

# EnviroStats



## Winter 2010

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#### Monthly variations in drinking water production, 2005 to 2007

Potable water of sufficient quality and in adequate quantities is fundamental to human health and the economy. This article examines temporal and geographic variations in drinking water production volumes. The results indicate that nationally, the average daily volumes of water treated in the lowest production month of December and the highest production month of July varied by a range of 32% when compared to the annual daily averages for each of 2005, 2006 and 2007.

#### The use of transportation by seniors in Canada

A focus on the use of transportation by older Canadians has important implications because of the large number of baby boomers that will soon be turning 65. This article looks at transportation used by senior Canadians, using data from the Canadian Community Health Survey – Healthy Aging. The results indicate that in 2009 60% of seniors reported driving a motor vehicle as their most common form of transportation. Also, seniors were more likely to report driving if they were male, married, had no chronic conditions, or had excellent or very good health.

#### Ecoregion profile: Manitoulin–Lake Simcoe

The Manitoulin–Lake Simcoe ecoregion profile is the fifth in a series of ecoregion profiles. The information presented includes a brief description of the physical setting, a snapshot of land cover and use as well as statistics on selected socio-economic characteristics of the region. This is Canada's fourth most densely populated ecoregion.

**Table 1**  
**Latest Canadian indicators**

	Period	Percentage change
		%
Population	2009 to 2010	1.2
Gross domestic product, monthly	September 2010	-0.1
Greenhouse gas emissions	2007 to 2008	-2.1
Particulate matter (PM <sub>2.5</sub> )	2000 to 2007	n.s.s. <sup>1</sup>
Ground-level ozone (median percentage change per year)	1990 to 2007	0.8
Natural resource wealth	2008 to 2009	-37.8

1. Not statistically significant.

**Source(s):** Statistics Canada, CANSIM tables 051-0001 and 378-0005 (accessed November 4, 2010). Statistics Canada, 2010, *Gross Domestic Product by Industry*, Catalogue no. 15-001-X. Environment Canada, 2010, *National Inventory Report 1990-2008: Greenhouse Gas Sources and Sinks in Canada*, Catalogue no. En81-4/2008E-PDF. Environment Canada, 2010, *Air Quality: Data Sources and Methods*, [www.ec.gc.ca/indicateurs-indicators/default.asp?lang=En&n=ED311E59-1&offset=6&toc=show](http://www.ec.gc.ca/indicateurs-indicators/default.asp?lang=En&n=ED311E59-1&offset=6&toc=show) (accessed November 4, 2010).

## Monthly variations in drinking water production, 2005 to 2007

Cindy De Cuypere, Terence Nelligan, Mark Henry and François Souldard, Environment Accounts and Statistics Division

Potable water of sufficient quality and in adequate quantities is fundamental to human health and the economy. Of the total 42,058 million cubic metres (Mm<sup>3</sup>) of water withdrawn from the environment for household and economic activities in Canada in 2005, about 14% was treated<sup>1</sup> by drinking water plants.<sup>2,3</sup> Drinking water plants are defined as facilities that abstract raw water from the environment and produce potable water for consumption. They range from simple systems that provide minimal or no treatment to large facilities with complex treatment processes.

For the first time, Statistics Canada has collected national data on drinking water production volumes. This article will examine temporal and geographic variations in these data. It will also show how they can be analyzed together with environmental measures to highlight important supply and demand issues in a region.

The results indicate that nationally, the average daily volumes of water treated in the lowest production month of December and the highest production month of July varied by a range of 32% when compared to the annual daily averages for each of 2005, 2006 and 2007. The annual production remained stable over the three years. Depending on the drainage region, the variation from low to peak production months ranged from about one-half to over five times the Canadian average.

### What you should know about this study

#### Data sources

The primary data source for this article is the new *Survey of Drinking Water Plants*, conducted for reference years 2005, 2006, and 2007. The survey provides Canadians with national and regional information related to the production of drinking water. With a target population of drinking water plants serving communities of 300 or more people, it collects data on the volumes of water drawn and treated, treatment type, capital and operating costs, as well as raw and treated water quality. For 2007, the results represent about 85% of the Canadian population. For further information on data quality, concepts and methodology, please refer to: *Survey of Drinking Water Plants* (survey no. 5149).

Additional data were used including:

- Environment Canada, 2010, *Water Survey of Canada, Archived Hydrometric Data (HYDAT)*, [www.wsc.ec.gc.ca/hydat/H2O/index\\_e.cfm?cname=main\\_e.cfm](http://www.wsc.ec.gc.ca/hydat/H2O/index_e.cfm?cname=main_e.cfm).

### National production volumes ranged from 396 Mm<sup>3</sup> in February to 576 Mm<sup>3</sup> in July

Chart 1 plots monthly treated water production volumes for Canada and selected drainage regions, while Chart 2 plots the average daily treated water volumes per month for the same areas.<sup>4</sup> On average for 2005, 2006 and 2007, total monthly treated water volumes for Canada ranged from 396 Mm<sup>3</sup> in February (a short month) to 576 Mm<sup>3</sup> in July (Chart 1). Using average daily volumes (Chart 2), the lowest production occurred in December (13.7 Mm<sup>3</sup> per day) and peak production occurred in July (18.6 Mm<sup>3</sup> per day). The annual daily average was 15.4 Mm<sup>3</sup> per day.

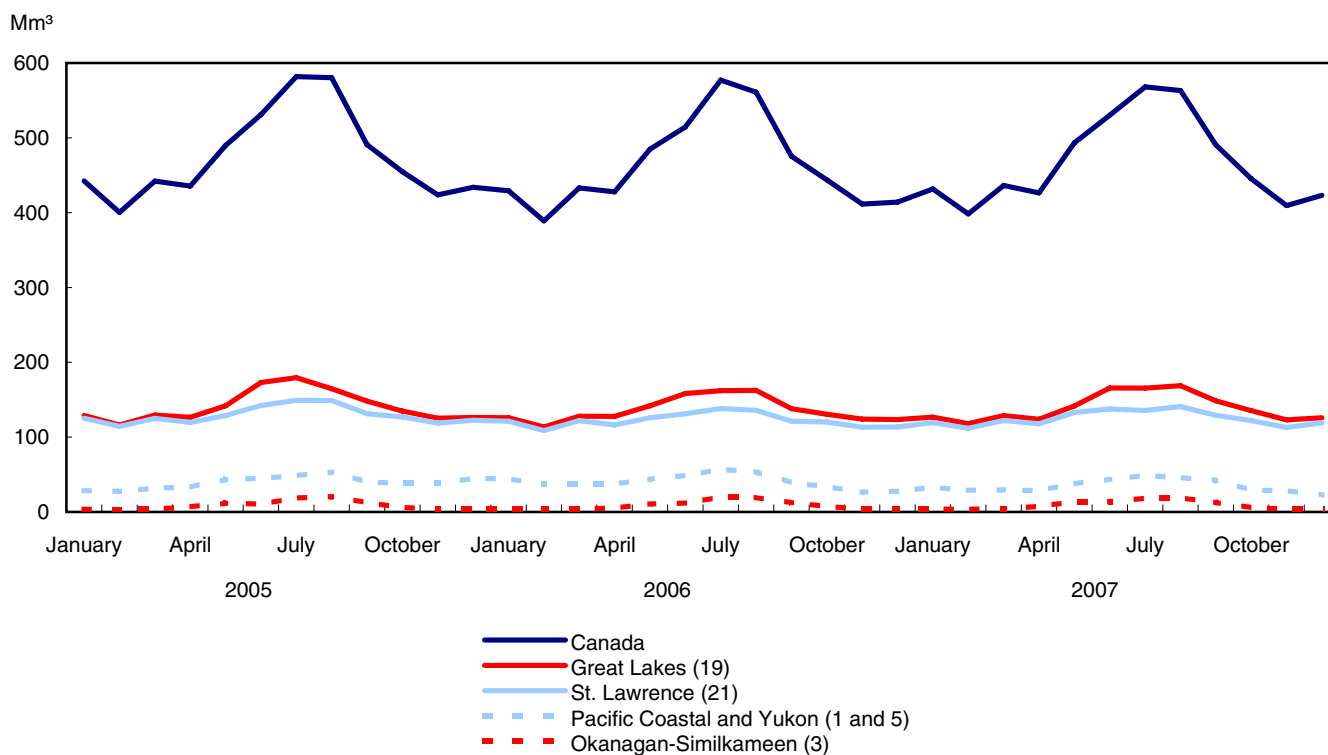
1. Treated water refers to water that has been treated and is ready to be conveyed to consumers. In the Survey of Drinking Water Plants it also includes potable water conveyed by plants without treatment.

2. Statistics Canada, 2010, *Human Activity and the Environment 2010: Freshwater supply and demand in Canada*, Catalogue no. 16-201-X, Table 3.1.

3. Statistics Canada, 2009, *Survey of Drinking Water Plants, 2005 to 2007*, Catalogue no. 16-403-X, Tables 3 and 4.

4. The Great Lakes, St. Lawrence and Pacific Coastal and Yukon drainage regions (the latter two are combined to protect confidentiality) are discussed in this article because they produce the largest volumes of drinking water. Also, the Newfoundland-Labrador drainage region (in Chart 3 only) had the least seasonal variation in drinking water demand, while the Okanagan-Similkameen drainage region had the greatest.

**Chart 1**  
**Monthly treated water volumes for Canada and selected drainage regions, 2005 to 2007**



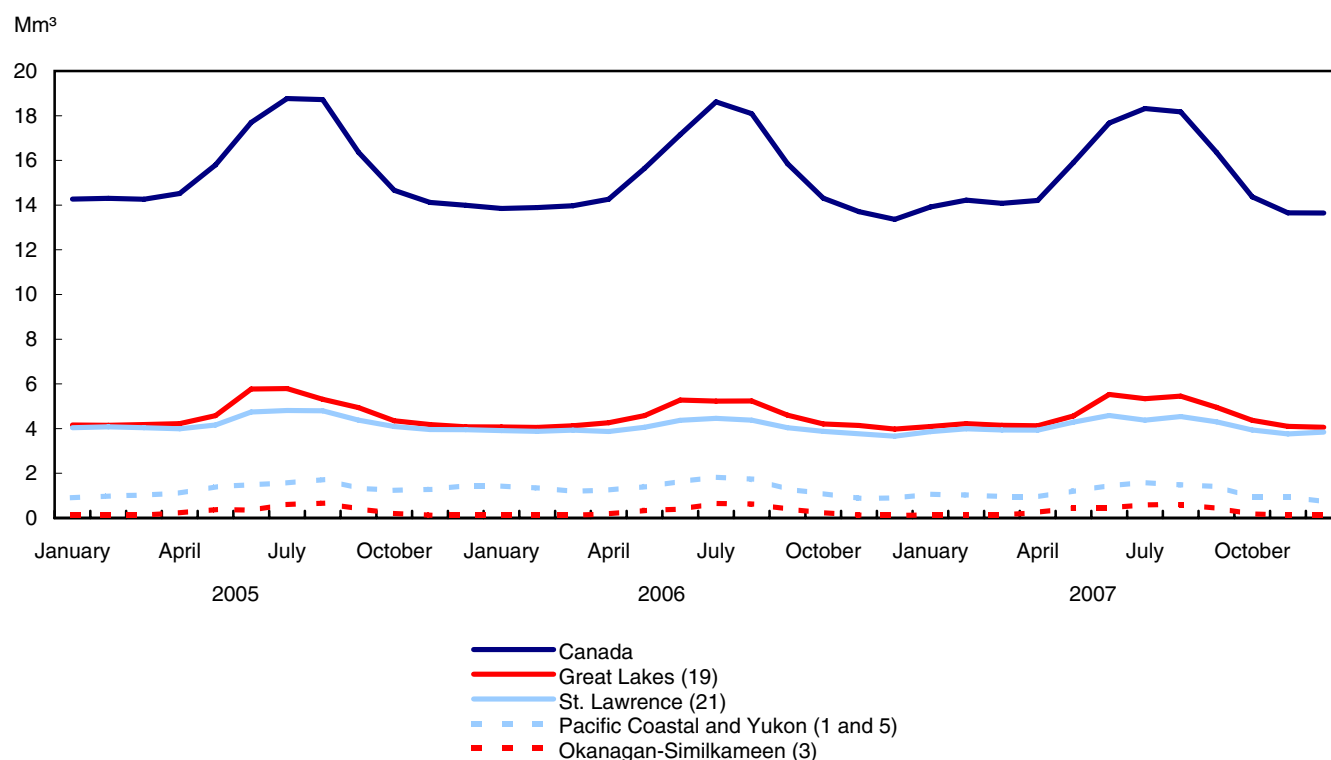
**Note(s):** The drainage regions in this chart are shown in Map 1. Canada excludes the Arctic Coast–Islands (8) and Keewatin–Southern Baffin Island (16) drainage regions due to low response to the survey. The Pacific Coastal (1) and Yukon (5) drainage regions are combined to protect confidentiality.

