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Title	Author	DOI	URL	Date	Language	Tags	Description
10th Year Review of Ontario's Endangered Species Act: Discussion Paper (ERO number: 013-4143)	Shared Value Solutions; Animiigoo Zaag'igan Anishinaabek; Aroland First Nation; Attawapiskat First Nation; Biigtigong Nishnaabeg; Eagle Lake First Nation; Shawanaga First Nation		https://ero.ontario.ca/comment/23760#comment:23760	2019	EN	Cultural vitality; Inter and intra generational values; Diverse economies and livelihoods; Wildlife and wildlife habitat; Species at risk; Fish and fish habitat; Indigenous Peoples	Engagement and comments from the Animiigoo Zaag'igan Anishinaabek, Aroland First Nation, and Attawapiskat First Nation regarding the 10th year review of Ontario's Endangered Species Act.
2.0 The Seal River Watershed	Puzyreva, Marina; Qi, Jeffrey; Terton, Anika; Farrow, Terton; Innes, Larry		https://www.istor.org/stable/resrep47311.4	11/1/2022	EN	Water and river systems; Wildlife and wildlife habitat; Avifauna; Fish and fish habitat	This report documents environmental and social values on this northern Canadian watershed.
2020 Land Cover of Canada	Natural Resources Canada		https://osdp-psdo.canada.ca/dp/en/search/metadata/NRCAN-FGP-1-ee1580ab-a23d-4f86-a09b-79763677eb47	2022-08	EN / FR	Land cover	Land cover information is essential for a wide range of environmental applications, including climate impact assessment and adaptation, emergency response, and wildlife habitat monitoring. In Canada, a 2008 user survey identified that the most practical format for land cover data is a nationwide map with a 30 m spatial resolution, updated every five years. To meet this need, the Canada Centre for Remote Sensing (CCRS) has been producing 30 m resolution land cover maps since 2010, with updates released in 2015 and 2020. These datasets also serve as Canada's contribution to the 30 m Land Cover Map of North America, developed collaboratively by government agencies in Mexico, the United States, and Canada through the North American Land Change Monitoring System (NALCMS). The classification system used in these maps is designed for consistency across North America. It follows a two-level hierarchy based on the Food and Agriculture Organization (FAO) Land Cover Classification System (LCCS), consisting of 12 classes at Level I and 19 classes at Level II. Of the 19 Level II classes, 15 are applicable to Canada and are included in the national land cover dataset. Tropical vegetation classes (specifically classes 3, 4, 7, and 9) are either absent or occur only minimally in Canada and are therefore excluded from the national dataset. Canada's land cover maps are generated using observations from the Operational Land Imager (OLI) Landsat sensor. An accuracy assessment based on 832 randomly distributed samples indicates that the latest dataset achieves 86.9% overall accuracy, with no marked spatial inconsistencies.
2022 review of progress towards the protection and recovery of Ontario's species at risk	Ministry of the Environment, Conservation and Parks		https://www.ontario.ca/document/2022-review-progress-towards-protection-and-recovery-ontarios-species-risk	2022	EN / FR	Wildlife and wildlife habitat; Sustainability; Avifauna; Species at risk	The Government of Ontario has completed the 2022 Review of Progress towards the Protection and Recovery of Ontario's Species at Risk, which includes progress reports for 12 species at risk, and highlights recent activities undertaken as part of the province's species at risk program.
2022-2023 Annual Report on the Status and Implementation of the Canada-Ontario Agreement for the Conservation of Caribou, Boreal Population in Ontario	Ministry of the Environment, Conservation and Parks		http://www.ontario.ca/page/2022-2023-annual-report-status-and-implementation-canada-ontario-agreement-conservation	3/22/2024	EN / FR	Forests; Species at risk; Wildlife and wildlife habitat	Learn about the progress made in 2022-2023 under the 5-year conservation agreement with the Government of Canada for the conservation of Boreal Caribou in Ontario.
27th Annual Report 2008-2009	BQCMB (Beverly and Qamanirjuaq Caribou Management Board)		https://arctic-caribou.com/pdf/annual-reports/2008_2009_Annual_Report.pdf	2009	EN	Public; Species at risk; Wildlife and wildlife habitat	Annual report for 2008-2009 for the Beverly & Qamanirjuaq Caribou Management Board, according to the Beverly and Qamanirjuaq Barren Ground Caribou Management Agreement.
