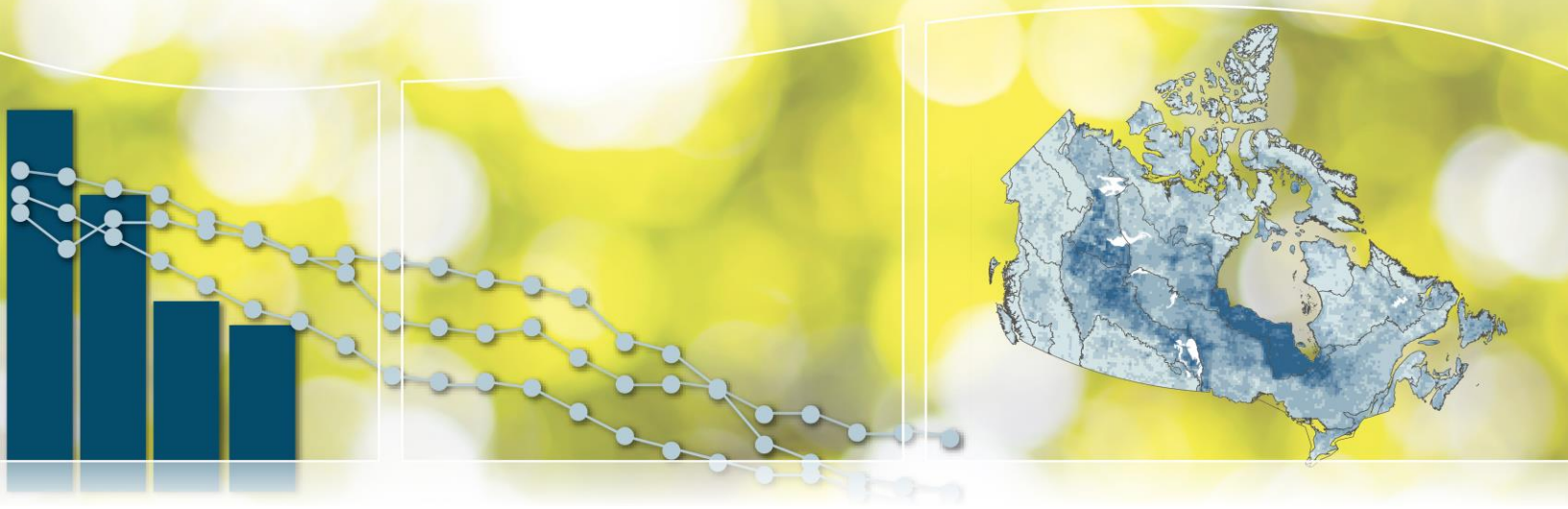
Environment and Climate Change Canada
Environnement et Changement climatique Canada

Canadian Environmental Sustainability Indicators

Canada's Protected Areas



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Canadian Environmental Sustainability Indicators

Canada's Protected Areas

July 2016

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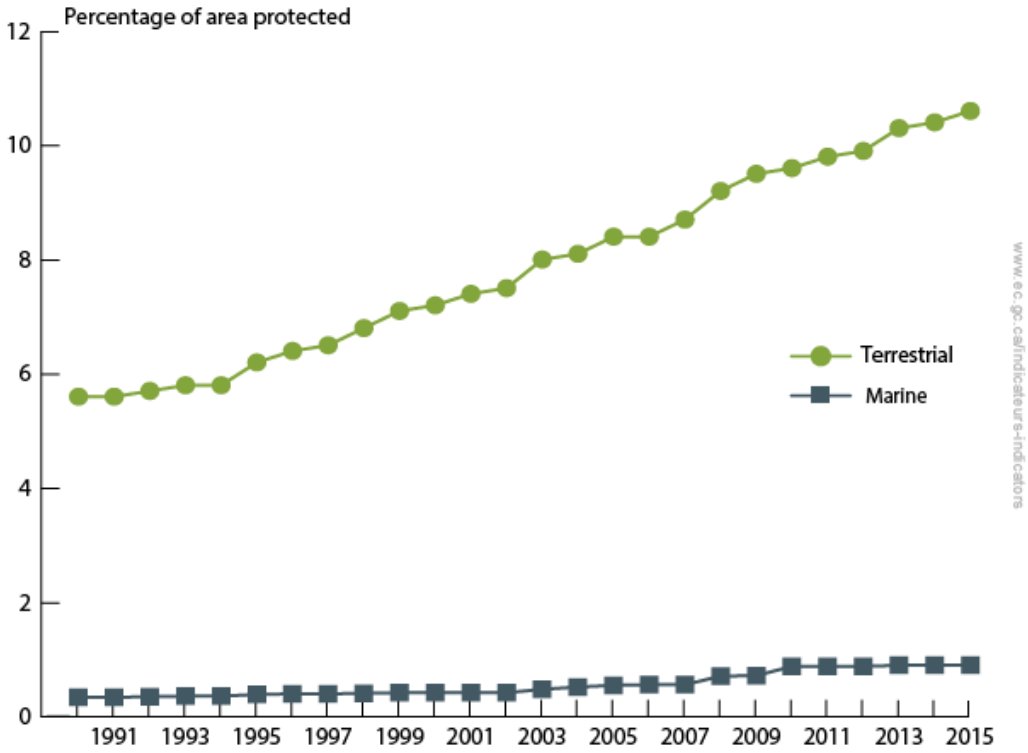
Part 1. Canada's Protected Areas Indicator

As of the end of 2015, 10.6% (1.05 million km^2) of Canada's terrestrial area (land and freshwater), and 0.9% (51 thousand km^2) of its marine territory have been recognized as protected. In 2015, an additional 20 thousand km^2 of Canada's territory were recognized as protected. In the past 20 years, the total area protected has increased by about 70%, and in the last five years it has increased by almost 10%. In 2015, federal jurisdictions protected a total area of 512 thousand km^2, a slight decrease from five years earlier. This reflects the transfer of lands to provincial and territorial jurisdiction.[1]

Protected areas are lands and waters where development and use is restricted by legal or other means for the conservation of nature. Protection does not always isolate areas from use and development, including limited amounts of industrial activity and harvest of biological resources.