**Source(s):** Statistics Canada, Environment Accounts and Statistics Division, 2010, Survey of Drinking Water Plants (survey no. 5149).



Chart 2

Average daily treated water volumes per month for Canada and selected drainage regions, 2005 to 2007



**Note(s):** Average daily volumes remove the variation due to the differing number of days each month. The drainage regions in this chart are shown in Map 1. Canada excludes the Arctic Coast–Islands (8) and Keewatin–Southern Baffin Island (16) drainage regions due to low response to the survey. The Pacific Coastal (1) and Yukon (5) drainage regions are combined to protect confidentiality.

**Source(s):** Statistics Canada, Environment Accounts and Statistics Division, 2010, Survey of Drinking Water Plants (survey no. 5149).

While volumes were relatively stable from November to April, the rise and fall between April and November can be attributed to a wide variety of seasonal uses, including lawn and garden watering, agricultural irrigation and livestock watering, tourism, car washing and outdoor swimming pools, among others. Total annual production was stable, with an average of 5,628 Mm<sup>3</sup> treated per year.<sup>5</sup> In general, the variation in production from year to year was far less than the annual seasonal variation.

Using Statistics Canada's standard drainage regions<sup>6</sup> (Map 1), the Great Lakes and St. Lawrence regions produced the most treated water (Charts 1 and 2). Monthly volumes for the Great Lakes and St. Lawrence drainage regions were similar, representing 30% and 27% respectively of total Canadian production. The Great Lakes drainage region had roughly one third of the total population served by drinking water plants in 2007, while the St. Lawrence drainage region had one fifth, indicating greater water use per capita<sup>7</sup> in the latter (Table 2). However, not all drinking water is used by residents. On average in Canada in 2006, 43% of treated water use was commercial, institutional, industrial, or system losses.<sup>8</sup>

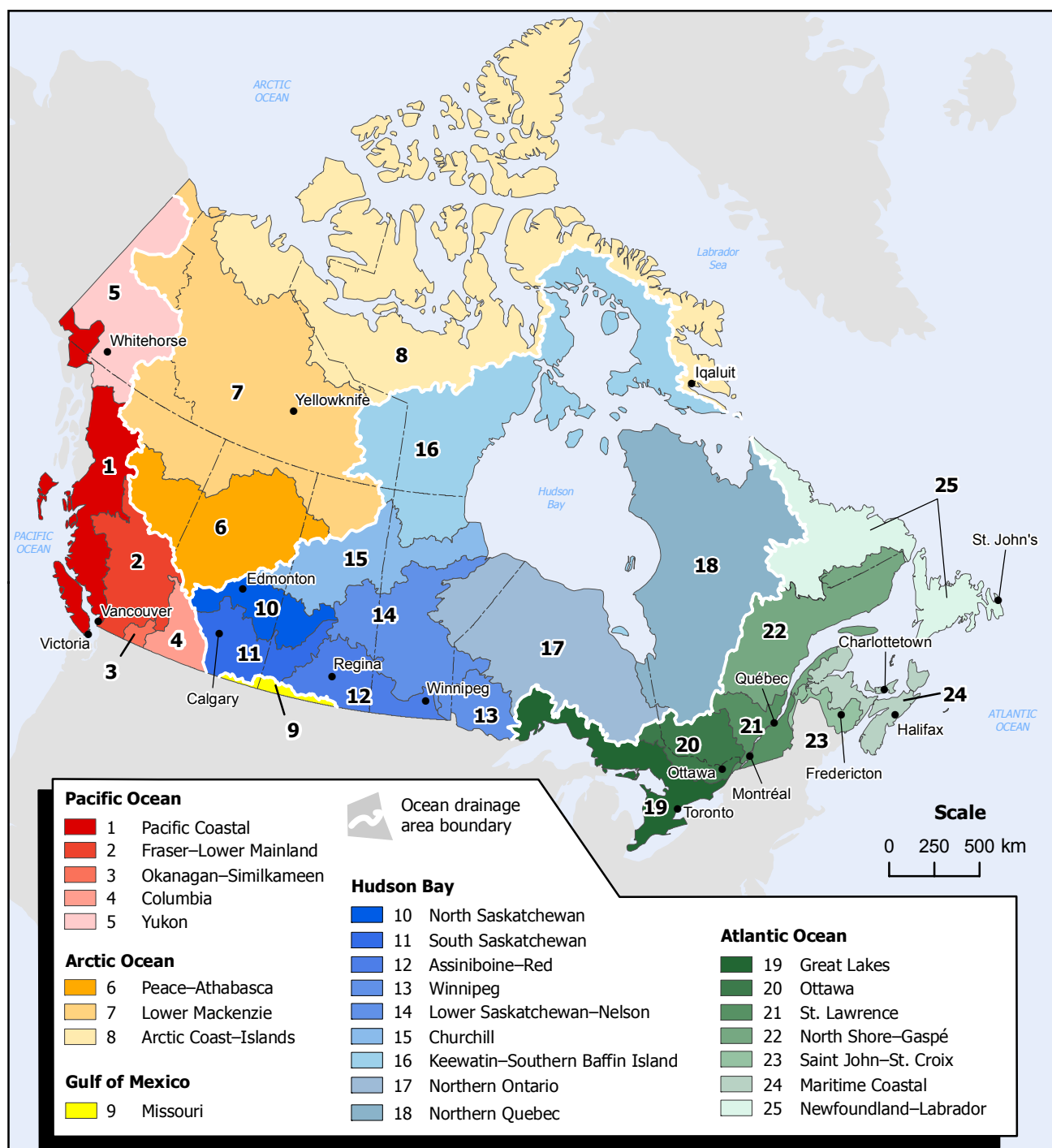
5. Statistics Canada, 2009, *Survey of Drinking Water Plants, 2005 to 2007*, Catalogue no. 16-403-X, Tables 3 and 4.

6. Statistics Canada, 2009, *Standard Drainage Area Classification (SDAC) 2003*, [www.statcan.gc.ca/subjects-sujets/standard-norme/sdac-ctad/sdac-ctad-eng.htm](http://www.statcan.gc.ca/subjects-sujets/standard-norme/sdac-ctad/sdac-ctad-eng.htm) (accessed April 16, 2010).

7. Per capita of the population served.

8. Environment Canada, 2010, *Municipal Water and Wastewater Survey: Municipal Water Use 2006 Summary Tables*, [www.ec.gc.ca/Water-apps/MWWS/pdf/MWWS\\_2006\\_WaterUse\\_May2010.pdf](http://www.ec.gc.ca/Water-apps/MWWS/pdf/MWWS_2006_WaterUse_May2010.pdf) (accessed July 16, 2010).

**Map 1**  
**Ocean drainage areas and drainage regions of Canada**



**Note(s):** The drainage region codes in this map are used in Charts 1, 2, and 3 and Table 2.

**Source(s):** Pearce, P.H., F. Bertrand and J.W. MacLaren, 1985, *Currents of Change: Final Report of the Inquiry on Federal Water Policy*, Environment Canada, Ottawa.  
Statistics Canada, Environment Accounts and Statistics Division, 2009, special tabulation.

Table 2

Population served by drinking water plants and gross potable water production per capita by drainage region, 2007

Drainage region	Population served	Share of the total population served	Gross potable water production per capita <sup>1</sup>
code	persons	percent	litres/person/day
<b>Canada<sup>2</sup></b>	<b>27,856,304</b>	<b>100.0</b>	<b>552</b>
Pacific Coastal and Yukon <sup>3</sup>	2,594,238	9.3	442
Fraser–Lower Mainland <sup>4</sup>	1,119,612	4.0	731
Okanagan–Similkameen	238,504	0.9	1,263
Columbia	145,719	0.5	872
Peace–Athabasca and Lower Mackenzie	335,192	1.2	440
Missouri	4,004	0.0	605
North Saskatchewan	1,117,572	4.0	374
South Saskatchewan	1,842,519	6.6	488
Assiniboine–Red	1,189,301	4.3	369
Winnipeg, Lower Saskatchewan–Nelson, Churchill, Northern Ontario	294,489	1.1	465
Northern Quebec	53,701	0.2	787
Great Lakes	9,693,436	34.8	473
Ottawa	1,674,782	6.0	539
St. Lawrence	5,698,840	20.5	722
North Shore–Gaspé	509,744	1.8	540
Saint John–St. Croix	145,147	0.5	602
Maritime Coastal	793,139	2.8	715
Newfoundland–Labrador	406,364	1.5	935

1. Per capita of the population served. Includes all uses (residential, industrial, commercial and institutional), as well as losses/leakage in the distribution system, the proportions of which vary across Canada.

2. Excludes Arctic Coast–Islands (8) and Keewatin–Southern Baffin Island (16) due to low response to the survey.

3. Population served is overestimated because some plants serve Fraser–Lower Mainland (2).

4. Population served is underestimated because some of the population is served by plants located in Pacific Coastal (1).