42nd Annual Report 2023/2024	Beverly and Qamanirjuaq Caribou Management Board		https://arctic-caribou.com/pdf/annual-reports/2023_24_Annual_Report.pdf	2009	EN	Indigenous Peoples; Public; Species at risk; Wildlife and wildlife habitat	Annual report for 2023-2024 for the Beverly & Qamanirjuaq Caribou Management Board, according to the Beverly and Qamanirjuaq Barren Ground Caribou Management Agreement.
A beautiful partnership helps develop the logistics of the Ring of Fire	Elbokl, T		https://www.canadianminingjournal.com/featured-article/a-beautiful-partnership-helps-develop-the-logistics-of-the-ring-of-fire-a-first-nations-heavy-cargo-port-in-northern-ontario/	2023	EN	Economic development and livelihoods; Community health; Social and economic; Infrastructure	As mining companies look for logistics solutions that are reliable, agile, and cost-efficient, as well as offer increased transparency and co-ordination to optimize production planning and supply chain efficiency, the BMI Group, known for their restorative state-of-the-art development experience, recently signed a memorandum of understanding (MOU) that will allow them to explore the redevelopment of lands formerly used by a linerboard mill in Red Rock, Ont., as a deep-water port that would be the northernmost heavy-cargo port on the Great Lakes. The Red Rock Integrated Marine Supply Chain (RRIMSC) is a partnership between The BMI Group and the Red Rock Indian Band that aims to connect the Great Lakes seaway to existing transportation infrastructure from the Red Rock port through to the Trans-Canada Highway and the northern community infrastructure corridor.
A biotic agent promotes large-scale catastrophic change in coastal marshes of Hudson Bay	Jefferies, R.L.; Jano, A.P.; Abraham, K.F.		https://www.researchgate.net/publication/227993476_A_biotic_agent_promotes_large-scale_catastrophic_change_in_coastal_marshes_of_Hudson_Bay	2005	EN	Ekwan River; Migratory birds; Public; Winisk River	Herbivores may initiate small changes to plant-soil systems that trigger positive feedbacks leading to rapid catastrophic shifts in vegetative states, including irreversible changes in soil properties. In the coastal marshes of Hudson and James bays, foraging by increasing numbers of lesser snow geese (<i>Chen caerulescens caerulescens</i> A.O.U.) has led to loss of vegetation, and exposure and partial erosion of sediment. Multi-temporal analysis of LANDSAT data has been carried out to detect vegetation change from 1973 to 1999 or later at nine sites in the coastal marshes of these bays where staging and/or breeding geese are present annually.
A changing North: The implications of high-volume groundwater extraction and reduced water availability on sub-arctic peatland hydrology, connectivity, and geochemistry	Balliston, Nicole Elizabeth		https://uwspace.uwaterloo.ca/bitstream/handle/10012/18424/Balliston_Nicole.pdf?sequence=5&isAllowed=y	2022	EN	Peatlands; Water and river systems; Hydrology	Patterned bog and fen peatlands dominate the Hudson Bay Lowlands (HBL), forming one of the world's largest peatland complexes and serving as major carbon stores and hydrological regulators, yet they face increasing pressure from climate warming and resource extraction. Using hydrological, meteorological, and geochemical data collected between 2007 and 2018 from both undisturbed peatlands and areas affected by dewatering from the Victor Diamond Mine, the study examined how water availability controls hydrological connectivity and ecosystem function. In undisturbed systems, connectivity was highest during spring and fall, persisted year-round through unfrozen peat, and was strongly influenced by shoulder-season temperatures that controlled snowmelt routing and storage. In contrast, mine-impacted peatlands experienced sustained water table drawdown, peat subsidence, and reduced lateral hydraulic conductivity, which deepened flow paths, reduced surface delivery of solute-rich water, and diminished connectivity to downstream tributaries. These changes led to lower streamflow, long-term solute depletion, and potential shifts from nutrient-rich fens toward nutrient-poor bog conditions, with chemical recovery likely taking decades to centuries. Overall, the findings highlight how both climate change and industrial disturbance can fundamentally alter peatland hydrology and ecological trajectories, underscoring the need for future modelling and broader-scale assessments of cumulative impacts.
A checklist of Ontario freshwater fishes annotated with distribution maps	Mandrak, NE; Crossman, E.J.		https://books.google.ca/books/about/A_Checklist_of_Ontario_Freshwater_Fishes.html?id=0UsWQAQIAAJ&redir_esc=y	1992	EN	Fish and fish habitat; Not public	Provides information on 158 species of Ontario freshwater fish.
