.
18	The Government should proceed with its recently announced plans to increase the effectiveness of the legislative and regulatory framework governing oil handling facilities, including a more stringent inspection and enforcement program.
19	The Government should properly resource the Canadian Coast Guard to lead planning in the Area Response Planning process.
20	The Government should remove the legislative impediments for the use of alternative response techniques.
21	The Canadian Coast Guard should be the final authority to approve the use of spill treating agents and other alternative response techniques, and should be supported by a standardized process taking into account the net environmental benefit concept, as an element of the Area Response Planning process.
22	The Government should proceed with its proposed amendments to S. 181 (2) of the <i>Canada Shipping Act, 2001</i> , through the <i>Safeguarding Canada's Seas and Skies Act</i> , which would extend liability protection to responders and their agents and mandataries, in the context of ship-source spills and spills at oil handling facilities when loading or unloading a ship.
23	The current limit of liability per incident within the Ship-source Oil Pollution Fund should be abolished. The Fund should process and pay for all admissible claims, subject to the Consolidated Revenue Fund's consent to loans in favour of the Ship-source Oil Pollution Fund for amounts sufficient to allow all admissible claims to be paid to claimants. The loans would be reimbursed with interest to the Consolidated Revenue Fund from future revenues of levies on oil transported by ship to, from and within Canada.
24	The funding activities of the Ship-source Oil Pollution Fund should be broadened to allow the Fund to establish an emergency account to support oil spill operations undertaken by the Canadian Coast Guard when it assumes the role of On-scene Commander.

Number	Recommendation
25	<p>The Government should create a senior-level Interdepartmental Committee to provide enhanced stewardship of the Regime. The Committee should be composed of the lead departments (i.e. Transport Canada, the Canadian Coast Guard and Environment Canada). Its Terms of Reference should include:</p> <ul style="list-style-type: none"> • Ensuring individual departmental mandates are properly coordinated; • Ensuring that joint planning and prioritization efforts are occurring, including the development and maintenance of a comprehensive national contingency plan; • Ensuring efficient allocation of resources within each department, including: training, oversight and enforcement of regulation, capital investments, and research and development; • Ensuring regular coordinated interdepartmental exercises; • Ensuring succession planning and bringing attention to the need for appropriate distribution of skill sets related to oil spill preparedness and response within relevant organizations; and • Providing routine reporting and advice to their three Ministers on the functioning and continuous improvement of the Regime, including cyclical reviews of the Regime.
26	<p>The Incident Command System model should be incorporated into a joint National Contingency Plan, which clearly defines the roles and responsibilities of all federal participants in the response to a ship-source spill.</p>
27	<p>Transport Canada, in its certification of Response Organizations, should ensure that Response Organizations use, train their personnel in, and exercise with an incident management system that is compatible with an Incident Command System.</p>
28	<p>Building on the regional exercise programs, the Canadian Coast Guard should develop annual exercise objectives to systematically test various components of the National Contingency Plan and all management functions under the Incident Command System model. These objectives should expand outside current Canadian-U.S. exercises, with special focus on the Canadian Coast Guard's role as On-scene Commander.</p>
29	<p>The Government should ensure that Transport Canada and Environment Canada have the appropriate resources to adopt and integrate the Incident Command System at the regional and headquarters levels of their organizations.</p>
30	<p>The Government of Canada should clarify its policy on the authority of the Canadian Coast Guard to intervene or support the response to land-originating oil spills that result in marine pollution.</p>
31	<p>Environment Canada should strengthen its commitment to providing leadership in scientific and environmental advice related to spill preparedness activities, through active and sustained participation in Area Response Planning at the regional level, and with Fisheries and Oceans Canada as a source of scientific advice.</p>
32	<p>The Canadian Coast Guard, in its role as either On-scene Commander or Federal Monitoring Officer, should have the authority to request and obtain a scientific and environmental advisor from Environment Canada, to be on-site during a response to provide local environmental and ecological advice, with scientific support from Fisheries and Oceans Canada.</p>



Number	Recommendation
33	Environment Canada's role in the Regime should be formalized by including, in Part 8 of the <i>Canada Shipping Act, 2001</i> , its responsibility to provide scientific and environmental advice in the planning for and response to ship-source oil spills.
34	With a view to fostering public confidence in the Regime, Transport Canada and the Canadian Coast Guard should conduct regular outreach to the public to communicate the level of risk that Canada faces. Transport Canada should also explain how the various components of the system function, including prevention, preparedness, response, and liability and compensation.
35	The Government should make information on spills and their causes available to the public in a timely manner.
36	We recommend that the Government develop and publish a <i>National Framework for Ship-source Oil Spills</i> .
37	The Government should disband the Regional Advisory Councils.
38	On a routine basis, the senior-level Interdepartmental Committee should appoint experts to conduct in-depth reviews of specific aspects of the Regime and report back to their respective Ministers.
39	The Canadian Coast Guard should work in close collaboration with Transport Canada to improve the information collected on ship-source spills and vessel movements in Canadian waters, and to put in place appropriate quality assurance measures to ensure the accuracy of the recorded data.
40	The Canadian Coast Guard, jointly with Transport Canada, should analyze spill data on a regular basis to identify lessons learned and to improve the Regime.
41	Environment Canada, in collaboration with Fisheries and Oceans Canada, should collect and collate environmental sensitivity information for each Area of Response and make this information publicly available.
42	The Canadian Coast Guard should create and sustain a spill response resource inventory to include resources held by Response Organizations, oil handling facilities and offshore oil and gas platforms across Canada. The new system should include up-to-date response equipment data and be kept current to account for equipment movement or relocation.
43	The Government should ensure that post-incident environmental monitoring is conducted to evaluate any potential long-term impacts of oil spills, and to ensure that oil spill preparedness and response continues to learn from past experiences to reduce the environmental and socio-economic consequences of spills.
44	The Government should conduct a risk assessment of wrecks in Canadian waters to identify potential pollution sources and to inform future policy decisions.
45	The Government of Canada should collaborate with industry to establish and together fund a Canadian research and development program for oil spill preparedness and response. Research priorities should be identified through collaboration between industry, government and academia.