Figure 1. Trends in proportion of area protected, Canada, 1990 to 2015



Data for Figure 1

Note: Terrestrial areas include both land and freshwater. Areas with an unknown creation date are assumed to have been protected before 1990. Only areas recognized as protected under international standards are included.
Source: Canadian Council on Ecological Areas (2016) Conservation Areas Reporting and Tracking System (CARTS), with Quebec data used by permission. Data are current as of December 31, 2015.

[1] An area of 9102 km^2 of land previously protected by Agriculture and Agri-Food Canada under the Community Pastures Program has been returned to provincial management. The portion of Thelon Wildlife Sanctuary that is in the Northwest Territories (21 270 km^2) previously protected by Indigenous and Northern Affairs Canada has been transferred to territorial jurisdiction. Although new areas have also been protected, the transfer of lands lead to a net decline in federally protected area of 3726 km^2.

Laws or agreements limit the amount and type of human activity in protected lands and waters in order to conserve these natural environments for present and future generations of Canadians. Protected areas may be chosen to represent parts of the Canadian landscape or seascape, such as the boreal forest or an ocean shelf, or they may be created to conserve endangered wildlife species, wildlife habitats, and unique or ecologically sensitive areas.

Federal, provincial and territorial protected areas are included in this report, as well as some areas protected by non-governmental environmental organizations, and Indigenous and local communities. Protected areas include national and provincial parks, national marine conservation areas, migratory bird sanctuaries and wildlife reserves among others. Only partial information exists for privately held conservation lands, such as those owned by land trusts, or lands still in private ownership but conserved through easements or similar agreements.

The parties to the Convention on Biological Diversity (CBD) established a set of aspirational targets in October 2010. Target 11 under the CBD is "By 2020, at least 17 per cent of terrestrial and inland water, and 10 per cent of coastal and marine areas, especially areas of particular importance for biodiversity and ecosystem services, are conserved through effectively and equitably managed, ecologically representative and well connected systems of protected areas and other effective area-based conservation measures,[2] and integrated into the wider landscapes and seascapes." Canada, as a signatory to the Convention, has developed the 2020 Biodiversity Goals and Targets for Canada, which include Target 1: "By 2020, at least 17 percent of terrestrial areas and inland water, and 10 percent of coastal and marine areas, are conserved through networks of protected areas and other effective area-based conservation measures."

[2] An internationally agreed upon definition of "other effective area-based conservation measures" has not been established.

Protected areas in Canada

Although the distribution and size of individual protected areas is highly variable across Canada, the total represents an area close to the size of Ontario. Larger protected areas tend to be located in northern Canada where there are fewer conflicting land uses.

Figure 2. Protected area, Canada, 2015

Source: Canadian Council on Ecological Areas (2016) Conservation Areas Reporting and Tracking System (CARTS). Data are current as of December 31, 2015.

Table 1. Area protected by federal jurisdiction, Canada, 2015

Jurisdiction	Terrestrial area protected (km^2)	Marine area protected (km^2)	Total (km^2)
Parks Canada	339 740	12 720	352 460
Environment and Climate Change Canada, Canadian Wildlife Service	104 834	19 600	124 434
Indigenous and Northern Affairs Canada	34 945	0	34 945
Fisheries and Oceans Canada	0	10 392	10 392
National Capital Commission	462	0	462
Grand total	**469 112**	**42 671**	**511 784**

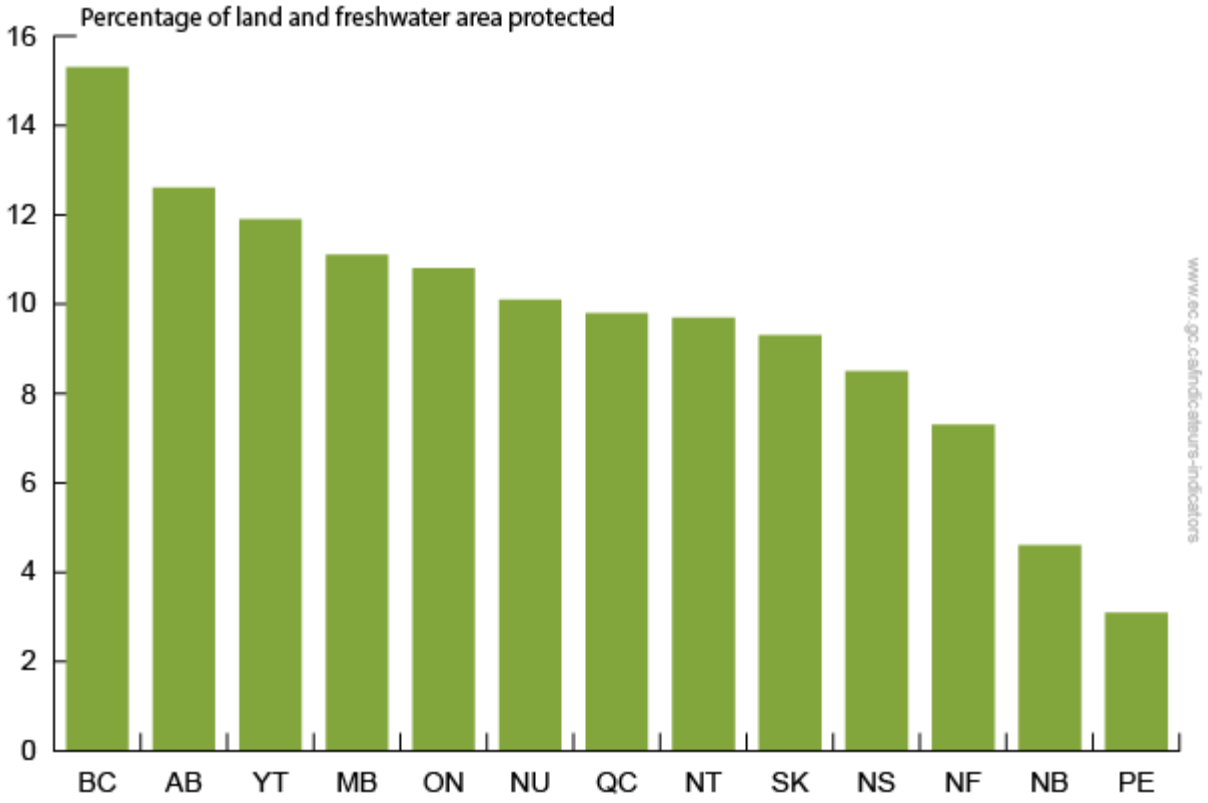
Note: Entries represent the total area protected by each federal jurisdiction, accounting for any overlaps that may exist. This correction is made to avoid double-counting areas that benefit from more than one mechanism of protection. Similarly, the federal total accounts for jointly protected areas and therefore the total federal protected area is less than the sum of federal jurisdictions. No correction has been made for overlap between terrestrial and marine polygons resulting from variable definitions of coastlines or mapping artefacts. Areas under shared federal-provincial jurisdiction are included. Prairie Farm Rehabilitation Administration lands (Community Pastures) are being returned to provincial control and are no longer considered protected by a federal department. Only areas recognized under the international definition of a protected area are included.
Source: Canadian Council on Ecological Areas (2016) Conservation Areas Reporting and Tracking System (CARTS). Data are current as of December 31, 2015.