A Climate Adaptation Case Study in Canada's Mining Sector: Climate Change Planning At Glencore in Sudbury, Ontario	Fraser Basin Council		https://www.fraserbasin.bc.ca/Library/cc_mining/mining_case_study_glencore.pdf	2014	EN	Mining; Climate change	This case study outlines planning and action underway to deal with the current and future threats stemming from the impacts of climate change at Glencore's mining operations in Sudbury. The case study yields an example of one mining company's efforts to take stock of climate risks in various facets of its business and the process underway to manage those risks. It is designed to provide an example of climate risk management in order for other mining companies in Canada to consider the changing nature of weather and climate, how it will affect their business, and ways to adapt.
A comparison of predicted groundwater impacts to observed effects at the Victor diamond Mine, 11 years after the start of dewatering	Gautrey, S.; AMEC Foster Wheeler (Wood)		https://www.researchgate.net/publication/329076218_A_comparison_of_predicted_groundwater_impacts_to_observed_effects_at_the_Victor_diamond_Mine_11_years_after_the_start_of_dewatering	2018	EN	Hydrology; Mining; Water and river systems	Summary of predicted groundwater impacts made prior to mining and comparison to the observed effects towards the end of mine life to assess how well hydrogeological investigations completed prior to project commencement predicted impacts to the groundwater environment. Flow regimes in local aquifers and aquitards as well as groundwater-surface water interactions are described prior to, and at the completion of, dewatering activities.

A comparison of self-reported health status and perceptual responses toward environmental noise in rural, suburban, and urban regions in Canada	Michaud, David S.; Marro, Leonora; Denning, Allison; Shackleton, Shelley; Toutant, Nicolas; McNamee, James P.	10.1121/10.0009749	https://doi.org/10.1121/10.0009749	3/8/2022	EN	Community health	Health Canada, in collaboration with Advanis, conducted the Canadian Perspectives on Environmental Noise Survey (CPENS) to investigate expectations and attitudes toward environmental noise in rural and non-rural Canada. The CPENS, a 26-item questionnaire, was completed online by 6647 randomly selected Canadians, age 18 y and older between April and May 2021. The prevalence of reporting their area as often or always calm, quiet, and relaxing was 76.8%, 64%, and 48.4% in rural/remote, suburban, and urban, respectively. A high expectation of quiet was less prevalent yet followed the same pattern: rural/remote (58.2%), suburban (37.4%), and urban (21.8%). Self-reported health status and noise sensitivity were unrelated to geographic region. A high magnitude of non-specific sleep disturbance over the previous 12 months was reported by 7.8% overall; highest among urban dwellers (9.8%), followed by suburban (7.2%) and rural/remote (5.5%) dwellers (p &t; 0.001). High annoyance toward road traffic noise was 8.5% overall, and significantly higher in urban (10.5%), relative to suburban (7.9%) and rural/remote (6.6%) areas (p &t; 0.0001). Annoyance toward noise from rail, aircraft, mining, industry, marine activity, construction, wind turbines, and landscaping equipment is reported. The analysis also explores potential differences between Indigenous Peoples of Canada and non-Indigenous Canadians in their attitudes and expectations toward environmental noise.
A flexible tool for predicting cumulative effects on water resources. Note 2	Leach, J.		https://ostrnrcan-dostnrcan.canada.ca/handle/1845/249554	2021	EN	Cumulative effects; Water and river systems	This factsheet describes the work Cumulative Effects researcher Jason Leach, who develops models to better understand the impact of cumulative effects on forest water sources.
A global perspective of fragmentation on a declining taxon—the sturgeon (Acipenseriformes).	Haxton, T.J.; Cano, T.M.		https://www.int-res.com/articles/esr2016/31/n031p203.pdf	2016	EN	Fish and fish habitat	Acipenseriformes (sturgeons and paddlefishes) are considered to be one of the most globally imperiled taxon, with 25 of the 27 species listed by the International Union for the Conservation of Nature (IUCN). Overharvest, habitat degradation, fragmentation and water quality issues have contributed to their decline worldwide. These stressors have been ameliorated in some areas, but in others they remain a limiting factor to sturgeon. Barriers impeding upstream migrations to natural spawning areas and manifesting alterations to natural flows continue to compromise sturgeon recruitment and limit natural recovery. Watersheds in the Northern Hemisphere have been categorized as being strongly affected, moderately affected or unaffected based on the degree of fragmentation and water flow regulation. An overlay (i.e. intersect) of the sturgeons' status with this watershed categorization revealed that a small area remains in which sturgeon are not considered at risk and where rivers are unaffected in northern Canada. These relatively unperturbed populations provide a much needed opportunity to learn about sturgeon biology, habitat needs and reproductive potential in a natural riverine environment, which may facilitate conservation and recovery efforts in affected watersheds.
