

Yukon State of the Environment: Reporting on environmental indicators - 2017

HIGHLIGHTS



ABOUT THE REPORT

State of the environment reporting demonstrates to the public how Yukon is progressing towards the goal of maintaining and improving the quality of Yukon's natural environment for current and future generations. The reports reflect on the status of the environment and help guide future decision-making. They also:

- Provide early warning and analysis of potential environmental problems;
- Chart the achievement of the objectives set out in the *Environment Act*, and
- Provide baseline information for environmental planning, assessment and regulation.

Under Yukon's *Environment Act*, the Minister of Environment must table a full state of the environment report in the legislature every three years, as well as interim reports in the intervening years. In 2016, the report transitioned to an accessible and interactive online version that has been regularly updated. The current online report can be accessed through this link [2017 SOER](http://www.env.gov.yk.ca/publications-maps/stateenvironment.php) or <http://www.env.gov.yk.ca/publications-maps/stateenvironment.php>

The report provides information on climate change, air, water, land, and fish and wildlife. Analysis is provided through key indicators used to monitor, describe, and interpret changes in the environment. The report uses the most recent and best information available.

The State of the Environment Report is a collective effort involving scientific experts and specialists from government agencies and non-governmental organisations who have provided information, data and advice.

CLIMATE CHANGE

The Yukon government recognizes that climate change is happening, that human behaviour is a major contributor, and that a coordinated response is needed.

The Intergovernmental Panel on Climate Change is the leading international body for the assessment of climate change. This panel of scientists states that:

- Global climate change is the most significant threat our environment faces today;
- The human influence on the climate system is certain and growing;
- Climate change is affecting the Arctic at a pace greater than elsewhere on the planet; and
- Impacts of climate change include atmosphere and ocean warming, reduced extents of snow and ice, a higher sea level, and an increase in the frequency of heavy precipitation events (Intergovernmental Panel on Climate Change, 2014).

Yukon State of the Environment HIGHLIGHTS

In Yukon, we are already seeing the effects of climate change across all aspects of the environment. Changes have started to, and are expected to continue to, impact the distribution and abundance of vegetation, fish and wildlife in Yukon, as well as impact Yukon infrastructure, economy and communities.

The *Climate Change Action Plan* was released in 2009 and later updated in progress reports released in 2012 and 2015.

The effects of climate change are wide-reaching and touch all other areas of this report. Indicators that measure Yukon's contribution to climate change and the impacts of climate change on Yukon's environment are identified in other sections by a  icon.

CHAPTER: AIR

Temperature

Indicator	Highlight
 Long-term temperature variation	The Arctic is warming more quickly than other regions, and the warming trend in Yukon is expected to continue.

Air quality and emissions

Indicator	Highlight
Level of particulate matter in Whitehorse	In 2014, the annual mean for particulate matter levels in Whitehorse was 6.7 micrograms per cubic metre (well below the ambient air quality standard).
 Trends in Yukon greenhouse gas (GHG) levels	<p>Yukon's overall greenhouse gas emission levels have been decreasing since 2011. Yukon's total GHG emissions for 2013 were 0.586 megatonnes (586 kilotonnes) of CO₂e. This represents a 7.51 per cent decrease in emissions from 2010.</p> <p>Reductions in Yukon GHGs since 1990 (National Inventory Report) are mainly due to changes in the nature and extent of industrial activity. The cyclical nature of Yukon's resource economy is reflected in the territory's greenhouse gas emission levels.</p> <p>Transportation accounts for the largest share of greenhouse gas emissions in Yukon: 56 per cent of the total in 2013. On-road gasoline and on-road diesel contribute equally to transportation emissions, at approximately 40 per cent each. This means that passenger vehicles are a significant source of emissions in the territory. After transportation, space heating from fuel oil</p>

Yukon State of the Environment HIGHLIGHTS

	and propane is the next highest source of GHG emissions in Yukon.
Organic pollutants in air	Human-made chemicals, such as flame retardants and pesticides, are monitored at Little Fox Lake. From 2011 to 2014, there was a declining trend in the presence of flame retardants that are regulated, but new flame retardants are being detected.

CHAPTER: WATER

Precipitation

Indicator	Highlight
 Long-term precipitation variation	Precipitation amounts change from year to year, but there is a trend of increasing precipitation in Yukon.