This indicator is used to measure progress towards Target 4.3: Terrestrial Ecosystems and Habitat Stewardship – Contribute to the proposed national target that by 2020, at least 17% of terrestrial areas and inland water are conserved through networks of protected areas and other effective area-based conservation measures and Target 4.5 By 2020, 10% of coastal and marine areas are conserved through networks of protected areas and other effective area–based conservation measures of the Federal Sustainable Development Strategy 2013–2016.

Terrestrial Protected Areas, by Province and Territory

The proportion of terrestrial area protected varies by province and territory, ranging from 3.1% to 15.3%. Differences in geography and historical land use influence the degree of protection. For example, Prince Edward Island is highly agricultural, while recreational use of mountainous British Columbian landscapes is more compatible with protection.

Figure 3. Total percentage of terrestrial area protected by province and territory, Canada, 2015



Data for Figure 3

Note: Areas include land and freshwater but not marine areas. Not all provinces and territories report on protected areas that are privately owned.
Source: Canadian Council on Ecological Areas (2016) Conservation Areas Reporting and Tracking System (CARTS). Data are current as of December 31, 2015.

British Columbia, Alberta, Yukon and Ontario have the greatest proportion of territory under some level of protection (more than 11% for terrestrial areas).

Manitoba, Nunavut, Quebec, Nova Scotia, the Northwest Territories and Saskatchewan have 8% to 11% of their territories under protection.

Newfoundland and Labrador, New Brunswick and Prince Edward Island have less than 8% of their territories under protection.

Protected Areas, by Ecological Region

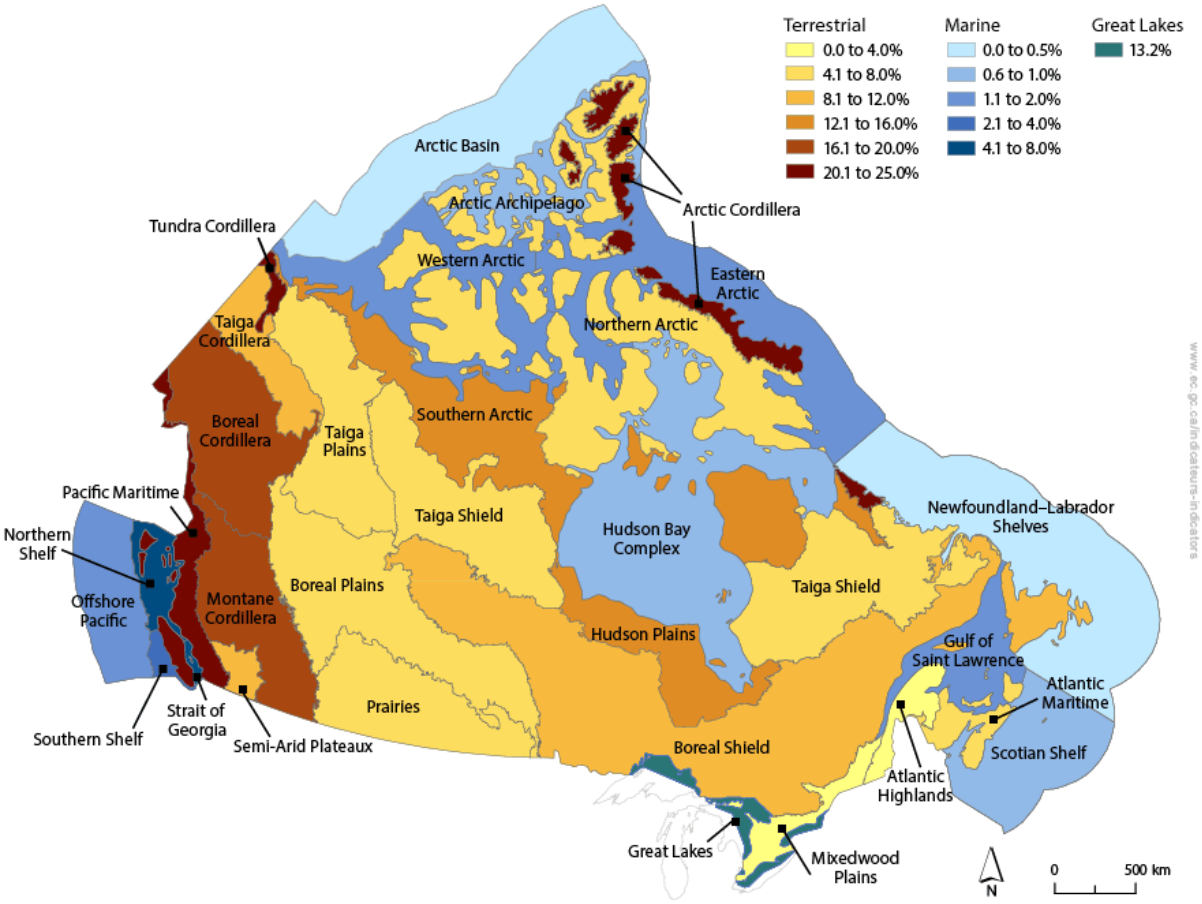
Ecozones[3] are regions with distinct or characteristic ecological features, such as climate and vegetation. Three ecozones, the Tundra Cordillera, the Pacific Maritime and the Arctic Cordillera have more than 20% of their area protected, while less than 1% of the area of five ecozones is protected.