**Note(s):** Figures may not add up to totals due to rounding.

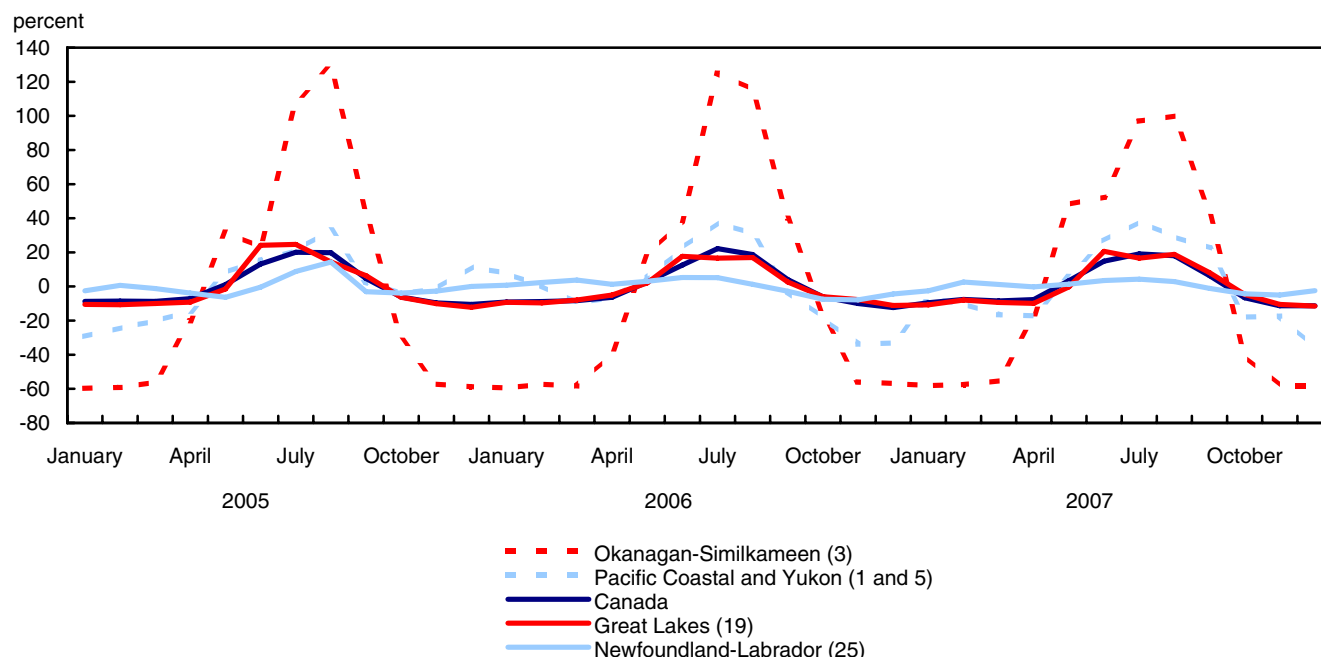
**Source(s):** Statistics Canada, 2009, *Survey of Drinking Water Plants, 2005 to 2007*, Catalogue no. 16-403-X, Tables 3, 4 and 6.

### Treated water production varied widely from low to peak months, depending on the region

To examine the seasonal patterns in water use on a standardized basis by drainage region, the differences between the average daily treated water volumes per month (as shown in Chart 2) and the average daily treated water volumes per year were plotted in Chart 3. Over the three years, national average daily production in December was 11% less than the annual daily average, while in July it was 21% greater.

**Chart 3**

**Differences between the average daily treated water volumes per month and the average daily volume per year, for Canada and selected drainage regions, 2005 to 2007**



**Note(s):** The average daily volume per year would plot as a horizontal line at 0%. The drainage regions in this chart are shown in Map 1. Canada excludes the Arctic Coast–Islands (8) and Keewatin–Southern Baffin Island (16) drainage regions due to low response to the survey. The Pacific Coastal (1) and Yukon (5) drainage regions are combined to protect confidentiality.

**Source(s):** Statistics Canada, Environment Accounts and Statistics Division, 2010, Survey of Drinking Water Plants (survey no. 5149).

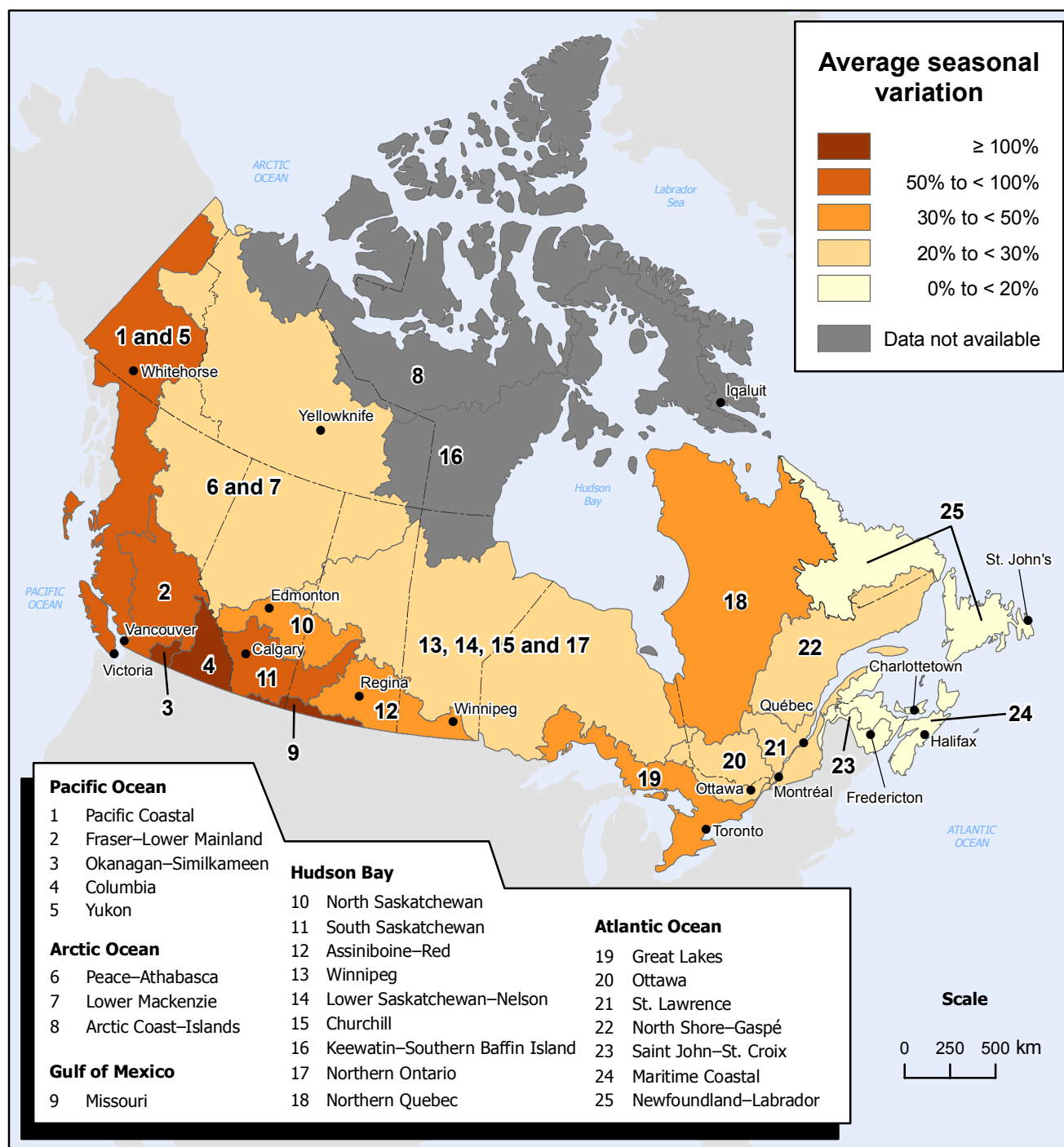
This seasonal variation is important to drinking water plant operators, who strive to have both an adequate supply of source water and sufficient plant operating capacity to meet the demand during peak periods. Otherwise, they may have to seek other supplies, build new capacity, or manage the demand by implementing conservation measures or restrictions on use. In this analysis, production is used as a reasonable indicator of demand.

The Great Lakes drainage region had the largest production volumes of all the drainage regions (Charts 1 and 2) and seasonal variations very similar to Canada's (Chart 3). The Okanagan–Similkameen drainage region had low production volumes (Charts 1 and 2) but the greatest variation (Chart 3). Production ranged from 59% less than the annual daily average in winter to 118% more than the annual daily average in summer. This range represents an average seasonal variation in demand of 177% during the period from 2005 to 2007. The Newfoundland–Labrador drainage region had the least variation, ranging from 6% less than the annual average to 8% more, a 14% seasonal variation in demand. The combined Pacific Coastal and Yukon drainage regions had the third largest production volume (Charts 1 and 2) and are a good example of moderate variation.

Map 2 summarizes the variation as shown in Chart 3 for all the drainage regions. It shows that drainage regions in the interior south of British Columbia and at the southern limits of Alberta and Saskatchewan experienced the greatest seasonal variation in demand. Drainage regions in the Atlantic provinces experienced the least variation in demand.

Map 2

Average seasonal variation in drinking water production by drainage region, 2005 to 2007



**Note(s):** Excludes Arctic Coast–Islands (8) and Keewatin–Southern Baffin Island (16) due to low response to the survey. The following drainage regions were aggregated to protect confidentiality: Pacific Coastal (1) with the Yukon (5); Peace–Athabasca (6) with the Lower Mackenzie (7); and the Winnipeg (13), Lower Saskatchewan–Nelson (14), Churchill (15) and Northern Ontario (17).

**Source(s):** Statistics Canada, Environment Accounts and Statistics Division, 2010, Survey of Drinking Water Plants, special tabulation.

The seasonal variation in any given area is related to the demand for seasonal water uses such as residential and agricultural irrigation. Precipitation received during high demand periods would offset some of that demand. Areas with a combination of intensive seasonal use and low precipitation are those where demand is most likely to exert significant pressure on supply during the summer season. Environment Canada reports that in 2004, 72 of 510 responding municipalities stated that they experienced water shortages.<sup>9</sup> Seasonal water shortages occur in areas of British Columbia, Alberta and Saskatchewan, southern Ontario, as well as in municipalities in Atlantic Canada.<sup>10</sup> Analysis of monthly frequency data within a region can highlight such supply and demand issues.

### Water supply and demand in the Okanagan–Similkameen drainage region

This drainage region was selected for a case study because it experiences the greatest seasonal variation in drinking water demand (177%). The region includes both the Okanagan and Similkameen basins and is characterized by hot, dry summers and areas considered to be semi-arid and prone to drought. It has a number of growing urban centres, extensive tourism, farms, orchards, and vineyards that are irrigated and is subject to water shortages and restrictions.<sup>11,12,13</sup> On average, over one third (36%) of the total annual treated water volume was used in the hotter and drier months of July and August.<sup>14</sup> In 2007, 84% of its drinking water was drawn from surface water sources and 16% was drawn from groundwater sources.<sup>15</sup>

