

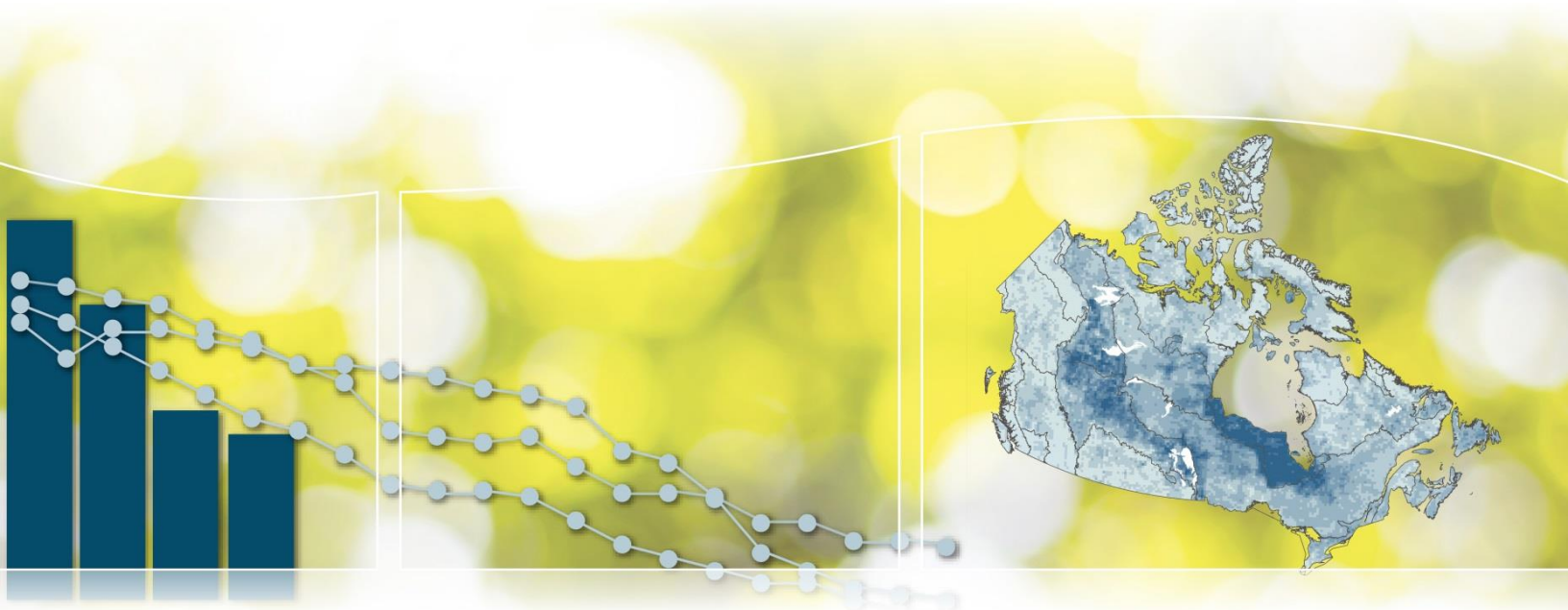


Environment and  
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Environnement et  
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# Canadian Environmental Sustainability Indicators Managing Disposal at Sea



**Suggested citation for this document:** Environment and Climate Change Canada (2016)  
Canadian Environmental Sustainability Indicators: Managing Disposal at Sea. Consulted on  
*day Month, year*.  
Available at: [www.ec.gc.ca/indicateurs-indicators/default.asp?lang=En&n=3316493F-1](http://www.ec.gc.ca/indicateurs-indicators/default.asp?lang=En&n=3316493F-1).