A Management Plan for Mississippi Flyway Canada Geese	Luukkonen, D.; Leafloor, J.; Mississippi Flyway Council Technical Section Canada Goose Committee		https://www.agiv.ca/wp-content/uploads/2023/03/Mgmt-Plan-MF-Canada-Goose-2021.pdf	2021-02	EN	Wildlife and wildlife habitat; Migratory birds; Avifauna	Canada geese are widely distributed across North America, and their management is a shared responsibility among government agencies, Indigenous Peoples, and conservation organizations. This plan, developed under the authority of the Mississippi Flyway Council, provides a unified framework for managing Canada geese and cackling geese across the Mississippi Flyway, replacing five previous management plans. It recognizes three breeding stocks—temperate, subarctic, and arctic—and emphasizes maintaining sustainable populations in each while balancing the ecological, social, and economic benefits of geese with conflicts and damages they can cause. The plan guides cooperative harvest management, monitoring, conflict reduction, and research, including efforts to sustain hunting participation and public support, and will be updated as new information becomes available.
A modelling approach to inform regional cumulative effects assessment in northern Ontario	Antwi, Effah Kwabena; Rempel, Rob S.; Carlson, Matthew; Boakye-Danquah, John; Winder, Richard; Dabros, Anna; Owusu-Banahene, Wiafe; Berryman, Eleanor; Eddy, Ian	10.3389/fenvs.2023.1217195	https://www.frontiersin.org/journals/environmental-science/articles/10.3389/fenvs.2023.1217195/full	10/4/2023	EN	Cumulative effects; Public; Scenario development; Species at risk	Cumulatively, the effects of resource extraction and climate change have the potential to cause an unprecedented change to the ecosystems and livelihoods of Indigenous communities in Canada's northern regions. Maintaining environmental and community values in the presence of such change will require a comprehensive understanding of potential long-term risks and opportunities to prevent or mitigate risks at the regional level. However, assessing the cumulative impact and benefits of the multiple disturbances at the regional level is complex due to the interaction of numerous drivers, values, actors, assessment scales, planning, and decision-making processes. We develop an integrated risk and cumulative effects (CE) management methodology to inform regional assessment by combining conceptual modelling through bowtie analysis and quantitative scenario analysis using ALCES Online (AO) simulation. We applied the framework using a case example in the Ring of Fire region of northern Ontario, Canada, to assess the CE of climate change, land use change, and wildlife harvest on the moose (Alces alces)-wolf (Canis lupus)-caribou (Rangifer tarandus) prey-predator system. The bowtie risk analysis provided a mechanism to define the management problem by identifying threats that contribute to risk, associated consequences, and specific management strategies that could be pursued under legislative frameworks and changes to maintain the sustainable dynamics of the moose-wolf-caribou system (MWC). The AO simulation of different levels of development and moose harvest, as well as a baseline scenario that excluded climate change and development, allowed for a comprehensive examination of the complex processes driving the social-ecological system. The scenario analysis suggests that moose harvest can promote balance in the MWC system but only if applied in a sophisticated manner that limits moose harvest in areas with high road density, increases moose harvest in more remote regions susceptible to moose population expansion with climate change, and prioritizes Indigenous moose harvest to ensure a sustainable supply of moose for subsistence harvest. The case example shows how conceptual and quantitative modelling can provide the strategic perspective required for regional assessment.
A Most Abundant Weir: Fish Trap-Weirs, Adaptive Strategies, and the Hudson Bay Lowland	Lister, Kenneth R.		https://ojs.library.carleton.ca/index.php/ALQP/article/view/652/552	1993	EN	Physical and cultural heritage; Cultural vitality; Fish and fish habitat; Indigenous Peoples	A survey of Indigenous fish weir technology in the Hudson Bay Lowlands from archaeological, ethnohistorical, and ethnographic perspectives. Includes information from the HBC archives.