Terrestrial ecozones with a high proportion of area protected tend to be remote or have high recreation value. This is in contrast to regions with high levels of urbanization and development, which tend to have small proportions of area protected. For example, ecozones in the western mountain ranges have 17% or more of their area protected, but the Mixedwood Plains, in southern Ontario and along the St. Lawrence River, has only 1.8% of its area protected.

While marine areas have not benefited from as long a tradition of protection, 7.0% of the Northern Shelf off the coast of British Columbia is protected. In the other marine ecozones, much smaller proportions, ranging from 0.02% to 4.7%, are protected. Thirteen percent (13%) of the Canadian area of the Great Lakes is protected.

[3] Marine ecozones are derived from marine bioregions, which were delineated following a national science advisory process that considered oceanographic and bathymetric similarities. For more details, see Fisheries and Oceans Canada (2009) Canadian Science Advisory Secretariat – Science Advisory Report 2009/056 and Government of Canada (2011) National Framework for Canada's Network of Marine Protected Areas. Ecozones are not identical to the bioregions.

Figure 4. Percentage of ecozones protected, Canada, 2015



Data for Figure 4

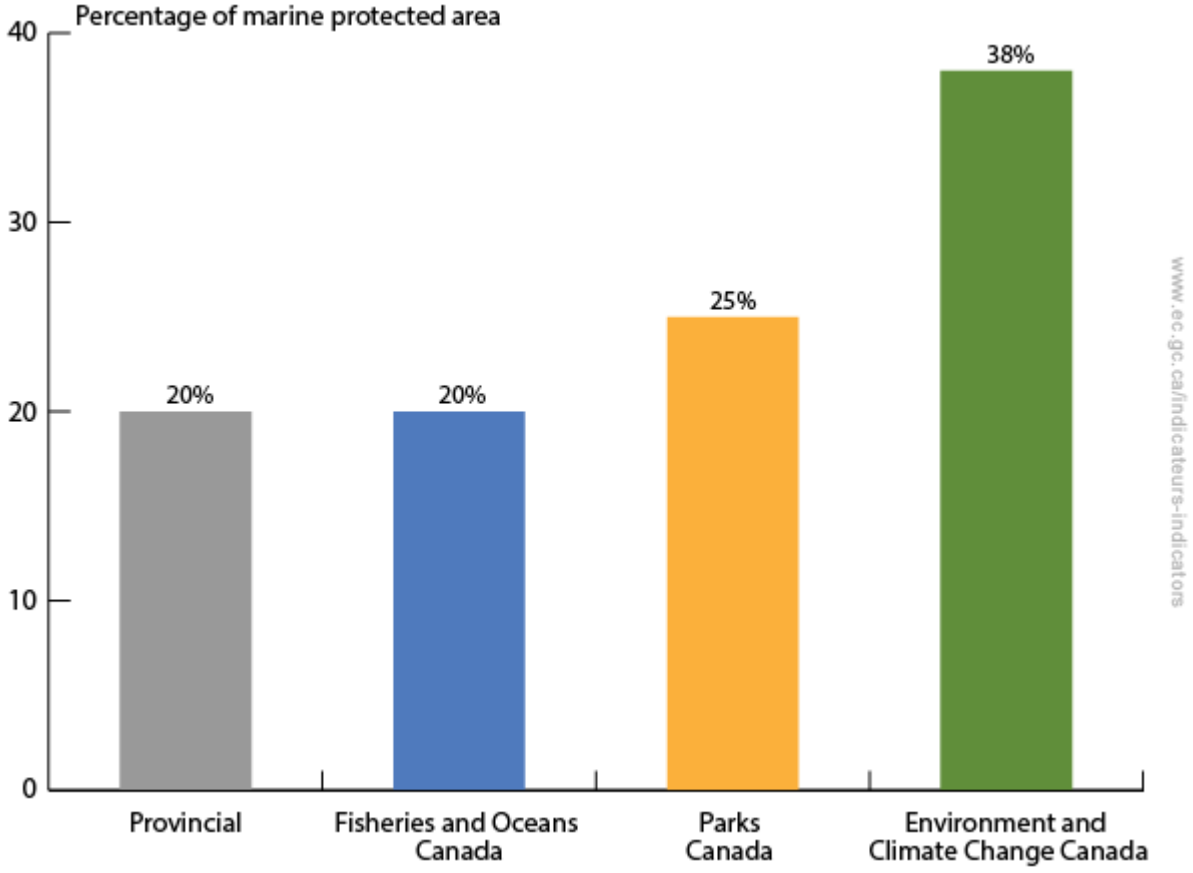
Note: Ecozones are elements of a framework delineating broad areas with distinctive biophysical characteristics and similar sets of species. Ecozones are numbered and coded with an "L" for terrestrial regions and "W" for aquatic regions.
Source: Canadian Council on Ecological Areas (2016) Conservation Areas Reporting and Tracking System (CARTS). Data are current as of December 31, 2015. For Ecozones, Canadian Council on Ecological Areas (2014) Canada Ecozones V5b.

Each ecozone is unique and protection involves the inclusion of areas that are representative of different parts of the ecozone and sites of special value. Challenges to establishing protected areas include competition from other uses, such as agriculture, fishing, industry or living space, and may be limited by the extent of ecologically intact areas within the ecozone.

Marine Protected Areas, by Jurisdiction

Marine protected areas (MPAs) are a key management tool that contributes to the improved health, integrity and productivity of our marine ecosystems. Canada is establishing a national network of MPAs, with the primary goal of providing long-term protection of marine biodiversity, ecosystem function and special natural features. Different jurisdictions [4] protect areas for different purposes, and control the amount of human activity, such as transportation, fishing or recreational activities, that is allowed. Environment and Climate Change Canada protects the greatest proportion of Canada's marine protected area, with the goal of protecting wildlife habitat.