Lakes and Rivers

Indicator	Highlight
 River ice break-up dates	Yukon river ice break-up at Dawson City now occurs on average, seven days earlier, since record-keeping began in 1896.
Water quality index ratings	The water quality measured at seven Yukon stations is excellent (one station), good (four stations), and fair (two stations).
 Extreme high and low water in lakes and rivers	<p>There has been an increase in the occurrence of winter low flows across the territory over the past 50 years. Thirty-two stations across Yukon monitor for trends in annual minimum and maximum river flows:</p> <ul style="list-style-type: none"> • Yukon River: 25 stations • Alsek River: 3 stations • Liard River: 3 stations • Peel River: 2 stations • Porcupine River: 1 station <p>28 of 32 long-term river stations measured significant increases over time in the volume of water flowing when the river was at its minimum. No stations indicated that there were declining flows over time.</p>

Yukon State of the Environment HIGHLIGHTS

Frozen water

Indicator	Highlight
 Arctic sea ice extent and volume	Arctic sea ice is melting; summer sea ice will likely disappear within decades.
 Snow accumulation	There has been a significant increase in snow accumulation in the last several decades at 6 of the 14 long-term snow survey stations analysed.

CHAPTER: LANDSCAPE

Planning

Indicator	Highlight
Population of Yukon	Overall, Yukon's population is on the rise. Over the past 10 years (2006 to 2016), the population increased by 6,250 people, or 19.8 per cent. Over the past year (2015 to 2016), the total Yukon population increased by 515 people, or 1.4 per cent. The increase in population is mostly due to growth in the Whitehorse/Marsh Lake area. Population density is only 0.1 people per square kilometre.
Regional land use planning	There are seven planning regions identified in Yukon with plans completed for one region.
Forest resource management plans	Forest resource management plans are in place for the Traditional Territories of Tr'ondëk Hwëch'in, Teslin Tlingit Council, and Champagne and Aishihik First Nation.
Community and local area planning	In order to plan for long-term sustainability, all eight Yukon municipalities have official community plans and there are local area plans for eight of Yukon's unincorporated communities.
Status of parks and protected areas	The protected area in Yukon is a total of 61,486 square kilometers; this is 12.7% of the territory's landscape. On December 16, 2015, a second two-year withdrawal from resource development was placed across the Peel Watershed regional land use planning region until January 1, 2018; a portion of this area was previously reported as protected in the 2014 <i>State of the Environment Report</i> . Land use planning will continue for the Peel Watershed region once the Supreme Court of Canada decision is known and the parties agree on a path forward.

Yukon State of the Environment HIGHLIGHTS

Land use activities

Indicator	Highlight
Environmental and socio-economic assessments	In 2016, the Yukon Environmental and Socio-economic Assessment Board assessed 205 project proposals. The majority of project assessments were received in the Mayo and Dawson City areas. Four common project types are placer mining, land development, quartz mining and transportation.
Recreational land use	In 2016, the Government of Yukon's campgrounds included 42 campgrounds and 12 day-use recreation sites. Yukon residents are increasingly using territorial campgrounds.

Solid Waste

Indicator	Highlight
Waste handled at the Whitehorse Waste Management Facility	The total amount of waste diverted from the Whitehorse landfill by composting and recycling has increased by 63 per cent since 2012.

Forests

Indicator	Highlight
 Area of fire burned annually and number of Yukon wildland fires	Dramatic fluctuations in area burned occur annually. Fires greater than 200 hectares usually represent a small percentage of all fires, but account for most of the overall area burned.
Fire ignition points	Human caused fires are clustered near settlements and roads; in most cases, the area burned by human caused fires is small in relation to the area burned by naturally occurring fires.
Forest health	Aspen decline refers to mortality or damage to Aspen forests due to unknown causes, including a possible combination of biotic and abiotic factors. Symptoms include thin crowns, top dieback, stem mortality, and stem breakage. In 2016, 160,010 hectares exhibited symptoms of aspen decline; the vast majority was in combination with defoliators (Large Aspen Tortrix and Aspen Serpentine Leaf miner).

Yukon State of the Environment HIGHLIGHTS

Wetlands

Indicator	Highlight
Important wetlands	Wetland inventory is ongoing; 54 wetlands are recognized by the Yukon Wetland Technical Committee, primarily for their habitat value to migratory and rare birds.

Invasive Species

Indicator	Highlight
 Presence of alien and introduced species	As of November 2016, an estimated 166 alien plant species have been identified in Yukon; 20 of these are considered invasive. Other species that have been introduced to Yukon include three mammal, four bird and two fish species.