Cat. No.: En4-144/5-1-2015E-PDF  
ISBN: 978-0-660-03712-7

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# Canadian Environmental Sustainability Indicators Managing Disposal at Sea

February 2016

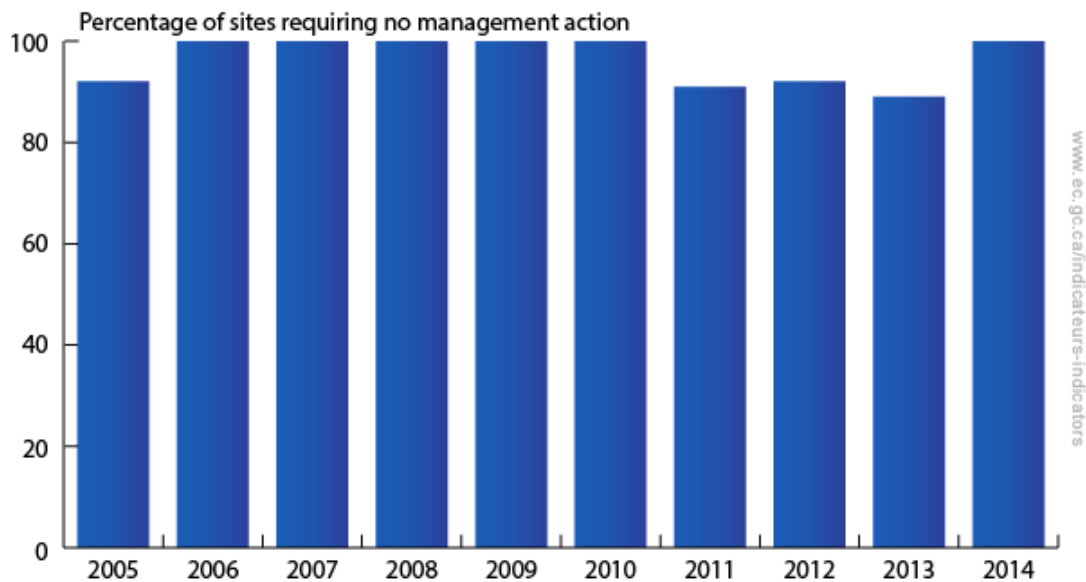
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## Part 1. Managing Disposal at Sea Indicator

Since 2005, the percentage of permitted disposal at sea sites requiring no management action has been higher than Environment and Climate Change Canada's 85% performance target. Management actions have been required five times, once in 2005, once in 2011, once in 2012 and twice in 2013, indicating Canada's ocean disposal sites are being used in a sustainable manner.

**Figure 1. Monitored disposal at sea sites requiring no management action, Canada, 2005 to 2014**



[Data for Figure 1](#)

**Source:** Data provided by the Marine Protection Program, Environment and Climate Change Canada.

Canada protects its marine environment by regulating disposal at sea through a permit system under the [Canadian Environmental Protection Act, 1999](#). This permit system also allows Canada to meet its obligations on preventing marine pollution by disposal at sea, as set out in the London Convention, 1972 ([Convention on the Prevention of Marine Pollution by Dumping of Wastes and Other Matter](#)) and the [1996 Protocol to the London Convention](#).

Managing what is discarded at sea prevents marine pollution by controlling the material disposed of at these sites. A management action is a change to how waste is managed at a disposal site and includes changing the timing or the mechanism by which the waste is deposited at the site, changing the site boundaries or even closing the site. The change is made when monitoring data show waste is having a different effect on the environment than predicted during the permit assessment or when the sustainable use of the site is questioned. Since 2005, there have been five instances of management action taken as a result of disposal site monitoring. In three cases, monitoring found the sites had reached their capacity. In the other two cases, one site was interfering with a commercial fishery and the other was interfering with navigation. In all cases, the sites were permanently closed before navigation was affected, not because of contamination or long-term impact to the marine environment.



This indicator is used to measure progress toward [Target 3.9: Marine Pollution – Disposal at Sea – Ensure that permitted disposal at sea is sustainable, such that 85% of disposal site monitoring events do not identify the need for site management action \(such as site closure\) from 2013–16](#) of the [Federal Sustainable Development Strategy 2013–2016](#).

## Part 2. Data Sources and Methods for the Managing Disposal at Sea Indicator

### Introduction

The [Managing Disposal at Sea](#) indicator is part of the [Canadian Environmental Sustainability Indicators](#) (CESI) program, which provides data and information to track Canada's performance on key environmental sustainability issues. This indicator is also used to measure progress towards the goals and targets of the [Federal Sustainable Development Strategy](#).

### Description and rationale of the Managing Disposal at Sea indicator

#### Description

The Managing Disposal at Sea indicator reports yearly percentages of monitoring events triggering management action for Canada's disposal at sea sites for the last ten years on record (i.e., from 2005 to 2014). The indicator provides information about whether Environment and Climate Change Canada's permit assessment process is able to sustainably manage Canada's marine disposal sites. Management actions are undertaken to address the sustainability of use at the site.