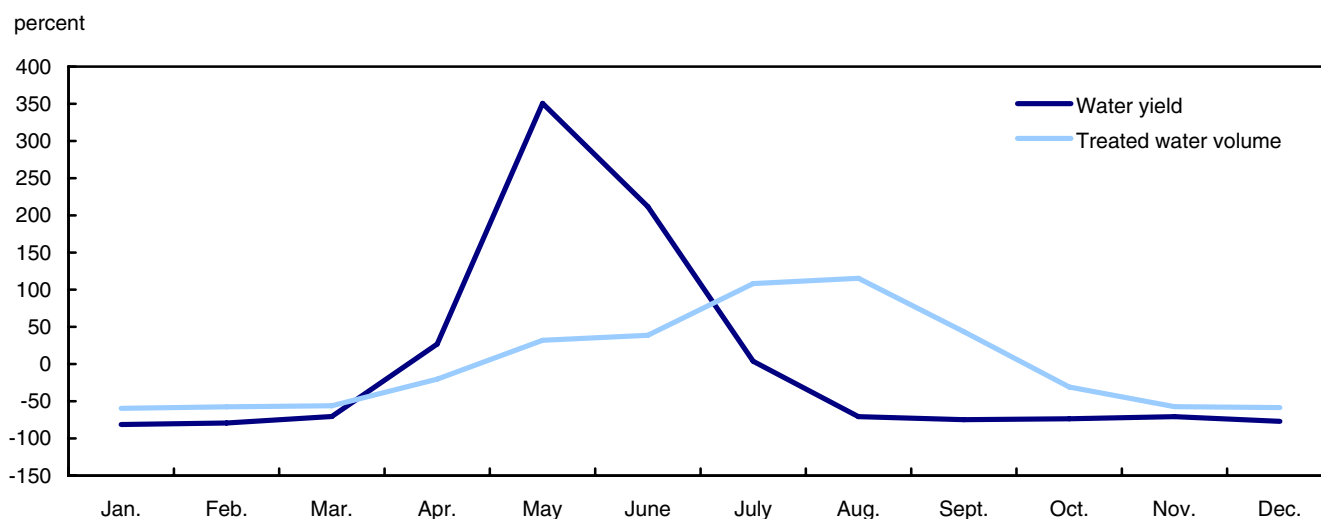
In the Okanagan basin portion of the drainage region, during the irrigation season residents use nearly 600% more treated water outdoors for landscaping than they do indoors.<sup>16</sup> In comparison, in the Regional Municipality of York in the Great Lakes drainage region, which has a greater population density and a wetter climate, residents use about 27% of their treated water outdoors during the irrigation season.<sup>17</sup> Within the Okanagan–Similkameen drainage region, the City of Penticton attributes a large portion of the high water demand during warm months to lawn watering, since demand decreases significantly on rainy days. The highest water users there are residents with irrigation systems.<sup>18</sup> Many of the communities in the region have implemented watering restrictions. Some treated water is also used for agriculture—for example, 5% of the water provided by the City of Kelowna.<sup>19</sup>

Chart 4 illustrates standardized monthly variations in drinking water production and water yield<sup>20</sup> in the Okanagan–Similkameen drainage region. Water yield represents the renewable freshwater that is produced in an area for a given period of time. It is a good measure for comparing against withdrawals to better understand what pressures may exist on our freshwater resources. Like Chart 3, Chart 4 plots the differences between the average daily values per month and the average daily values per year. While treated water demand peaks in July and August, the water yield peaks at 351% of its annual daily average in May, two to three months before.

9. Environment Canada, 2007, *2007 Municipal Water Use Report: Municipal Water Use 2004 Statistics*, [www.ec.gc.ca/Water-apps/MWWS/pdf/e\\_mun2004.pdf](http://www.ec.gc.ca/Water-apps/MWWS/pdf/e_mun2004.pdf) (accessed July 19, 2010).
10. Natural Resources Canada, 2008, *From Impacts to Adaptation: Canada in a Changing Climate 2007*, D.S. Lemmen, F.J. Warren, J. Lacroix, and E. Bush (eds.), [http://adaptation.nrcan.gc.ca/assess/2007/index\\_e.php](http://adaptation.nrcan.gc.ca/assess/2007/index_e.php) (accessed May 26, 2010).
11. Natural Resources Canada, 2008, *From Impacts to Adaptation: Canada in a Changing Climate 2007*, D.S. Lemmen, F.J. Warren, J. Lacroix, and E. Bush (eds.), [http://adaptation.nrcan.gc.ca/assess/2007/index\\_e.php](http://adaptation.nrcan.gc.ca/assess/2007/index_e.php) (accessed May 26, 2010).
12. Okanagan Water Stewardship Council, 2008, *Okanagan Sustainable Water Strategy - Action Plan 1.0*, [www.obwb.ca/fileadmin/docs/osws\\_action\\_plan.pdf](http://www.obwb.ca/fileadmin/docs/osws_action_plan.pdf) (accessed May 25, 2010).
13. City of Kelowna, 2009, *Water Regulations*, [www.kelowna.ca/CM/Page2506.aspx](http://www.kelowna.ca/CM/Page2506.aspx) (accessed June 7, 2010).
14. Statistics Canada, Environment Accounts and Statistics Division, 2010, *Survey of Drinking Water Plants* (survey no. 5149).
15. Statistics Canada, 2009, *Survey of Drinking Water Plants, 2005 to 2007*, Catalogue no. 16-403-X, Tables 3 and 4.
16. Okanagan Basin Water Board, 2010, *Okanagan Water Supply & Demand Project Phase 2 - Key Findings*, [www.obwb.ca/fileadmin/docs/100326\\_key\\_findings.pdf](http://www.obwb.ca/fileadmin/docs/100326_key_findings.pdf) (accessed May 25, 2010).
17. Resource Management Strategies Inc., 2007, *Regional Municipality of York: Water Efficiency Master Plan Update, Final Report - April 27, 2007*, [www.york.ca/NR/rdonlyres/bjdcejrhustvsh2lksufvfbayqvxvp3lldmujaswui34cfpy7xmbtuijxuc4fbyo2gqmsahr6ziozvwhvqn44bvie/York+Region+WEMP+Final+Report+with+Appendices+April+27+2007.pdf](http://www.york.ca/NR/rdonlyres/bjdcejrhustvsh2lksufvfbayqvxvp3lldmujaswui34cfpy7xmbtuijxuc4fbyo2gqmsahr6ziozvwhvqn44bvie/York+Region+WEMP+Final+Report+with+Appendices+April+27+2007.pdf) (accessed July 19, 2010).
18. City of Penticton Water Conservation, 2004, *Water & You*, [www.penticton.ca/water/default.asp](http://www.penticton.ca/water/default.asp) (accessed June 7, 2010).
19. Rutland Waterworks District, n.d. (no date), *A Table Comparing Kelowna's Five Major Water Utilities*, [www.rutlandwaterworks.com/page.php?pageID=197](http://www.rutlandwaterworks.com/page.php?pageID=197) (accessed June 7, 2010).
20. Water yield is the amount of freshwater derived from unregulated flow measurements for a given geographic area over a defined period of time and is an estimate of the renewable water. For more information on the water yield, please refer to Statistics Canada, 2010, *Human Activity and the Environment 2010: Freshwater supply and demand in Canada*, Catalogue no. 16-201-X.

Chart 4

Differences between the average daily water yield per month and the average daily treated water volume per month and their average daily values per year for the Okanagan–Similkameen drainage region



**Note(s):** Water yield data were derived from discharge values contained in Environment Canada, 2010, Water Survey of Canada, *Archived Hydrometric Data (HYDAT)*, ([www.wsc.ec.gc.ca/hydat/H2O/index\\_e.cfm?cname=main\\_e.cfm](http://www.wsc.ec.gc.ca/hydat/H2O/index_e.cfm?cname=main_e.cfm)). Median values were selected each month from 34 years of data (1971 to 2004) and divided by the number of days per month. For treated water volumes, median values were selected each month from 3 years of data (2005 to 2007) and divided by the number of days per month.

**Source(s):** Statistics Canada, Environment Accounts and Statistics Division, 2010, Survey of Drinking Water Plants (survey no. 5149) and special tabulation.

In August, only 2.5% of the total annual water yield (about 96 Mm<sup>3</sup>) is produced, while drinking water plants withdraw for production 18% of their annual total (about 19 Mm<sup>3</sup>).<sup>21,22</sup> Treated water demand thus accounts for one fifth of the water yield in August.

This disparity between peak water supply and peak demand is an acknowledged concern, especially for fruit growers and residential users in the Okanagan valley portion of the drainage region.<sup>23</sup> As the Canadian population and economy grow, and climate change shifts the patterns of temperature, precipitation and extreme weather events,<sup>24</sup> analyzing monthly data on a regional basis for all water use sectors would help to evaluate areas of potential stress.

21. Statistics Canada, Environment Accounts and Statistics Division, 2010, Survey of Drinking Water Plants (survey no. 5149).

22. Statistics Canada, Environment Accounts and Statistics Division, 2010, special tabulation.

23. National Round Table on the Environment and the Economy, 2010, *Changing Currents: Water Sustainability and the Future of Canada's Natural Resource Sector*, [www.nrtee-trnee.ca/eng/publications/changing-currents/changing-currents-eng.php](http://www.nrtee-trnee.ca/eng/publications/changing-currents/changing-currents-eng.php) (accessed June 17, 2010).

24. National Round Table on the Environment and the Economy, 2010, *Changing Currents: Water Sustainability and the Future of Canada's Natural Resource Sector*, [www.nrtee-trnee.ca/eng/publications/changing-currents/changing-currents-eng.php](http://www.nrtee-trnee.ca/eng/publications/changing-currents/changing-currents-eng.php) (accessed June 17, 2010).



## The use of transportation by seniors in Canada

Melissa Sleightholm, Jean-Michel Billette, Claude Normandin and Nancy Hofmann, Health Statistics Division

A focus on the use of transportation by older Canadians has important implications because of the large number of baby boomers that will soon be turning 65. In 2009, senior Canadians, aged 65 and older, made up 14% of the Canadian population. In 2036, this proportion is projected to increase to between 23% and 25%.<sup>25</sup>

The increasing number of seniors means that their decisions regarding transportation may have potential environmental impact. This article focuses on transportation used by senior Canadians in relation to the following factors: sex, marital status, chronic conditions, and perception of health.

### What you should know about this study

This study is based on data from the 2009 Canadian Community Health Survey – Healthy Aging, conducted as part of the Canadian Community Health Survey program. The survey collects information on Canadians aged 45 and older about the factors, influences, and processes that contribute to healthy aging through a multidisciplinary approach focusing on health, social, and economic determinants.

Data were collected from December 2008 to November 2009 from Canadians living in private households within the ten provinces. Excluded were people living in the three territories, those living on Indian Reserves/Crown lands, full-time members of the Armed Forces, residents of certain remote regions and persons who were institutionalized. The survey includes only those who live in private households in the community.

Respondents were asked in general what was their most common form of transportation in the last month. Options included passenger in a motor vehicle; taxi; public transportation such as bus, rapid transit, subway, or train; accessible transit such as Para Transpo; cycling; walking; and drive a motor vehicle. Only those seniors who used a form of transportation were included in this analysis.

Chronic conditions that could be reported in this survey included: asthma, arthritis, osteoporosis, back problems, high blood pressure, migraine headaches, chronic bronchitis, emphysema, chronic obstructive pulmonary disease, diabetes, heart disease, cancer, intestinal/stomach ulcers, effects of stroke, urinary incontinence, bowel disorder, Alzheimer's disease, Parkinson's disease, cataracts, glaucoma, thyroid condition, mood disorder, anxiety disorder, and other unspecified conditions.