Figure 5. Marine area protected by jurisdiction, Canada, 2015



Data for Figure 5

Note: Values are corrected for overlaps within each jurisdiction. The sum of areas reported here is larger than the national total and percentages add to more than 100 due to overlap between jurisdictions.
Source: Canadian Council on Ecological Areas (2016) Conservation Areas Reporting and Tracking System (CARTS). Data are current as of December 31, 2015.

What a MPA protects depends on its legislative and policy framework and its specific conservation objectives. For example, a MPA may be established to protect sensitive areas, special or unique marine features, areas of high productivity, or representative examples of

[4] The Role of the Canadian Government in the Oceans Sector; The Role of the Provincial and Territorial Governments in the Oceans Sector.

marine habitats. Some are coastal zones adjacent to terrestrial protected areas, safeguarding coastal ecological processes.

The First Global Integrated Marine Assessment[5] notes "No part of the ocean has today completely escaped the impact of human pressures, including the most remote areas." In signing the United Nations Convention on Biological Diversity, Canada agreed to an international target[6] of conserving 10% of marine areas by 2020 through systems of protected areas and other effective area-based conservation measures.[7] Three federal authorities have mandates to establish and manage MPAs in Canada's oceans. Fisheries and Oceans Canada is responsible for leading the development and implementation of a national network of MPAs[8] and has a mandate to establish individual *Oceans Act* Marine Protected Areas. Parks Canada is responsible for National Marine Conservation Areas, which are MPAs designed to protect and conserve representative examples of Canada's natural and cultural marine heritage, and to provide opportunities for public education and enjoyment. Environment and Climate Change Canada is responsible for protecting habitat for a variety of wildlife, including migratory birds and species at risk.

Ocean ecosystems are highly inter-connected, through ocean currents, species movements, and ecological functions. Many marine animals move to different habitats for different life stages, creating important ecological and physical links. Whales, for example, may calve in preferred areas, and move to feeding areas where and when food is most available. Some fish may spend most of their lives far out at sea, but spawn in coastal areas. A network better protects separate but linked habitats. A network of marine protected areas is a collection of individual marine protected areas that works together to fulfill ecological aims more effectively and comprehensively than individual sites could do alone. Canada's approach to MPA networks also recognizes the contributions of other effective area-based conservation measures.

Marine conservation efforts in Canada include a wide range of management and stewardship activities. Examples include fisheries closures to protect vulnerable ecosystems, support for the recovery of species at risk, prevention and mitigation of the impact of aquatic invasive species, and strengthening Canada's response to ship-source marine pollution.

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[5] United Nations General Assembly (2016) First Global Integrated Marine Assessment. Chapter 54. Retrieved on January 29, 2016.

[6] The international target (Aichi Target 11) reads in full "By 2020, at least 17 per cent of terrestrial and inland water, and 10 per cent of coastal and marine areas, especially areas of particular importance for biodiversity and ecosystem services, are conserved through effectively and equitably managed, ecologically representative and well connected systems of protected areas and other effective area-based conservation measures, and integrated into the wider landscapes and seascapes." Canada, as a signatory to the Convention, has developed a set of domestic biodiversity goals and targets, which includes Target 1:"By 2020, at least 17 percent of terrestrial areas and inland water, and 10 percent of coastal and marine areas, are conserved through networks of protected areas and other effective area–based conservation measures."

[7] An internationally agreed upon definition of "other effective area–based conservation measures" has not been established.

[8] Federal, provincial and territorial governments collaborated on the development of the 2011 National Framework for Canada's Network of Marine Protected Areas. In Quebec, work on marine protected areas is coordinated by the Bilateral Group on Marine Protected Areas (BGMPA) and within the St. Lawrence Action Plan.

Part 2. Data Sources and Methods for Canada's Protected Areas Indicator

Introduction

The Protected Areas indicators are part of the Canadian Environmental Sustainability Indicators (CESI) program, which provides data and information to track Canada's performance on key environmental sustainability issues. These indicators are also used to measure progress towards the goals and targets of the Federal Sustainable Development Strategy 2013–2016 and the 2020 Biodiversity Goals and Targets for Canada.

Description and rationale of the Canada's Protected Areas indicator

The Protected Areas indicators report the amount and proportion of Canada's terrestrial and marine area that is recognized under the international definition of a protected area as "a clearly defined geographical space, recognised, dedicated and managed, through legal or other effective means, to achieve the long-term conservation of nature with associated ecosystem services and cultural values."[9] Land and/or water access, use, and activities within the protected area are restricted, permanently or temporarily, primarily for the purpose of conserving biodiversity and ecosystem function, regardless of proprietary designation (for example, park, conservation area, or wildlife reserve).

A national summary is provided by the Canada's Protected Areas indicator. Further information on coastal and marine areas is included in Marine Protected Areas, by Jurisdiction. Geographic breakdowns are provided in Terrestrial Protected Areas, by Province and Territory and Protected Areas, by Ecological Region.

Rationale

The extent of the area of protected land and water is a measure of human response to the loss of biodiversity and natural habitat. As the amount of protected area in Canada increases, more natural lands and waters are withdrawn from direct human development stresses, thereby helping to preserve ecosystem services and contributing to biodiversity conservation. The results do not provide information on the degree to which the areas are ecologically intact and sheltered from the impact of human activities.

Many countries use protected areas as the core of their programs to preserve biodiversity, ecosystems and ecological services. The Parties to the Convention on Biological Diversity, among them Canada, set an aspirational target to conserve at least 17% of terrestrial areas[10] and inland waters, and 10% of marine areas, by 2020.[11] This is one of 20 targets collectively

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[9] Dudley N (editor) (2008) Guidelines for applying protected area management categories. Stolton S, Shadie P and Dudley N (2013) Guidelines for applying protected area management categories including IUCN WCPA best practice guidance on recognising protected areas and assigning management categories and governance types (combined volume). Best Practice Protected Area Guidelines Series No. 21, Gland, Switzerland, section 2. Retrieved on February 18, 2016.