CHAPTER: FISH & WILDLIFE

Planning

Indicator	Highlight
Species-based management plans	<p>Species-based management plans address conservation or population management concerns for an animal, fish or bird population. Yukon government has five current plans and two underway.</p> <p>Current:</p> <ul style="list-style-type: none"> • Management Plan for Elk in Yukon, • Mandanna Lake Management Plan, • Management Plan for the Aishihik Wood Bison Herd in Southwestern Yukon, • Yukon Wolf Conservation and Management Plan. <p>Underway:</p> <ul style="list-style-type: none"> • Dezadeash Lake Management Plan, • Grizzly Bear Conservation and Management Plan.
Community – based fish and wildlife work plans	<p>Community-based fish and wildlife work plans are developed to address local fish and wildlife management concerns in a coordinated manner within a First Nation Traditional Territory. There are four community-based fish and wildlife work plans currently in place:</p> <ol style="list-style-type: none"> 1. Na-cho Nyak Dun Traditional Territory, 2. Vuntut Gwitchin Traditional Territory, 3. Little Salmon/Carmacks Traditional Territory, 4. Champagne & Aishihik Traditional Territory – in progress. <p>Science, traditional and local knowledge is considered in</p>

Yukon State of the Environment HIGHLIGHTS

	the development and implementation of these plans. The <i>Southern Lakes Regional Wildlife Assessment and Recommendations</i> was developed by governments (First Nations, Yukon, Canada, and British Columbia) to recover and conserve wildlife populations and their habitat in the Southern Lakes area.
--	--

Mammals

Indicator	Highlight
Caribou population and distribution	Both of the barren-ground caribou herds that occur in Yukon are increasing in size. Of the 26 woodland caribou herds in Yukon, 2 are increasing in size, 11 are relatively stable and 3 are declining. Population trends are unknown for 10 of the woodland caribou herds.
Caribou mercury levels	Monitoring shows that the concentration of mercury in the kidneys of the Porcupine caribou herd continues to be low.
 Density of snowshoe hares	The snowshoe hare is a keystone species in the boreal forest; changes in hare population cycles can be an early warning system for ecosystem changes due to climate change. The amplitude of the snowshoe hare cycle has been diminishing over the last 30 years in Yukon, demonstrated by research in the Kluane area going back to 1973.
 Winter tick surveillance	Winter ticks have not caused serious problems for Yukon wildlife. However, given their distribution across several Yukon species, they are likely here to stay.

Fish

Indicator	Highlight
 Number of spawning Chinook salmon	In 2016, the spawning conservation target for Yukon River Chinook was met, with a preliminary estimate of approximately 70,000 fish reaching their spawning grounds in Yukon.
Lake trout sustainability	Healthy lake trout populations reflect the general health of an aquatic ecosystem. Lake trout harvest in most Yukon lakes continues to be sustainable. Catch and possession limits will be reduced in April 2017 for one lake, to maintain a sustainable fishery, and for three lakes, to allow depleted populations to rebuild. The majority of the recreational lake trout harvest in Yukon was sustainable, with most water bodies maintaining quality fisheries. Lake trout harvest in Fox, Caribou, Fish and Tarfu lakes exceeded sustainable limits according to most recent angler harvest data.

Yukon State of the Environment HIGHLIGHTS

Mercury levels in fish	There is a correlation between the length of a fish and its mercury concentration. Most fish from Yukon's lakes have mercury levels well below Health Canada's maximum limit.
------------------------	---

Birds

Indicator	Highlight
 Monitoring breeding waterfowl	Monitoring waterfowl presence and abundance gives a good indication of the ecological health of the area; as waterfowl depend on wetland areas for food, nesting areas and safety. No 2016 data is available yet.
Trumpeter Swans	Trumpeter swans were considered endangered in the 1970s. Monitoring efforts shows that their numbers continue to increase in Yukon. All Canadian areas of the Rocky Mountain and Pacific Coast Swan Populations exhibited growth since the 2010 survey. The 2015 estimate for the Canadian portion of the Rocky Mountain Population was 16,143, an 80 per cent increase compared to the 8,950 estimate for 2010. The 2015 estimate for the Canadian portion of the Pacific Coast Population was 2,979, a 106 per cent increase compared to the 1,443 estimate for 2010.
Lead surveillance in wild scavenging birds and waterfowl	Scavenging birds and waterfowl may ingest sources of lead—like bullets, shot and lead fragments—because of their feeding behaviours. The Government of Yukon is gathering information to better understand how birds are being affected by lead and how the impact varies by species.

Species at risk

Indicator	Highlight
 Number of species at risk in Yukon	In 2016, Yukon had the third lowest number of species at risk in Canada. Yukon's healthy ecosystems are a refuge to many species that are considered at risk nationally, due to declines outside the territory. As of 2016, COSEWIC has identified 746 species or populations at risk in Canada, of which 39 occur in Yukon. The number of species at risk in Yukon has increased over time, and is expected to continue to increase as more species are assessed.