### Most common form of transportation used by seniors

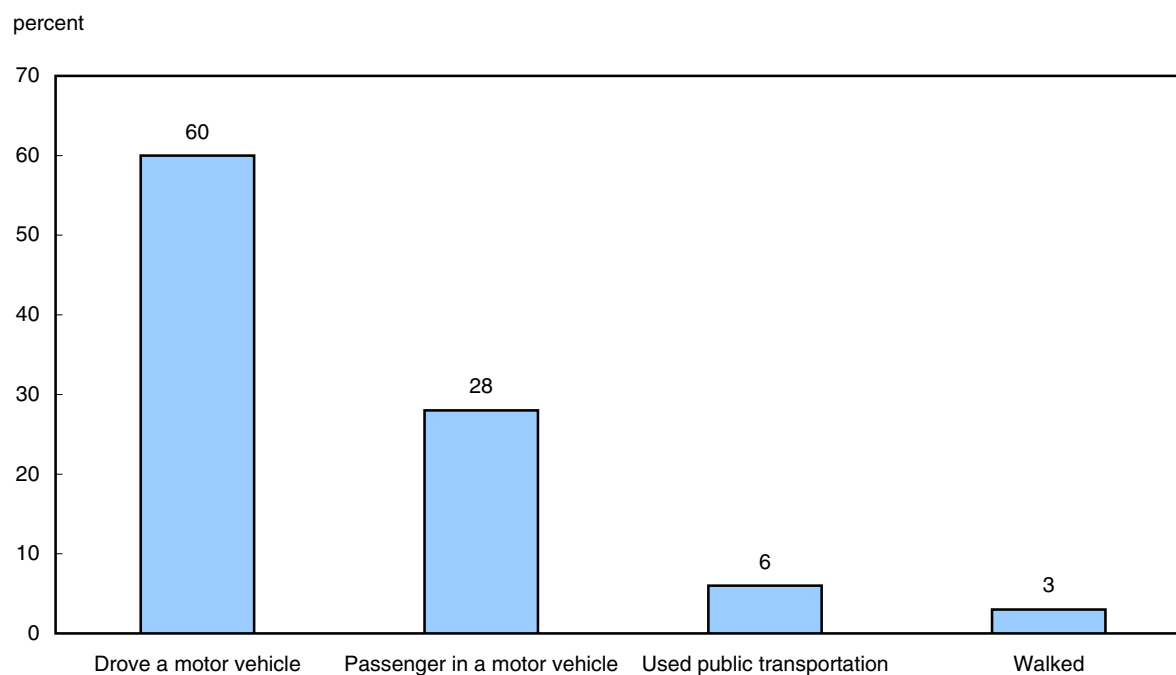
Results from the Canadian Community Health Survey – Healthy Aging found that in 2009 the most common form of transportation used by seniors was a motor vehicle. Nine in ten (90%) seniors with a valid driver's licence had driven at least once a week during the month preceding the interview.

Six in ten (60%) seniors reported that driving a motor vehicle was their most common form of transportation in 2009. Being a passenger in a motor vehicle was the next most common form of transportation, reported by 28% of seniors. About 6% of seniors used public transportation and 3% of seniors walked as their most common form of transportation (Chart 5).

25. Statistics Canada, 2010, *Population Projections for Canada, Provinces, and Territories, 2009 to 2036*, Catalogue no. 91-520-X.



**Chart 5**  
**Most common form of transportation, seniors aged 65 and older, Canada, 2009**



**Note(s):** 75% of Canadian seniors have a valid driver's licence.

**Source(s):** Statistics Canada, Canadian Community Health Survey – Healthy Aging, 2009.

### Factors that impact transportation use by seniors

A number of factors were associated with the form of transportation used by seniors including sex, marital status, chronic conditions, and health perception. Senior men were more likely to drive than senior women. In contrast, senior women were more likely to be passengers, use public transportation, or walk than senior men.

The largest difference in transportation use between the sexes was the percentage of seniors that drove. Seventy-nine percent of senior men drove, compared to 44% of senior women (Table 3).

**Table 3**

**Most common form of transportation, by sex, marital status, number of chronic conditions, and health perception, seniors aged 65 and older, Canada, 2009**

	Drove a motor vehicle	Passenger in a motor vehicle	Used public transportation	Walked
	percent			
<b>Sex</b>				
Men <sup>1</sup>	79	12	5	2
Women	44 <sup>2</sup>	41 <sup>2</sup>	8 <sup>2</sup>	4 <sup>2</sup>
<b>Marital status</b>				
Married <sup>1</sup>	65	28	3	2
Widowed	47 <sup>2</sup>	34 <sup>2</sup>	9 <sup>2</sup>	5 <sup>2</sup>
Separated/divorced	60 <sup>2</sup>	15 <sup>2</sup>	14 <sup>2</sup>	6 <sup>2</sup>
Single	50 <sup>2</sup>	17 <sup>2</sup>	19 <sup>2</sup>	8 <sup>2</sup>
<b>Number of chronic conditions</b>				
No chronic conditions <sup>1</sup>	67	20	7	4 <sup>E</sup>
Three or more	54 <sup>2</sup>	33 <sup>2</sup>	6	3
<b>Health perception</b>				
Excellent/very good <sup>1</sup>	68	22	5	4
Fair/poor	47 <sup>2</sup>	40 <sup>2</sup>	7 <sup>2</sup>	2 <sup>2</sup>

1. Reference group

2. Significantly different from estimate for reference group ( $p < 0.05$ )

**Source(s):** Statistics Canada, Canadian Community Health Survey – Healthy Aging, 2009.

Marital status also had a relationship with the form of transportation used by seniors. Those who were married were more likely to drive and less likely to use public transportation or to walk as compared to other marital statuses.<sup>26</sup>

Nearly two thirds (65%) of married seniors drove, compared to less than half (47%) of widowed seniors. Almost one in five single seniors (19%) used public transportation compared to only 3% of married seniors. Additionally, widowed seniors were more likely than married seniors to be passengers; while married seniors were more likely to be passengers than separated, divorced or single seniors (Table 3).

The likelihood of driving also appeared to be related to the number of chronic conditions reported by seniors. Seniors with three or more chronic conditions were less likely to drive and more likely to be passengers than seniors with no chronic conditions. For example, 54% of seniors with three or more chronic conditions drove, compared to 67% of seniors with no chronic conditions (Table 3).

The number of chronic conditions however did not have a significant association with using public transportation or walking. Seniors with three or more chronic conditions were just as likely to use public transportation or walk as seniors with no chronic conditions.

Canadian seniors were asked to report on the general condition of their health. Seniors who indicated they had “fair” or “poor” health were less likely to drive and more likely to be passengers and use public transportation than seniors with “excellent” or “very good” health. For example, slightly more than two thirds (68%) of seniors who perceived their health to be “excellent” or “very good” drove, however, this decreased to 47% of seniors who rated their health as “fair” or “poor” (Table 3).

Although walking was a relatively uncommon mode of transportation for seniors, those who rated their health as “excellent” or “very good” were more likely to walk (4%) than those who rated their health as “fair” or “poor” (2%) (Table 3).

26. Seniors who were common-law were not reported due to unreliable estimates.

### Seniors compared to Canadian workers aged 15 and older

The 2006 Census of Population collected data on the forms of transportation used by workers. This refers to the main means Canadians aged 15 and older that worked outside of their homes used to travel between their home and their place of work. In comparison, the Canadian Community Health Survey did not ask specifically about commuting.

In 2006, 11% of workers used public transportation and 6% walked.<sup>27</sup> In comparison, 6% of seniors used public transportation and 3% walked in 2009.

Seventy-two percent of workers and 60% of seniors reported driving as their main mode of transportation. Seniors were more likely to be passengers in a vehicle than workers—8% of workers were passengers compared to 28% of seniors.<sup>28</sup>

27. Statistics Canada, 2009, *Place of Work Highlight Tables, 2006 Census*, "Employed labour force by mode of transportation," <http://www12.statcan.ca/census-recensement/2006/dp-pd/hlt/97-561/T603-eng.cfm?SR=1> (accessed October 22, 2010).

28. Statistics Canada, 2009, *Place of Work Highlight Tables, 2006 Census*, "Employed labour force by mode of transportation," <http://www12.statcan.ca/census-recensement/2006/dp-pd/hlt/97-561/T603-eng.cfm?SR=1> (accessed October 22, 2010).

## Ecoregion profile: Manitoulin–Lake Simcoe

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The Manitoulin–Lake Simcoe ecoregion is located in Ontario (Map 3) and covers an area of 46,600 km<sup>2</sup>. This is slightly larger than the average Canadian ecoregion of approximately 45,000 km<sup>2</sup>. The Manitoulin–Lake Simcoe ecoregion makes up the western portion of the Mixed Wood Plains ecozone and it extends from Manitoulin Island to Kingston.

### Map 3

#### Manitoulin–Lake Simcoe ecoregion



**Source(s):** Agriculture and Agri-Food Canada, 2008, *A National Ecological Framework for Canada*, <http://sis.agr.gc.ca/cansis/nsdb/ecostrat/intro.html> (accessed February 19, 2010).

The Manitoulin–Lake Simcoe ecoregion was the fourth most densely populated ecoregion in Canada in 2006, with 58 persons per km<sup>2</sup>. The population was 2.7 million people in 2006, an 81% increase over 1971 (Table 4). The main population centres in the ecoregion include Kingston, Belleville, Peterborough, Oshawa, Kitchener, Barrie, Owen Sound, Stratford, and Brantford.

The physiography of the ecoregion is characterized by deep glacial deposits accumulated over successive periods of glaciation. One of the dominant landforms in the ecoregion is the Niagara Escarpment, which extends northwesterly from the Niagara River to Manitoulin Island. Soils that have formed in the ecoregion are fertile due to a combination of favourable long-term climate, geology and vegetation. More than 60% of the ecoregion is classified as dependable agricultural land, representing 6.3% of Canada's total stock of dependable agricultural land (Table 4).

The dominant land cover in the ecoregion is crops and pasture, making up 56.0% of the area (Chart 6, Map 4 and Table 4). Forests cover 27.5% of the ecoregion, followed by water (6.0%), wetland (3.6%), shrubland (3.0%) and developed land (2.9%).

The area protected in the ecoregion amounts to 964 km<sup>2</sup>, or just over 2.1% of the total area (Table 4).

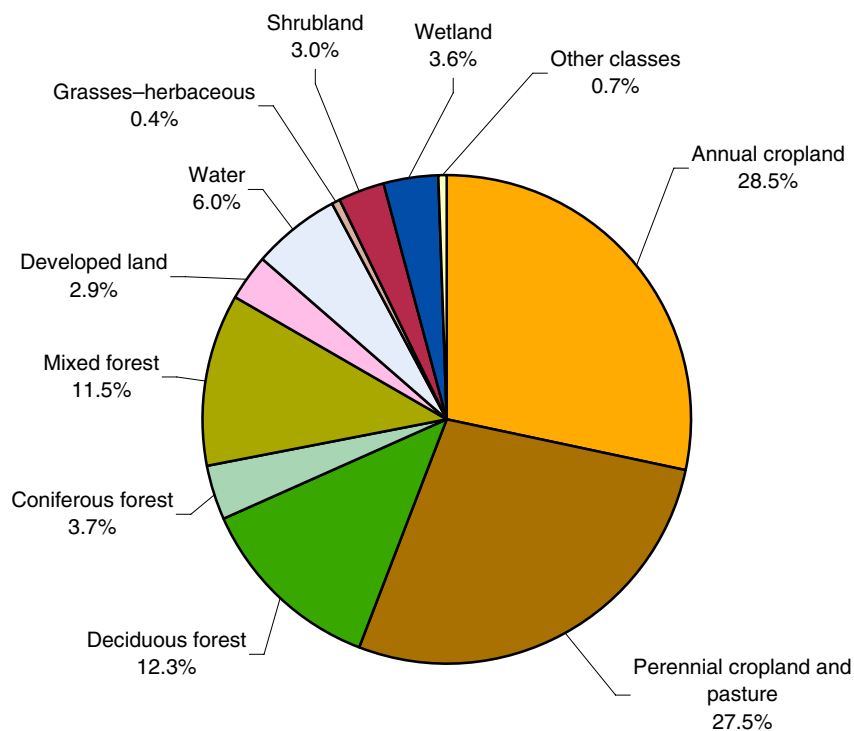
More than 1.4 million people were employed in the ecoregion in 2006 (Table 4). Educational and health care services was the largest employment category, employing 16.6% of the total labour force, followed by manufacturing (16.2%) and retail and wholesale trade (16.0%) (Chart 7).