[10] "Terrestrial" as used here includes both land and freshwater areas.

[11] Aichi Target 11 is, in full: "By 2020, at least 17 per cent of terrestrial and inland water areas and 10 per cent of coastal and marine areas, especially areas of particular importance for biodiversity and ecosystem services, are conserved through effectively and equitably managed, ecologically representative and well-connected systems of protected areas and other effective area-based conservation measures, and integrated into the wider landscape and seascape."

known as the Aichi Targets established in October 2010. The protected area target supersedes the previous Convention target, set in 2004, of having 10% of each ecological region conserved by 2010.

The 2020 Biodiversity Goals and Targets for Canada also contain a target to conserve at least 17% of terrestrial areas and inland water and 10% of coastal and marine areas by 2020.

Recent changes to the indicator

Data and methods continue to be improved.

Several jurisdictions reviewed data in 2015, and technical improvements were made to the ecozone analysis. Current estimates are the best available and comparisons with previous reports should be made with caution. Data for Quebec were previously received directly from the province; for this reporting year, Quebec data were received via the Conservation Areas Reporting and Tracking System database (see section Data source).

Changes to the underlying database are allowing information on delisting and transfer between jurisdictions to be captured for the first time. Partial data are available for 2015. Management of areas previously under the Community Pastures Program (Agriculture and Agri-Food Canada) has been transferred to provinces or other jurisdictions, and this change has been captured. Similarly, the portion of Thelon Wildlife Sanctuary that is located in the Northwest Territories has been transferred to territorial jurisdiction.

The analytical method used to estimate the area protected was substantially revised for the 2014 reporting year. The revised method uses information on the boundaries of protected areas and accounts for overlaps between areas. Previously, areas that were protected under more than one jurisdiction (for example, an area that may be both a Migratory Bird Sanctuary and a National Park) were counted more than once.

Also in the 2014 reporting year, marine reporting was aligned to the limit of Canada's Exclusive Economic Zone. The same year, the ecozone breakdown for the first time used an updated ecozone framework, seamlessly incorporating marine ecozones. The updated framework, completed by the Canadian Council on Ecological Areas in 2014, has been approved by all provinces and territories, and incorporates new information obtained since the 1996 version. It replaced the Ecozones+ provisional framework used by the Ecosystem Status and Trends Report of 2010.

Data

Data source

Protected areas

Canadian Council on Ecological Areas (CCEA). Data current as of December 31, 2015.

Jurisdictional areas

- For Canada except Quebec: Natural Resources Canada (2009) Canada Centre for Remote Sensing. Areas are estimated using the Atlas of Canada 1,000,000 National Frameworks Data, Administrative Boundaries.
- For Quebec: Ministère du Développement durable, de l'Environnement et de la Lutte contre les changements climatiques.
- Canada's marine territory: Fisheries and Oceans Canada (2013) Departmental analysis based on Atlas of Canada 1,000,000 National Frameworks Data, Administrative Boundaries.

Ecozones

Canadian Council on Ecological Areas (2014) Canada Ecozones V5b.

National boundaries

Natural Resources Canada (2009) Atlas of Canada 1,000,000 National Frameworks Data, Administrative Boundaries.

Spatial coverage

Coverage is national.

Temporal coverage

The CCEA Conservation Areas Reporting and Tracking System is current to December 31, 2015. Temporal coverage is 1876 to 2015.

A few protected areas do not currently have a recorded date of protection. Sites with an unknown protection date are treated as pre-1990 when reporting total areas. Protection dates continue to be incorporated into the database.

Data completeness

The data include all areas under the direct administrative control of each jurisdiction and recognized as protected with an International Union for Conservation of Nature designation.

Data on non-governmental areas are included when jurisdictions have assumed the responsibility of recognizing those areas and providing data to the CCEA. This means private lands, areas preserved by environmental non-governmental organizations or Indigenous communities, and other conservation areas are included only if they have been recognized as protected.

Data on areas set aside using other effective area-based conservation measures are not currently included in the indicators.

Methods

Federal, provincial and territorial departments and agencies have submitted geospatial and ancillary data for protected areas under their administrative control to the Canadian Council on Ecological Areas. These data contributors will be referred to here as jurisdictions. Data on areas controlled by non-governmental organizations, such as the Nature Conservancy of Canada and Ducks Unlimited Canada, are included in cases where a jurisdiction has recognized and categorized those areas. Work is ongoing to capture and incorporate data on additional privately held protected areas and on areas being conserved through means other than formal protection.

Protected areas data are housed in the Conservation Areas Reporting and Tracking System (CARTS). Data submitted include the name of the protected area, its geospatial location, boundaries, official area in hectares (ha), biome (terrestrial/marine), International Union for Conservation of Nature category, managing jurisdiction, and protection date, among other information.

In cases where the same attribute information does not apply to the entire protected area, the protected area is divided into zones for reporting. For example, a single protected area that crosses a provincial border is divided into zones corresponding to the different provinces. Similarly, a protected area that is later expanded is treated as several zones, each with its own protection date. Terrestrial and marine sections are treated as separate zones; freshwater is included in the terrestrial zone. Ancillary data are maintained independently for each zone. Protected areas that are undivided are treated as a single zone.

Canada's Protected Areas

The protected areas database contains information on the protection date of each zone. For some zones, it also contains a delisting date. To estimate the terrestrial protected area trend over time:

1. All polygons representing terrestrial protected areas that were protected in 1990 or earlier were selected from the database.
2. The selected polygons were dissolved into a single polygon (removing overlaps), and the resulting area calculated.
3. The process was repeated for each year from 1991 to 2015. Delisted zones were removed from the analysis beginning in the year they were delisted.
4. Estimates were divided by the total terrestrial area of Canada to determine the proportion protected.

To estimate the marine protected area, a similar process was followed, selecting marine polygons at each step.

Polygons with an unknown protection date comprise less than 1% of the total protected area and were treated as having been protected prior to 1990.