#### Rationale

Disposal at sea is the deliberate discarding of approved material from a ship, an aircraft, platforms or other structures at sea. Without a permit, it is illegal to dispose of any substance at sea. Canada protects its marine environment by regulating disposal at sea through a permit system under the [Canadian Environmental Protection Act, 1999](#). This permit system also allows Canada to meet its obligations on preventing marine pollution by disposal at sea, as set out in the London Convention 1972 ([Convention on the Prevention of Marine Pollution by Dumping of Wastes and Other Matter](#)) and the [1996 Protocol to the London Convention](#). Each year in Canada, between two and four million tonnes of material are disposed of at sea, about 90% of which is dredged sediment from estuarine or marine sources or excavated inorganic material from land-based sources.<sup>1</sup>

Before a permit is issued, an assessment is conducted to ensure disposal at sea is the environmentally preferred option and no harm to human health or the marine environment will result from the disposal. To ensure no harm is occurring, monitoring is conducted at a number of disposal sites each year according to impact hypotheses generated during permit review. If conditions at the disposal site are found to be different from predictions made during the permit assessment, a change in how waste is managed at the site, called a management action, may be necessary. Examples of management actions include changing the timing or the mechanism by which the waste is deposited at the site, changing the site boundaries or even closing the site.

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<sup>1</sup> Environment and Climate Change Canada (2014) [Disposal at Sea: General Information](#). Retrieved on 2 September, 2015.

Management action may also be taken based on conditions that do not relate directly to environmental sustainability. For example, physical monitoring may show a site is filling up and reaching its capacity to hold material. Further use of the site could lead to navigational hazards if the overlying water becomes too shallow and, therefore, the site could be closed.

Environment and Climate Change Canada's Marine Protection program has an annual performance target of 85% of sites not requiring management action. This target demonstrates ocean disposal sites are being used sustainably and impacts on the sites are as predicted.

## Data

### Data source

Data for this indicator are compiled by the Marine Protection Program at Environment and Climate Change Canada.

Environment and Climate Change Canada conducts monitoring activities in conjunction with researchers from other departments with an interest in ocean sciences, such as Fisheries and Oceans Canada and Natural Resources Canada. A summary of monitoring activities can be found in the Annual Compendium of Monitoring Activities at Disposal at Sea Sites, which is sent to permit holders and submitted annually to the International Maritime Organization.

### Spatial coverage

For this indicator, disposal sites in the Pacific, Atlantic and Arctic oceans were assessed (Table 1). The number of sites monitored follows monitoring guidelines developed during permit review to ensure monitoring studies can detect environmental degradation at disposal sites.<sup>2</sup>

**Table 1. Monitoring of disposal at sea sites by year and region**

Year	Region	Number of sites monitored	Number of sites requiring management action
2005	Atlantic	1	0
2005	Quebec	1	0
2005	Prairie and Northern	1	0
2005	Pacific and Yukon	9	1
<b>Total – 2005</b>	<b>All regions</b>	<b>12</b>	<b>1</b>
2006	Atlantic	2	0
2006	Quebec	3	0
2006	Prairie and Northern	1	0
<b>Total – 2006</b>	<b>All regions</b>	<b>6</b>	<b>0</b>

<sup>2</sup> Environment Canada (1999) [National Guidelines for Monitoring Dredged and Excavated Material at Ocean Disposal Sites](#). Retrieved on 26 August, 2014.

Year	Region	Number of sites monitored	Number of sites requiring management action
2007	Atlantic	6	0
2007	Quebec	9	0
2007	Prairie and Northern	4	0
2007	Pacific and Yukon	1	0
<b>Total – 2007</b>	<b>All regions</b>	<b>20</b>	<b>0</b>
2008	Atlantic	2	0
2008	Quebec	4	0
<b>Total – 2008</b>	<b>All regions</b>	<b>6</b>	<b>0</b>
2009	Atlantic	1	0
2009	Quebec	7	0
<b>Total – 2009</b>	<b>All regions</b>	<b>8</b>	<b>0</b>
2010	Atlantic	2	0
2010	Quebec	3	0
2010	Prairie and Northern	2	0
<b>Total – 2010</b>	<b>All regions</b>	<b>7</b>	<b>0</b>
2011	Atlantic	3	0
2011	Quebec	3	1
2011	Pacific and Yukon	5	0
<b>Total – 2011</b>	<b>All regions</b>	<b>11</b>	<b>1</b>
2012	Atlantic	3	0
2012	Quebec	5	1
2012	Prairie and Northern	3	0
2012	Pacific and Yukon	1	0
<b>Total – 2012</b>	<b>All regions</b>	<b>12</b>	<b>1</b>
2013	Atlantic	3	0
2013	Quebec	7	2