A Multi-Algorithm Analysis of Projected Changes to Freezing Rain Over North America in an Ensemble of Regional Climate Model Simulations	McCray, C.D.; Paquin, D.; Thériault, J.M.; Bresson, É.	10.1029/2022JD036935	https://doi.org/10.1029/2022JD036935	2022	EN	Climate change	Freezing rain events have caused severe socioeconomic and ecosystem impacts. An understanding of how these events may evolve as the Earth warms is necessary to adequately adapt infrastructure to these changes. We present an analysis of projected changes to freezing rain events over North America relative to the 1980–2009 recent past climate for the periods during which +2, +3, and +4°C of global warming is attained. We diagnose freezing rain using four precipitation-type algorithms (Cantin and Bachand, Bourgouin, Ramer, and Baldwin) applied to four simulations of the fifth-generation Canadian Regional Climate Model (CRCM5) driven by four global climate models (GCMs). We find that the choice of driving GCM strongly influences the spatial pattern of projected change. The choice of algorithm has a comparatively smaller impact, and primarily affects the magnitude but not the sign of projected change. We identify several regions where all simulations and algorithms agree on the sign of change, with increases projected over portions of western Canada and decreases over the central, eastern, and southern United States. However, we also find large regions of disagreement on the sign of change depending on driving GCM and even ensemble member of the same GCM, highlighting the importance of examining freezing rain events in a multi-member ensemble of simulations driven by multiple GCMs to sufficiently account for uncertainty in projections of these hazardous events.
A projected decrease in lightning under climate change	Finney, D.L.; Doherty, R.M.; Wild, O.; Stevenson, D.S.; MacKenzie, I.A.; Blyth, A.M.	10.1038/s41558-018-0072-6	https://www.nature.com/articles/s41558-018-0072-6	2018	EN	Climate change	Lightning strongly influences atmospheric chemistry, and impacts the frequency of natural wildfires. Most previous studies project an increase in global lightning with climate change over the coming century, but these typically use parameterizations of lightning that neglect cloud ice fluxes, a component generally considered to be fundamental to thunderstorm charging. As such, the response of lightning to climate change is uncertain. Here, we compare lightning projections for 2100 using two parameterizations: the widely used cloud-top height (CTH) approach, and a new upward cloud ice flux (IFLUX) approach that overcomes previous limitations. In contrast to the previously reported global increase in lightning based on CTH, we find a 15% decrease in total lightning flash rate with IFLUX in 2100 under a strong global warming scenario. Differences are largest in the tropics, where most lightning occurs, with implications for the estimation of future changes in tropospheric ozone and methane, as well as differences in their radiative forcings. These results suggest that lightning schemes more closely related to cloud ice and microphysical processes are needed to robustly estimate future changes in lightning and atmospheric composition.
A Reflection on First Nations in their Boreal Homelands in Ontario: Between a Rock and a Caribou	Smith, M.A. (Peggy)	10.4103/0972-4923.161214	https://www.ijstor.org/stable/26393182?seq=1#metadata_info_tab_contents	2015	EN	Forests; Cumulative effects; Economic development and livelihoods; Physical and cultural heritage; Wildlife and wildlife habitat; Species at risk; Infrastructure	This article provides some overview thoughts on the impacts of the conservation vs development paradigm on First Nations, as it has played out in the Canadian Boreal Forest Agreement and the Far North Act in northern Ontario.

A Systematic Review and Meta-Analysis of Noise Annoyance as a Determinant of Physiological Changes Linked to Disease Promotion	Senerth, Emily; Pasumarthi, Tejanth; Tangri, Neha; Abbi, Bhavya; Bickett, Skye; McNamee, James P.; Michaud, David S.; Morgan, Rebecca L.	10.3390/ijerph21070956	https://www.mdpi.com/1660-4601/21/7/956	2024-07	EN	Community health	This systematic review investigates the certainty of evidence (CoE) regarding noise annoyance as a determinant of biological changes known to contribute to disease development. We searched PubMed MEDLINE, EMBASE, Cochrane Central, and CINAHL for English-language comparative studies conducted on humans of any age from 1 January 1940, to 28 August 2023. Further, studies that provided quantitative data on the relationship between noise annoyance and biomarkers of interest were included. Where possible, random-effects meta-analyses were used to calculate the odds ratios of noise annoyance on biomarkers and biological conditions considered to be risk factors for developing health effects. The risk of bias of individual studies was assessed using the Risk of Bias of Non-randomized Studies of Exposures (ROBINS-E) instrument. The CoE for each outcome was assessed using the Grading of Recommendations Assessment, Development and Evaluation (GRADE) approach. The search identified 23 primary studies reporting on relevant biomarkers. Although some studies and pooled estimates suggest a possible association between noise annoyance and biological measures, the CoE overall is very low due to concerns with the risk of bias, inconsistency, and imprecision in the estimates of effects. In the context of environmental impact assessment, where guidelines aim to mitigate the prevalence of populations experiencing a high level of noise annoyance, our results suggest that such practices should be grounded in the understanding that annoyance is health-relevant because it reflects an undesirable reaction to noise, rather than a precursor to chronic physical health conditions.