The rich soils and favourable climate of the ecoregion support a strong agricultural economy. Agriculture in the ecoregion contributed \$4.5 billion (10.7%) to Canada's total farm sales of \$42.2 billion in 2005 (Table 4).

Total farmland area—which includes cropland, summerfallow and pasture lands—declined in the ecoregion from 2.9 million hectares in 1971, to 2.5 million hectares in 2006. During the same period, the area of revenue-generating cropland increased by 19%.

From 1971 to 2006 the number of cattle dropped by 30% to 1.2 million, while the number of pigs increased by 71% and poultry stocks rose by 62%. The fastest growing livestock category was goats, up 1,226% (Table 4).

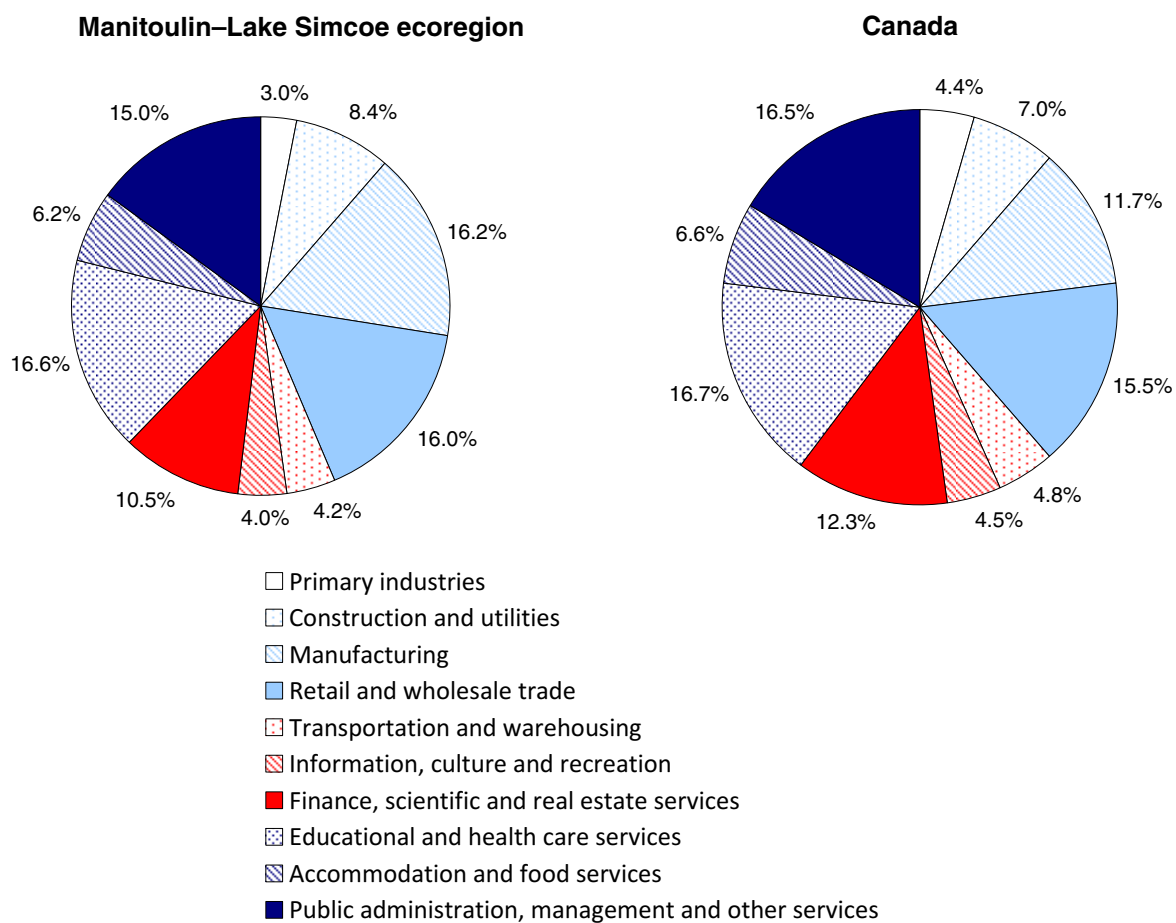
**Chart 6**  
**Manitoulin–Lake Simcoe ecoregion, land cover by type, circa 2000**



**Note(s):** 'Developed land' includes built-up areas, lawns, road surfaces, industrial sites and farmsteads. 'Other' refers to unclassified land types due to shadow and clouds in the satellite imagery. Land cover is based on LANDSAT satellite data from 1996 to 2003.

**Source(s):** Natural Resources Canada, 2009, *Land cover, Circa 2000 - Vector*, Earth Sciences Sector, [www.geobase.ca/geobase/fr/data/landcover/index.html](http://www.geobase.ca/geobase/fr/data/landcover/index.html) (accessed October 8, 2009).

**Chart 7**  
**Labour force by industry, 2006**



**Note(s):** 'Primary industries' includes agriculture, forestry, fishing and hunting; and mining and oil and gas extraction. 'Public administration, management and other services' includes management of companies and enterprises; administrative and support, waste management and remediation services; other services (except public administration); and public administration.

**Source(s):** Statistics Canada, Environment Accounts and Statistics Division, 2010, special tabulation of data from the 2006 Census of Population.

See notes at the end of the table.

**Table 4**  
**Manitoulin–Lake Simcoe ecoregion**

	Manitoulin–Lake Simcoe ecoregion	Canada	Percentage share of Canada total
<b>Total area (km<sup>2</sup>)</b>	<b>46,624</b>	<b>9,976,182</b>	<b>0.5</b>
<b>Land cover circa 2000<sup>1, 2</sup></b>			
Annual cropland (km <sup>2</sup> )	13,267	..	...
Perennial cropland and pasture (km <sup>2</sup> )	12,807	..	...
Coniferous forest (km <sup>2</sup> )	1,705	..	...
Deciduous forest (km <sup>2</sup> )	5,755	..	...
Mixed forest (km <sup>2</sup> )	5,343	..	...
Developed land (km <sup>2</sup> )	1,369	..	...
Water (km <sup>2</sup> )	2,812	..	...
Grasses–herbaceous (km <sup>2</sup> )	183	..	...
Shrubland (km <sup>2</sup> )	1,393	..	...
Wetland (km <sup>2</sup> )	1,668	..	...
Other classes (km <sup>2</sup> )	324	..	...
<b>Protected areas</b>			
Protected area (km <sup>2</sup> )	964	1,002,939	0.1
Proportion of area protected (percent)	2.1	10.1	...
<b>Agricultural land</b>			
Area of dependable agricultural land <sup>3</sup> (km <sup>2</sup> )	28,641	454,630	6.3
Proportion of area in dependable land (percent)	61.4	4.6	...
<b>Population</b>			
Population in 1971 (number)	1,500,113	21,568,310	7.0
Population in 1981 (number)	1,777,537	24,343,181	7.3
Population in 1991 (number)	2,177,102	27,296,859	8.0
Population in 1996 (number)	2,346,410	28,846,761	8.1
Population in 2001 (number)	2,514,684	30,007,094	8.4
Population in 2006 (number)	2,707,852	31,612,895	8.6
Population density in 2006 (people/km <sup>2</sup> )	58.1	3.2	...
Change in population 1971 to 2006 (percent)	80.5	46.6	...
<b>Labour force by industry, 2006</b>			
Primary industries <sup>4</sup>	43,525	762,460	5.7
Construction and utilities	120,030	1,202,045	10.0
Manufacturing	232,500	2,005,980	11.6
Retail and wholesale trade	229,420	2,656,475	8.6
Transportation and warehousing	60,955	820,195	7.4
Information, culture and recreation	57,260	763,640	7.5
Finance, scientific and real estate services	149,940	2,115,165	7.1
Educational and health care services	237,450	2,866,790	8.3
Accommodation and food services	88,735	1,126,695	7.9
Public administration, management and other services <sup>5</sup>	214,505	2,826,680	7.6
Total labour force <sup>6, 7</sup>	1,434,320	17,146,135	8.4
<b>Agriculture</b>			
Area of farmland in 1971 (hectares)	2,922,615	68,662,444	4.3
Area of farmland in 2006 (hectares)	2,466,033	67,586,739	3.6
Change in area of farmland (percent)	-15.6	-1.6	...

See notes at the end of the table.