The areas protected under each federal jurisdiction were calculated by selecting either terrestrial or marine polygons protected by a given jurisdiction, merging the polygons and estimating the area. The total area protected by federal jurisdictions was calculated by combining terrestrial or marine polygons for all federal jurisdictions and calculating the area.

Rates of change were calculated by dividing the difference in area (i.e., given year minus previous year) by the total area protected in the previous year.

Terrestrial Protected Areas, by Province and Territory

The protected areas database contains information on the province or territory in which a protected area is located. Following methodology similar to that used for reporting trends in the national indicator, for each province and territory, terrestrial polygons were combined into a single polygon and the area calculated.

Marine Protected Areas, by Jurisdiction

The protected areas database contains information on the jurisdiction responsible for each protected area. Following methodology similar to that used for reporting trends in the national indicator, for each jurisdiction, marine polygons were combined into a single polygon and the area was calculated.

Terrestrial Protected Areas, by Ecological Region

The protected areas database does not contain information on ecological regions. To generate an estimate of protected area within each ecozone, a geospatial analysis was conducted. National ecozone boundaries are more generalized than local protected areas boundaries, however, and this has the potential to affect estimates in coastal areas. To avoid this problem, marine and terrestrial protected areas were processed separately. Marine protected area (MPA) polygons that mapped outside a marine ecozone were assigned to the nearest marine ecozone. Similarly, terrestrial protected areas that mapped outside a terrestrial ecozone were assigned to the nearest terrestrial ecozone:

1. A working layer containing generalized ecozone boundaries was developed. Marine ecozone boundaries were copied from the national ecozone coverage, and polygons were extended to include adjacent terrestrial regions.
2. The MPA polygons were selected from the protected areas layer.
3. The working layer was used to clip the MPA polygons.
4. The result of the clip operation is a series of multi-part polygons. Each multi-part polygon contains all of the marine protected areas in a particular marine ecozone.

5. The area of each multi-part polygon was calculated.
6. The process was repeated for terrestrial protected areas. The process resulted in more than one multi-part polygon for some terrestrial ecozones: the areas of these were combined in a final step to estimate the protected area within each terrestrial ecozone.

The total area of each ecozone was calculated from its geospatial boundaries, as reprojected to Albers Equal Area Conic to be consistent with the projection used in CARTS. The total area protected per ecozone was divided by the total area of the ecozone to generate a percentage protected.

Caveats and limitations

The area calculated using polygon boundaries may differ from the legally protected area.

Responsibility for source data accuracy and completeness lies with the jurisdictions. The Canadian Council on Ecological Areas (CCEA) provides data standards and guidance, including a procedures manual.

Data quality and completeness continue to improve as additional information is collected, mapping is updated, and additional protected areas are recognized and captured in the databases. The indicator represents the best estimate available at the time of production of the indicator.

Areas that are no longer recognized as protected ("decommissioned" or "delisted") are not captured comprehensively and may be missing from the database.

Complex boundaries such as coastlines and ecological regions must be generalized for mapping purposes. In nature, ecozones do not have sharp boundaries. Due to the uncertainty of such boundaries, results should be seen as estimates rather than precise measurements. Differences in the delineation of coastlines may result in a small amount of overlap between marine and terrestrial protected area polygon boundaries; these have not been corrected for.

Ecozones are an ecologically based framework, and should not be considered an expression of sovereignty. In particular, the marine territory of St. Pierre and Miquelon (France) is included in the ecozones. This is one of several differences between the ecozone framework and the marine bioregion framework used for Marine Protected Area network development.

The CCEA reports a summary which differs slightly from the results reported here. The CCEA uses the sum of the official areas of individual protected areas and does not account for overlaps, with the exception of the national total. The CCEA uses baseline areas from multiple sources; Canadian Environmental Sustainability Indicators use official territorial extent from the Atlas of Canada (with the exception of Quebec) and a geographic information system (GIS) estimate of marine territory. If comparing these websites, care should be taken to note any differences in the date-stamp of the underlying data and the methods of analysis.

Protection is a designation, and the indicator does not provide information on the effectiveness of protection, the degree to which the ecologically functioning of the area is intact, or the degree to which pressures outside a protected area might affect the biodiversity within it.

Part 3. Annexes

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

Table A.1. Data for Figure 1. Trends in proportion of area protected, Canada, 1990 to 2015

Year	Terrestrial area protected (km^2)	Percentage of terrestrial area protected	Marine area protected (km^2)	Percentage of marine area protected
1990	554 229	5.6	19 750	0.34
1991	554 732	5.6	19 769	0.34
1992	570 017	5.7	20 194	0.35
1993	580 245	5.8	20 428	0.36
1994	583 750	5.8	20 433	0.36
1995	623 574	6.2	22 201	0.39
1996	641 185	6.4	23 062	0.40
1997	653 165	6.5	23 078	0.40
1998	683 564	6.8	23 813	0.41
1999	706 404	7.1	24 046	0.42
2000	716 187	7.2	24 145	0.42
2001	739 230	7.4	24 176	0.42
2002	747 347	7.5	24 380	0.42
2003	799 774	8.0	27 735	0.48
2004	809 520	8.1	30 134	0.52
2005	836 026	8.4	31 571	0.55
2006	843 432	8.4	31 931	0.56
2007	869 789	8.7	32 124	0.56
2008	921 226	9.2	41 018	0.71
2009	949 615	9.5	41 573	0.72

Year	Terrestrial area protected (km^2)	Percentage of terrestrial area protected	Marine area protected (km^2)	Percentage of marine area protected
2010	957 149	9.6	50 761	0.88
2011	981 496	9.8	50 849	0.88
2012	993 132	9.9	50 851	0.88
2013	1 026 893	10.3	51 499	0.90
2014	1 033 743	10.4	51 499	0.90
2015	1 054 057	10.6	51 499	0.90

Note: The terrestrial area of Canada is 9 984 670 km^2 and its marine territory is approximately 5 750 000 km^2. Overlaps between protected areas were corrected for. Terrestrial areas include both land and freshwater. Areas with an unknown creation date are assumed to have been protected before 1990. Only areas recognized as protected under international standards are included.
Source: Canadian Council on Ecological Areas (2016) Conservation Areas Reporting and Tracking System (CARTS), with Quebec data used by permission. Data are current as of December 31, 2015.