A tantalizing glimpse at the dynamics of Attawapiskat River's large-bodied fish	Haxton, T.; Friday, M.		https://www.cabdirect.org/cabdirect/abstract/20173183552	2017	EN	Attawapiskat River; Water and river systems; Fish and fish habitat	An index gill netting protocol was conducted in 3 sites of the Attawapiskat River in 2015. The objective of this project was to build baseline knowledge of riverine ecosystems in the Far North and complement ongoing and future monitoring and research efforts in the area. Overall, 572 fish representing 10 species were captured signifying a simple community. The sites sampled were on the Boreal Shield, in the transition zone between the Boreal Shield and Hudson Bay Lowlands, and in the Hudson Bay lowlands. Fish diversity among sites decreased from the Beteau Lake site (upper most site) down to the Muketel site (lowest site). Fish abundance and growth varied among sites with growth being significantly greater in the Beteau Lake site. There was evidence of size segregation by lake sturgeon with only adults being sampled in the upper site and juveniles in the lowest site. There was no genetic structuring of walleye or lake sturgeon within the river. Moreover, walleye siblings were detected between reaches. For lake sturgeon, juveniles in the lower section could be linked to adults in the upper section through parental assignment. The variation observed among river sites suggests that systematic sampling of river sites would be required as opposed to selecting a potentially representative site and infer homogeneity throughout the remaining river. This study could help establish benchmarks and provides an opportunity to assess the effects anthropogenic change from future development.
A thirty year, fine-scale, characterization of area burned in Canadian forests shows evidence of regionally increasing trends in the last decade	Coops, N.C.; Hermosilla, T; Wulder, M.A.; White, J.C.; Bolton, D.K.	10.1371/journal.pone.0197218	https://doi.org/10.1371/journal.pone.0197218	2018	EN	Forests; Climate change	Coops et al. developed a multi-decadal (1985-2015), high resolution assessment of fire regimes across Canada (forested ecoregions/ecozones). No long-term national trends were detected in the assessment. A short-term national trend of burned area increased by 11% per year was detected for the 2006-2015 time period. Results provide a baseline for monitoring future trends in national and regional burned area. Article abstract: Fire as a dominant disturbance has profound implications on the terrestrial carbon cycle. We present the first ever multi-decadal, spatially-explicit, 30 meter assessment of fire regimes across the forested ecoregions of Canada at an annual time-step. From 1985 to 2015, 51 Mha burned, impacting over 6.5% of forested ecosystems. Mean annual area burned was 1,651,818 ha and varied markedly (? = 1,116,119), with 25% of the total area burned occurring in three years: 1989, 1995, and 2015. Boreal forest types contained 98% of the total area burned, with the conifer-dominated Boreal Shield containing one-third of all burned area. While results confirm no significant national trend in burned area for the period of 1985 to 2015, a significant national increasing trend (? = 0.05) of 11% per year was evident for the past decade (2006 to 2015). Regionally, a significant increasing trend in total burned area from 1985 to 2015 was observed in the Montane Cordillera (2.4% increase per year), while the Taiga Plains and Taiga Shield West displayed significant increasing trends from 2006 to 2015 (26.1% and 12.7% increases per year, respectively). The Atlantic Maritime, which had the lowest burned area of all ecozones (0.01% burned per year), was the only ecozone to display a significant negative trend (2.4% decrease per year) from 1985 to 2015. Given the century-long fire return intervals in many of these ecozones, and large annual variability in burned area, short-term trends need to be interpreted with caution. Additional interpretive cautions are related to year used for trend initiation and the nature and extents of spatial regionalization used for summarizing findings. The results of our analysis provide a baseline for monitoring future national and regional trends in burned area and offer spatially and temporally detailed insights to inform science, policy, and management.
A World Apart? Ontario's Canadian Shield	Hamilton, Scott	10.1515/9780773589193-009	https://www.researchgate.net/publication/296796944_A_world_apart_Ontario's_Canadian_shield	2013	EN	Peatlands; Forests; Physical and cultural heritage; Water and river systems; Indigenous Peoples	A general introduction of the archaeology of Northern Ontario from 7000 BCE to the 17th century.