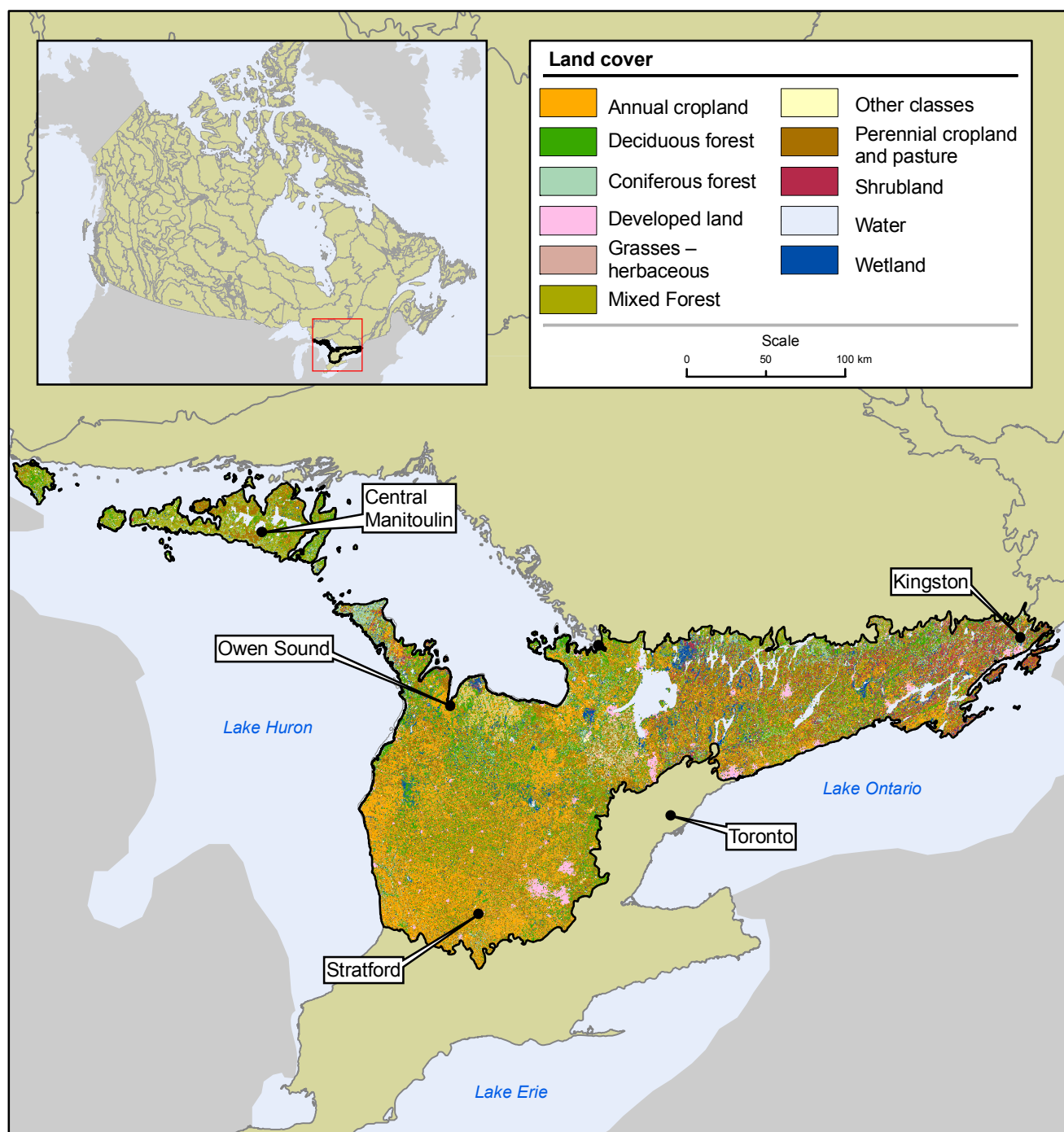
Table 4 – continued

## Manitoulin–Lake Simcoe ecoregion

	Manitoulin–Lake Simcoe ecoregion	Canada	Percentage share of Canada total
Farms in 1971 (number)	41,380	366,128	11.3
Farms in 2006 (number)	27,687	229,373	12.1
Change in number of farms (percent)	-33.1	-37.4	...
Area of cropland in 1971 (hectares)	1,377,931	27,828,479	5.0
Area of cropland in 2006 (hectares)	1,643,736	35,912,247	4.6
Change in area of cropland (percent)	19.3	29.0	...
Cattle in 1971 (number)	1,737,508	13,276,308	13.1
Cattle in 2006 (number)	1,214,773	15,773,527	7.7
Change in number of cattle (percent)	-30.1	18.8	...
Pigs in 1971 (number)	1,377,032	8,086,186	17.0
Pigs in 2006 (number)	2,355,742	12,726,573	18.5
Change in number of pigs (percent)	71.1	57.4	...
Goats in 1971 (number)	3,355	18,417	18.2
Goats in 2006 (number)	44,480	136,599	32.6
Change in number of goats (percent)	1,225.7	641.7	...
Poultry in 1971 (number)	15,944,935	98,049,591	16.3
Poultry in 2006 (number)	25,825,125	125,314,793	20.6
Change in number of poultry (percent)	62.0	27.8	...
Gross farm sales (excluding forest products) 2005 (thousands of current dollars)	4,501,159	42,191,981	10.7

1. Some land cover classes are aggregated. 'Developed land' includes built-up areas, lawns, road surfaces, industrial sites and farmsteads. 'Other' refers to unclassified land types due to shadow and clouds in the satellite imagery. Land cover is based on LANDSAT satellite data from 1996 to 2003.
  2. Land cover statistics have not been compiled nationally from this source.
  3. Dependable agricultural land is defined as land designated as Class 1, Class 2 and Class 3 by the Canada Land Inventory.
  4. Includes agriculture, forestry, fishing and hunting; and mining and oil and gas extraction.
  5. Includes management of companies and enterprises; administrative and support, waste management and remediation services; other services (except public administration); and public administration.
  6. Includes the category 'industry – not applicable.'
  7. Figures may not add up to totals due to rounding.
- Source(s):** Statistics Canada, CANSIM table 153-0057 (accessed October 8, 2009). Statistics Canada, Census of Population and Census of Agriculture. Statistics Canada, Environment Accounts and Statistics Division, Spatial Environmental Information System. Natural Resources Canada, 2008, *Canada Land Inventory—Land Capability for Agriculture*, Earth Sciences Sector, [www.geogratis.ca/geogratis/en/collection/cli.html](http://www.geogratis.ca/geogratis/en/collection/cli.html) (accessed October 8, 2009). Natural Resources Canada, 2009, *Land Cover, Circa 2000 - Vector*, Earth Sciences Sector, [www.geobase.ca/geobase/en/data/landcover/index.html](http://www.geobase.ca/geobase/en/data/landcover/index.html) (accessed October 8, 2009). Agriculture and Agri-Food Canada, 2008, *A National Ecological Framework for Canada*, <http://sis.agr.gc.ca/cansis/nsdb/ecostrat/intro.html> (accessed February 19, 2010). Canadian Council on Ecological Areas, 2010, *Conservation Areas Reporting and Tracking System (CARTS)*, [www.ccea.org/en\\_carts.html](http://www.ccea.org/en_carts.html) (accessed April 21, 2010).

**Map 4**  
**Land cover, Manitoulin–Lake Simcoe ecoregion, circa 2000**



**Source(s):** Natural Resources Canada, 2009, *Land Cover, Circa 2000-Vector (LCC2000-v)*, Earth Sciences Sector, [www.geobase.ca](http://www.geobase.ca) (accessed October 8, 2009).  
 Agriculture and Agri-Food Canada, 2008, *A National Ecological Framework for Canada*, <http://sis.agr.gc.ca/cansis/nsdb/ecostrat/intro.html> (accessed February 19, 2010).

## Canadian environment and sustainable development indicators

**Table 5**  
**Population indicators**

	2004	2005	2006	2007	2008	2009
<b>Population</b>						
Persons <sup>1</sup>	31,940,676	32,245,209	32,576,074	32,929,733	33,315,976	33,720,184
Percent change from previous year	1.0	1.0	1.0	1.1	1.2	1.2
Aged 65 and over (percent of total)	13.0	13.1	13.3	13.5	13.7	13.9
Census metropolitan areas and census agglomerations (percent of total) <sup>2</sup>	..	..	81.1	..	..	..
Density (per square kilometre)	3.5	3.6	3.6	3.7	3.7	3.7

1. Population data is based on the Estimates of Population program, except for data on population in census metropolitan areas and census agglomerations, which is based on the Census of Population.
2. Area consisting of one or more neighbouring municipalities situated around a major urban core. A census metropolitan area must have a total population of at least 100,000 of which 50,000 or more live in the urban core. A census agglomeration must have an urban core population of at least 10,000.
- Note(s):** For 2003 data, see: Statistics Canada, 2010, *EnviroStats*, Vol. 4 no. 1, Catalogue no. 16-002-X. For 2002 data, see: Statistics Canada, 2009, *EnviroStats*, Vol. 3 no. 1, Catalogue no. 16-002-X.
- Source(s):** Statistics Canada, CANSIM table 051-0001 (accessed November 4, 2010). Statistics Canada, 2007, *Population and Dwelling Count Highlight Tables, 2006 Census*, Catalogue no. 97-550-X2006002.

**Table 6**  
**Economy indicators**

	2004	2005	2006	2007	2008	2009
<b>Gross Domestic Product (GDP)</b>						
GDP (millions of chained 2002 dollars)	1,211,239	1,247,807	1,283,033	1,311,260	1,318,055	1,285,604
Percent change from previous year	3.1	3.0	2.8	2.2	0.5	-2.5
Per capita (chained 2002 dollars)	37,922	38,697	39,386	39,820	39,562	38,126
<b>Consumer Price Index</b> (2002 = 100)	104.7	107.0	109.1	111.5	114.1	114.4
<b>Unemployment rate</b> (percent)	7.2	6.8	6.3	6.0	6.1	8.3

- Note(s):** For 2003 data, see: Statistics Canada, 2010, *EnviroStats*, Vol. 4 no.1, Catalogue no. 16-002-X. For 2002 data, see: Statistics Canada, 2009, *EnviroStats*, Vol. 3 no.1, Catalogue no. 16-002-X.
- Source(s):** Statistics Canada, CANSIM tables 380-0017, 051-0001, 326-0021 and 282-0002 (accessed November 9, 2010).

**Table 7**  
**Social indicators**

	2004	2005	2006	2007	2008	2009
<b>Average household spending <sup>1</sup></b>						
Total (current dollars)	62,464	65,575	67,736	69,946	71,364	..
Water and sewage (current dollars)	204	211	221	253	251	..
Electricity (current dollars)	1,040	1,070	1,111	1,147	1,162	..
Food (current dollars)	6,772	6,978	7,046	7,305	7,435	..
Gasoline and other motor fuels (current dollars)	1,854	2,024	2,079	2,223	2,233	..
<b>Personal expenditure on consumer goods and services</b> (millions of chained 2002 dollars)	697,566	723,146	753,263	787,765	810,723	814,344
<b>Residential waste</b>						
Production per capita (kilograms)	386	..	399	..	..	..
Disposal (tonnes)	8,961,583	..	9,238,376	..	..	..
Disposal per capita (kilograms)	281	..	284	..	..	..
Diversification (tonnes)	3,363,803	..	3,744,843	..	..	..
Diversification per capita (kilograms)	105	..	115	..	..	..
Diversification rate (percent of waste production)	27	..	29	..	..	..
<b>Distance driven by light vehicles <sup>2</sup></b> (millions of kilometres)	285,164	289,717	296,871	300,203	294,361	303,576
<b>Asthma</b> (percent of population age 12 and over)	..	8.3	..	8.1	8.4	8.1

1. Data on average household spending is based on the Survey of Household Spending (SHS). For information on the difference between the SHS and personal expenditure data please see: Statistics Canada, 2008, *Guide to the Income and Expenditure Accounts*, Catalogue no. 13-017-X.
2. Distance driven for vehicles weighing less than 4.5 tonnes, excluding the territories.
- Note(s):** For 2003 data, see: Statistics Canada, 2010, *EnviroStats*, Vol. 4 no.1, Catalogue no. 16-002-X. For 2002 data, see: Statistics Canada, 2009, *EnviroStats*, Vol. 3 no.1, Catalogue no. 16-002-X.
- Source(s):** Statistics Canada, CANSIM tables 203-0001, 203-0003, 203-0002, 203-0007, 380-0017, 153-0041, 153-0042, 051-0001, 405-0063 and 105-0501 (accessed November 9, 2010).

**Table 8**  
**Energy indicators**

	2004	2005	2006	2007	2008	2009
<b>Primary energy availability</b> (terajoules)	11,527,500	11,307,113	11,176,879	11,969,050	11,545,145	..
<b>Primary and secondary energy</b>						
Exports (terajoules)	9,810,695	9,641,137	9,833,549	10,308,635	10,186,895	..
Residential consumption (terajoules)	1,313,015	1,296,644	1,243,425	1,336,452	1,360,303	..
<b>Established reserve</b>						
Crude bitumen (closing stock, <sup>1</sup> millions of cubic metres)	1,660	1,620	3,340	3,500	4,300	4,220
Crude oil (closing stock, <sup>1</sup> millions of cubic metres)	603.8	752.3	712.6	721.8	688.8	..
Natural gas (closing stock, <sup>1</sup> billions of cubic metres)	1,497.5	1,553.7	1,577.7	1,534.3	1,671.2	..
<b>Recoverable reserves</b>						
Coal (closing stock, <sup>1</sup> millions of tonnes)	4,666.3	4,560.4	4,468.8	4,395.1	4,331.5	..
Uranium (closing stock, <sup>1</sup> tonnes)	444,000	431,000	423,400	482,000	447,000	..
<b>Electricity generation</b>						
Total (megawatt hours)	571,291,905	597,810,875	585,097,531	603,572,420	601,719,256	574,623,534
Hydro-electric (percent of total)	58.7	60.1	60.0	60.6	62.0	63.2
Nuclear (percent of total)	14.9	14.5	15.8	14.6	14.7	14.8
Fossil fuel and other fuel combustion (percent of total)	26.4	25.4	24.2	24.8	23.3	22.0

1. The size of the reserve at year-end.
- Note(s):** For 2003 data, see: Statistics Canada, 2010, *EnviroStats*, Vol. 4 no.1, Catalogue no. 16-002-X. For 2002 data, see: Statistics Canada, 2009, *EnviroStats*, Vol. 3 no.1, Catalogue no. 16-002-X.
- Source(s):** Statistics Canada, CANSIM tables 128-0009, 153-0012, 153-0013, 153-0014, 153-0017, 153-0018, 153-0019, 127-0001 and 127-0002 (accessed November 9, 2010).