Table A.2. Data for Figure 3. Total percentage of terrestrial area protected by province and territory, Canada, 2015

Province or territory	Provincial or territorial area (km^2)	Area protected (km^2)	Percentage of province or territory protected
British Columbia	944 735	144 813	15.3
Alberta	661 848	83 141	12.6
Yukon	482 443	57 358	11.9
Ontario	1 076 395	119 476	11.1
Manitoba	647 797	70 087	10.8
Nunavut	2 093 190	211 996	10.1
Quebec	1 512 418	147 775	9.8
Nova Scotia	55 284	5366	9.7
Northwest Territories	1 346 106	125 646	9.3
Saskatchewan	651 036	55 468	8.5
Newfoundland and Labrador	405 212	29 420	7.3

Province or territory	Provincial or territorial area (km^2)	Area protected (km^2)	Percentage of province or territory protected
New Brunswick	72 908	3378	4.6
Prince Edward Island	5660	175	3.1

Note: Areas include land and freshwater but not marine areas. Not all provinces and territories report on protected areas that are privately owned.
Source: Canadian Council on Ecological Areas (2016) Conservation Areas Reporting and Tracking System (CARTS). Data are current as of December 31, 2015.

Table A.3. Data for Figure 4. Percentage of ecozones protected, Canada, 2015

Map label	Ecozone name	Ecozone area (km^2)	Area protected (km^2)	Percentage of region protected
L01	Arctic Cordillera	233 618	53 699	23.0
L02	Northern Arctic	1 481 480	106 291	7.2
L03	Southern Arctic	957 139	150 760	15.8
L04	Taiga Plains	554 014	38 160	6.9
L05	Taiga Shield	1 322 786	105 763	8.0
L06	Boreal Shield	1 897 362	183 766	9.7
L07	Atlantic Maritime	110 590	7712	7.0
L08	Mixedwood Plains	116 206	2092	1.8
L09	Boreal Plains	779 471	58 045	7.4
L10	Prairies	465 990	27 246	5.8
L11	Montane Cordillera	437 761	80 006	18.3
L12	Pacific Maritime	216 942	52 449	24.2
L13	Boreal Cordillera	557 937	97 311	17.4
L14	Taiga Cordillera	231 161	19 302	8.4
L15	Hudson Plains	350 693	43 774	12.5
L16	Tundra Cordillera	28 980	7159	24.7
L17	Atlantic Highlands	93 017	3552	3.8
L18	Semi-Arid Plateaux	56 434	5263	9.3
W01	Strait of Georgia	8969	425	4.7

Map label	Ecozone name	Ecozone area (km^2)	Area protected (km^2)	Percentage of region protected
W02	Southern Shelf	28 158	783	2.8
W03	Offshore Pacific	315 724	6200	2.0
W04	Northern Shelf	101 663	7141	7.0
W05	Arctic Basin	752 053	165	0.02
W06	Western Arctic	539 807	9697	1.8
W07	Arctic Archipelago	268 792	2267	0.84
W08	Eastern Arctic	782 636	8656	1.1
W09	Hudson Bay Complex	1 244 670	8857	0.7
W10	Newfoundland-Labrador Shelves	1 054 240	215	0.02
W11	Scotian Shelf	416 296	2399	0.6
W12	Gulf of Saint Lawrence	246 648	4688	1.9
W13	Great Lakes	88 250	11 672	13.2

Note: Ecozones are elements of a framework delineating broad areas with distinctive biophysical characteristics and similar sets of species. Ecozones are numbered and coded with an "L" for terrestrial regions and "W" for aquatic regions.
Source: Canadian Council on Ecological Areas (2016) Conservation Areas Reporting and Tracking System (CARTS). Data are current as of December 31, 2015. For Ecozones, Canadian Council on Ecological Areas (2014) Canada Ecozones V5b.

Table A.4. Data for Figure 5. Marine area protected by jurisdiction, Canada, 2015

Jurisdiction	Marine protected area (km^2)	Percentage of total protected
Provincial	10 125	20
Fisheries and Oceans Canada	10 392	20
Parks Canada	12 720	25
Environment and Climate Change Canada	19 600	38

Note: Values are corrected for overlaps within each jurisdiction. The sum of areas reported here is larger than the national total and percentages add to more than 100 due to overlap between jurisdictions.
Source: Canadian Council on Ecological Areas (2016) Conservation Areas Reporting and Tracking System (CARTS). Data are current as of December 31, 2015.

Annex B. References and additional information

References and further reading

Canadian Council on Ecological Areas (CCEA) Secretariat (2008) Canadian Guidebook for the Application of International Union for Conservation of Nature (IUCN) Protected Area Categories 2008. CCEA Occasional Paper No. 18. Canadian Council on Ecological Areas, Ottawa, ON. 66 pp.

Dudley N (editor) (2008) Guidelines for applying protected area management categories. Stolton S, Shadie P and Dudley N (2013) Guidelines for applying protected area management categories including IUCN WCPA best practice guidance on recognising protected areas and assigning management categories and governance types (combined volume). Best Practice Protected Area Guidelines Series No. 21, Gland, Switzerland, section 2. Retrieved on February 18, 2016.

Fisheries and Oceans Canada (2009) Development of a Framework and Principles for the Biogeographic Classification of Canadian Marine Areas. DFO Canadian Science Advisory Secretariat Science Advisory Report 2009/056.

Related information

2020 Biodiversity Goals and Targets for Canada

Canadian Council on Ecological Areas

Convention on Biological Diversity

Ecological Integrity of National Parks

Global Trends in Protected Areas

World Database on Protected Areas – ProtectedPlanet.net

www.ec.gc.ca

Additional information can be obtained at:

Environment and Climate Change Canada
Public Inquiries Centre
7th Floor, Fontaine Building
200 Sacré-Coeur boul.
Gatineau, QC K1A 0H3
Telephone: 1-800-668-6767 (in Canada only) or 819-938-3860
Fax: 819-994-1412
TTY: 819-994-0736
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