Abandoned Mines Information System	Ministry of Northern Development Mines, Natural Resources and Forestry		https://www.mndm.gov.on.ca/en/mines-and-minerals/applications/ogsearch/abandoned-mines	2022	EN / FR	Avifauna; Mining; Wildlife and wildlife habitat	The Abandoned Mines Information System (AMIS) database contains information on known abandoned mine sites and mine hazard features on both Crown and privately held lands within Ontario. Sites that are abandoned, may be in production or covered by a closure plan are in AMIS. These sites fall under the Mining Act, Aggregate Resources Act and Federal jurisdictions.
Aboriginal and Treaty Rights Information System	Government of Canada		https://sidait-atris.rcaanc-cimac.gc.ca/SIDAIT-GEO-ATRIS/disclaimer-eng.html	n.d.	EN / FR	Treaty rights; Indigenous Peoples	The Aboriginal and Treaty Rights Information System is a web-based information system designed to map the location of Aboriginal communities and display information about their potential or established Aboriginal and Treaty Rights.
Aboriginal Lands of Canada Legislative Boundaries	Natural Resources Canada		https://open.canada.ca/data/en/dataset/522b07b9-78e2-4819-b736-ad9208eb1067	2/3/2016	EN / FR	Indigenous Peoples	The Aboriginal Lands of Canada Legislative Boundaries web service includes legislative boundaries of Indian Reserves, Land Claim Settlement Lands (lands created under Comprehensive Land Claims Process that do not or will not have Indian Reserve status under the Indian Act) and Indian Lands.
Abundance and distribution of breeding waterfowl in the Great Clay Belt of northern Ontario	Ross, R. Kenyon	10.5962/p.363397	https://www.researchgate.net/publication/291845193_Abundance_and_distribution_of_breeding_waterfowl_in_the_Great_Clay_Belt_of_northern_Ontario	2002	EN	Avifauna; Biodiversity; Migratory birds; Wildlife and wildlife habitat	The abundance and distribution of breeding waterfowl in the Great Clay Belt of northern Ontario was determined through helicopter surveys of 117 fixed plots (2 x 2 km each) during the nest initiation periods from 1988 to 1990. This area has higher fertility, flat topography, high water table and better access than the surrounding Boreal Forest, and therefore has greater potential for increased waterfowl production through habitat management. Overall breeding density averaged 112.5 indicated breeding pairs per 100 km ² , 68% being of the four most common species [Mallard (<i>Anas platyrhynchos</i>), Ringnecked Duck (<i>Aythya collaris</i>), American Black Duck (<i>Anas rubripes</i>), and Common Goldeneye (<i>Bucephala clangula</i>)]; 13 other species were encountered. The average total of breeding waterfowl for the region was estimated at 59330 pairs. Distributions of the species were related to ecodistrict and to surficial geology.
Abundance and Habitat Selection of Breeding Scoters (<i>Melanitta</i> spp.) in Ontario's Hudson Bay Lowlands	Brook, R.W.; Abraham, K.F.; Middel, K.R.; Ross, R.K.		https://www.canadianfieldnaturalist.ca/index.php/cfn/article/view/1290	2012		Wildlife and wildlife habitat; Migratory birds; Avifauna	This study estimated densities of breeding Surf Scoter, White-winged Scoter and Black Scoter in the Hudson Bay Lowlands. They also conducted a habitat association analysis. The results of this habitat analysis can be used to predict habitat use of Scoters in the Hudson Bay Lowlands.
Abundance and Habitat Selection of Breeding Scoters (<i>Melanitta</i> spp.) in Ontario's Hudson Bay Lowlands	Brook, Rodney W.; Abraham, Kenneth F.; Middel, Kevin R.; Ross, R. Kenyon	10.22621/cfn.v12i6.1290	https://www.canadianfieldnaturalist.ca/index.php/cfn/article/view/1290	10/1/2012	EN	Wildlife and wildlife habitat	Concern about declining populations of sea ducks counted on the wintering grounds prompted a survey of sea ducks on the breeding grounds in the Hudson Bay Lowlands of Ontario in spring 2009. We estimated densities of breeding scoters (Surf Scoter, <i>Melanitta perspicillata</i> , White-winged Scoter, <i>M. fusca</i> , and Black Scoter, <i>M. americana</i>) and found the average estimates of Surf Scoters (average = 0.11 indicated pairs/km ²) and Black Scoters (average = 0.16 indicated pairs/km ²) to be as high as some of the highest reported for North America. We also conducted a habitat association analysis using resource selection functions (RSF) for indicated pairs of all scoter species combined at a scale of 250 m. Breeding pairs of scoters in the Hudson Bay Lowlands appear to have an affinity for smaller wetlands (<100 ha) disproportionate to what is available, also avoiding lakes (i.e., wetlands >100 ha). Pairs were also found in areas with less forest cover and fen area than was available. An estimate of the area under the curve of the receiver operating characteristic suggests that these habitat association models have some utility. Once tested and validated with surveys beyond the current study area, these models can be refined and used to predict habitat use by breeding pairs of scoters in the Hudson Bay Lowlands; this information will be particularly useful for population estimation and land use planning.