Year	Region	Number of sites monitored	Number of sites requiring management action
2013	Prairie and Northern	8	0
2013	Pacific and Yukon	1	0
<b>Total – 2013</b>	<b>All regions</b>	<b>19</b>	<b>2</b>
2014	Atlantic	4	0
2014	Quebec	4	0
2014	Pacific and Yukon	3	0
<b>Total – 2014</b>	<b>All regions</b>	<b>11</b>	<b>0</b>

**Source:** Environment and Climate Change Canada (2005–2014) Annual Compendium of Monitoring Activities. Marine Protection Program.

### Temporal coverage

All stations monitored from 2005 to 2014, the last year with available data, were used to calculate this indicator.

### Data completeness

Details of the monitoring projects and management action taken as a result are published in the Annual Compendium of Monitoring Activities at Disposal at Sea Sites.

Monitoring follows the national guidelines for monitoring disposal at sea sites<sup>3</sup> and technical guidance on physical, chemical and biological monitoring.<sup>4,5</sup>

### Data timeliness

There is a time lag of about one year between 2014, the last year reported, and the publication of this indicator. This time lag is due to the time required to perform the monitoring, compile the data at the national level, and analyze, review and report the results.

## Methods

To calculate the Managing Disposal at Sea indicator, the number of disposal sites requiring management action in a year was divided by the total number of sites assessed that year for all years between 2005 and 2014.

## Caveats and limitations

Disposal sites are monitored on a representative basis. Not all disposal sites used each year are monitored. Between 2005 and 2014, the number of monitored sites per year has fluctuated from 6 to 20.

<sup>3</sup> Environment Canada (1999) [National Guidelines for Monitoring Dredged and Excavated Material at Ocean Disposal Sites](#). Retrieved on 26 August, 2014.

<sup>4</sup> Environment Canada (1998) Technical Guidance for Physical Monitoring at Ocean Disposal Sites.

<sup>5</sup> Environment Canada (1994) [Guidance Document on Collection and Preparation of Sediments for Physicochemical Characterization and Biological Testing](#). Retrieved on 26 August, 2014.

## Part 3. Annexes

### Annex A. Data tables for the figures presented in this document

**Table A.1. Data for Figure 1. Monitored disposal at sea sites requiring no management action, Canada, 2005 to 2014**

Monitoring season	Number of sites studied	Number of management actions	Percentage requiring no action
2005	12	1	92
2006	6	0	100
2007	20	0	100
2008	6	0	100
2009	8	0	100
2010	7	0	100
2011	11	1	91
2012	12	1	92
2013	19	2	89
2014	11	0	100

**Source:** Data provided by the Marine Protection Program, Environment and Climate Change Canada.

## **Annex B. References and additional information**

### **References and further reading**

Environment Canada (1994) [Guidance Document on Collection and Preparation of Sediments for Physicochemical Characterization and Biological Testing](#). Retrieved on 26 August, 2014.

Environment Canada (1998) Technical Guidance for Physical Monitoring at Ocean Disposal Sites.

Environment Canada (1999) [National Guidelines for Monitoring Dredged and Excavated Material at Ocean Disposal Sites](#). Retrieved on 26 August, 2014.

Environment Canada (2000–2009) Annual Compendium of Monitoring Activities at Disposal at Sea Sites reports.

Environment and Climate Change Canada (2014) [Disposal at Sea: General Information](#). Retrieved on 2 September, 2015.

### **Related information**

[Environment and Climate Change Canada – Disposal at Sea London Convention, 1972, and the 1996 Protocol to the London Convention](#)

**[www.ec.gc.ca](http://www.ec.gc.ca)**

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