**Table 9**  
**Environment and natural resources indicators**

	2004	2005	2006	2007	2008	2009
<b>Greenhouse gas (GHG) emissions</b> (megatonnes of carbon dioxide equivalent (CO <sub>2</sub> eq))	741	731	718	750	734	..
<b>GHG emissions per capita</b> (tonnes of CO <sub>2</sub> eq)	23.2	22.7	22.0	22.8	22.0	..
<b>GHG emissions by final demand</b>						
Total household <sup>1</sup> (megatonnes of CO <sub>2</sub> eq)	423	415	411 <sup>p</sup>	..	..	..
Total household per capita (tonnes of CO <sub>2</sub> eq)	13.2	12.9	12.6 <sup>p</sup>	..	..	..
Direct household <sup>2</sup> (megatonnes of CO <sub>2</sub> eq)	110	111	109 <sup>p</sup>	..	..	..
Indirect household <sup>3</sup> (megatonnes of CO <sub>2</sub> eq)	313	304	302 <sup>p</sup>	..	..	..
Exports (megatonnes of CO <sub>2</sub> eq)	277	274	264 <sup>p</sup>	..	..	..
<b>Annual temperature departures</b> <sup>4</sup> (degrees Celsius)	0.1	1.7	2.4	0.9	0.7	0.8
<b>Value of selected natural resources</b>						
Land (millions of current dollars)	1,227,819	1,367,002	1,532,193	1,708,196	1,824,120	1,891,438
Timber (millions of current dollars)	311,771	283,572	265,747	246,713	236,556	192,660
Subsoil resource stocks (millions of current dollars)	566,179	805,761	931,530	941,765	1,543,864	914,173
<b>Average farm pesticide expenditures</b> (current dollars)	7,602	7,792	8,268	9,147	11,361	..
<b>Air quality</b> <sup>5</sup>						
Ozone (population weighted, parts per billion)	36	40	38	39	..	..
PM <sub>2.5</sub> (population weighted, micrograms per cubic metre)	9	10	8	8	..	..

1. Total household greenhouse gas emissions are the sum of direct plus indirect household greenhouse gas emissions.

2. Direct household greenhouse gas emissions include all greenhouse gas emissions due to energy use in the home and for private motor vehicles.

3. Indirect household greenhouse gas emissions are those business-sector emissions due to the production of the goods and services purchased by households. An estimate of the greenhouse gas emissions from foreign companies due to the production of the imported goods purchased by Canadian households is included.

4. Annual departures from the 1951 to 1980 temperature normals.

5. Ground level ozone and fine particulate matter (PM<sub>2.5</sub>) are two key components of smog that have been linked to health impacts ranging from minor respiratory problems to hospitalizations and premature death. Exposure studies indicate that adverse health effects can occur even with low concentrations of these pollutants in the air. Annual data are revised, based on the latest release of the Canadian Environmental Sustainability Indicators report.

**Note(s):** For 2003 data, see: Statistics Canada, 2010, *EnviroStats*, Vol. 4 no. 1, Catalogue no. 16-002-X. For 2002 data, see: Statistics Canada, 2009, *EnviroStats*, Vol. 3 no. 1, Catalogue no. 16-002-X.

**Source(s):** Statistics Canada, CANSIM tables 051-0001, 153-0046, 378-0005 and 002-0044 (accessed November 4, 2010). Environment Canada, 2010, *National Inventory Report 1990-2008: Greenhouse Gas Sources and Sinks in Canada*, Catalogue no. En81-4/2008E-PDF. Environment Canada, 2010, *Annual national temperature departures, ranked warmest to coolest, 1948-2009*, <http://ec.gc.ca/adsc-cmda/default.asp?lang=en&n=30FB538A-1> (accessed November 4, 2010). Environment Canada, 2010, *Air Quality Data Tables*, [www.ec.gc.ca/indicateurs-indicators/default.asp?lang=en&n=B1385495-1#air1\\_en](http://www.ec.gc.ca/indicateurs-indicators/default.asp?lang=en&n=B1385495-1#air1_en) (accessed November 4, 2010). Statistics Canada, Environment Accounts and Statistics Division, Material and Energy Flow Accounts.

## Updates

### New releases

#### Survey of Drinking Water Plants

Additional data from the Survey of Drinking Water Plants are now available at the national level, by province and territory and by drainage region for the 2005, 2006 and 2007 reporting years.

Released December 8, 2010. For more information, or to enquire about the concepts, methods or data quality of this release, contact the information officer (613-951-0297; fax: 613-951-0634; [environ@statcan.ca](mailto:environ@statcan.ca)), Environment Accounts and Statistics Division.

#### Environmental Protection Expenditures in the Business Sector, 2008

This publication consists of data from the 2008 Survey of Environmental Protection Expenditures. Estimates of environmental protection expenditures, by industry and province, made by Canadian businesses in response to environmental regulations, conventions or voluntary agreements, are presented. The estimates include capital and operating expenditures made for pollution abatement and control, pollution prevention, environmental assessments and audits, and environmental monitoring activities.

Released November 16, 2010 (Statistics Canada Catalogue no. 16F0006X).

### Upcoming releases

#### Waste Management Industry Survey: Business and Government Sectors, 2008

The report presents results from two surveys: the Waste Management Industry Survey - Business Sector and the Waste Management Industry Survey - Government Sector. Information on the physical quantities of non-hazardous waste disposed and diverted in Canada was gathered from these two surveys. The first survey covered those operations and facilities owned by businesses that provided waste management services while the second covered operations and facilities owned by Canadian local governments and other local bodies engaged in the delivery of waste management services. Information on the employment and financial characteristics of businesses and local governments involved in the supply of these services is also reported.

To be released December 22, 2010 (Statistics Canada Catalogue no. 16F0023X).

### New developments

#### Agricultural Water Survey, 2010

Statistics Canada is currently conducting the second iteration of the Agricultural Water Survey. At this time, data collection covering the 2010 growing season is completed, and data are being processed. The information collected includes measures of the volume of water used for irrigation by crop type, the area of irrigated land, irrigation method, sources of irrigation water, practices to conserve water and energy, and water treatment prior to irrigation.

Data will be available in the spring of 2011, with a report scheduled for release in the summer.

A technical paper describing the methodology used for the first iteration of the survey can be found here: *Agricultural Water Use Survey 2007, Methodology Report*.

### **Survey of Drinking Water Plants, 2011**

Statistics Canada is preparing to conduct the second iteration of the Survey of Drinking Water Plants. This survey collects information from drinking water plants serving communities of 300 or more people. The survey collects information on volumes of water treated, type of treatment, financial aspects of the operation, as well as raw water quality.

The revised questionnaire was tested this fall, and will be administered near the end of 2011. Results from the first iteration of the survey are found here: *Survey of Drinking Water Plants, 2005 to 2007*.

Several *EnviroStats* articles have also used the results from this survey, including one in this issue: *Monthly variations in drinking water production, 2005 to 2007*.

## CANSIM tables and updates

CANSIM is Statistics Canada's key socio-economic database.

Updates have been made to the following CANSIM tables:

**CANSIM table 153-0001**, Value of established natural gas reserves, annual

**CANSIM table 153-0002**, Value of established crude oil reserves, annual

**CANSIM table 153-0003**, Value of recoverable subbituminous coal and lignite reserves, annual

**CANSIM table 153-0004**, Value of recoverable bituminous coal reserves, annual

**CANSIM table 153-0005**, Value of established crude bitumen reserves, annual

**CANSIM table 153-0006**, Value of proven and probable potash reserves, annual

**CANSIM table 153-0007**, Value of proven and probable gold reserves from gold mines, annual

**CANSIM table 153-0008**, Value of proven and probable iron reserves, annual

**CANSIM table 153-0010**, Value of proven and probable reserves of miscellaneous minerals, annual

**CANSIM table 153-0011**, Value of timber stocks, annual

**CANSIM table 153-0012**, Established crude bitumen reserves, annual

**CANSIM table 153-0013**, Established crude oil reserves, annual

**CANSIM table 153-0014**, Established natural gas reserves, annual

**CANSIM table 153-0015**, Established reserves of natural gas liquids, annual

**CANSIM table 153-0016**, Established sulphur reserves, annual

**CANSIM table 153-0017**, Recoverable reserves of bituminous coal, annual

**CANSIM table 153-0018**, Recoverable subbituminous coal and lignite reserves, annual

**CANSIM table 153-0019**, Recoverable uranium reserves, annual

**CANSIM table 153-0020**, Proven and probable copper reserves, annual

**CANSIM table 153-0021**, Proven and probable gold reserves from gold mines, annual

**CANSIM table 153-0022**, Proven and probable iron reserves, annual

**CANSIM table 153-0023**, Proven and probable lead reserves, annual

**CANSIM table 153-0024**, Proven and probable molybdenum reserves, annual

**CANSIM table 153-0025**, Proven and probable nickel reserves, annual

**CANSIM table 153-0026**, Proven and probable potash reserves, annual

**CANSIM table 153-0027**, Proven and probable silver reserves, annual

**CANSIM table 153-0028**, Proven and probable zinc reserves, annual

**CANSIM table 153-0052**, Capital and operating expenditures on environmental protection, by North American Industry Classification System (NAICS) and type of activity, Canada, every two years

**CANSIM table 153-0053**, Capital and operating expenditures on environmental protection, by type of activity, Canada, provinces and territories, every two years



**CANSIM table 153-0054**, Distribution of capital expenditures on pollution abatement and control (end-of-pipe) and pollution prevention, by North American Industry Classification System (NAICS) and type of environmental medium, Canada, every two years

**CANSIM table 153-0055**, Distribution of capital expenditures on pollution abatement and control (end-of-pipe) and pollution prevention, by type of environmental medium, Canada, provinces and territories, every two years

**CANSIM table 153-0056**, Capital and operating expenditures on environmental protection, by type of activity and establishment size, Canada, every two years

### Summary tables and updates

The following summary tables have been added to the Statistics Canada website:

*Capital expenditures on pollution abatement and control (end-of-pipe) by medium and industry*

*Capital expenditures on pollution prevention by medium and industry*

*Expenditures on environmental protection by industry and activity*

## Acknowledgements

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### Symbols

The following standard symbols are used in Statistics Canada publications:

.	not available for any reference period
..	not available for a specific reference period
...	not applicable
0	true zero or a value rounded to zero
0s	value rounded to 0 (zero) where there is a meaningful distinction between true zero and the value that was rounded
P	preliminary
r	revised
x	suppressed to meet the confidentiality requirements of the <i>Statistics Act</i>
E	use with caution
F	too unreliable to be published

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