Abundance and movement of fishes among nearshore habitat types in small boreal shield lakes.	Mushet, Graham R.; Yee, Caleb; Bergson, Scott; Blanchfield, Paul	10.1007/s10750-023-05205-7	https://link.springer.com/article/10.1007/s10750-023-05205-7#citeas	2023	EN	Biodiversity; Water and river systems; Fish and fish habitat	The littoral zone of lakes consists of a mosaic of habitat types, which support fish communities that contribute greatly to biodiversity and food web stability. Yet, relationships between habitat and littoral fish abundance, species composition, and the extent of movement among habitats are not well understood. We carried out a habitat-specific mark-recapture study of small littoral fishes in two small boreal lakes in central Canada. We found that the abundance of littoral fishes was lowest in the habitat type with the least amount of structural complexity, while areas containing coarse woody material were associated with high fish abundance and biomass. We found little difference in species composition among habitat types, although smaller individuals tended to prefer habitats with high structural complexity. Mark-recapture data provided evidence for fidelity to the initial marking habitat type, though this was higher in the lake with more open habitat areas, which may have acted as barriers to movement. Our data also indicated that these small-bodied species can move appreciable distances (up to ~21 km) throughout the nearshore zone. This research suggests that maintaining structurally complex habitats is important for littoral zone fish productivity by supporting growth and survival, and by facilitating movement among habitat patches.

Access roads impact enzyme activities in boreal forested peatlands	Saraswati, S; Parson, C.T.; Strack, M.	10.1016/j.sciteo.2018.09.280	https://www.sciencedirect.com/science/article/pii/S0048969718337306	2018	EN	Peatlands; Forests; Water and river systems; Infrastructure	We investigated the impacts of resource access roads on soil enzyme activities in contrasting forested boreal peatlands (bog and fen). In August 2016, a total of 72 peat samples were collected from twelve 20m long transects perpendicular to access roads, with a further six samples collected from undisturbed reference areas.
Action Plan for the Woodland Caribou (Rangifer tarandus caribou), Boreal Population, in Canada: Federal actions 2018	Environment and Climate Change Canada		https://www.canada.ca/en/environment-climate-change/services/species-risk-public-registry/action-plans/woodland-caribou-boreal-federal-actions-2018.html	2/7/2018	EN / FR	Cultural vitality; Food security; Forests; Species at risk; Wildlife and wildlife habitat	Action plan for the Woodland Caribou (Rangifer tarandus caribou), Boreal Population, in Canada, 2018 Federal actions
Agreement for the Conservation of Caribou, Boreal Population in Ontario	Environment and Climate Change Canada; Ministry of the Environment, Conservation and Parks		https://ecprccsarstacct.z9.web.core.windows.net/files/SARAFiles/legacy/Ca-CaribouOntario-v00-2022April-Eng1.pdf	4/22/2022	EN / FR	Indigenous Peoples; Species at risk; Treaty rights; Wildlife and wildlife habitat	Ontario and Canada have signed a historic bilateral conservation agreement for boreal caribou under the federal Species at Risk Act with the objective to sustain or improve the environmental conditions necessary for the recovery of the boreal caribou, while considering social and economic factors.
Agreement for the Conservation of Caribou, Boreal Population in Ontario	Canadian Wildlife Service; Environment and Climate Change Canada		https://species-registry.canada.ca/index_en.html#/documents/xLYf30K44fkWQsnDggg	5/22/2025	EN / FR	Cultural vitality; Food security; Forests; Indigenous Peoples; Species at risk; Wildlife and wildlife habitat	The purpose of this Agreement is to support the implementation of conservation measures that create the environmental conditions necessary to maintain and recover self-sustaining local populations of boreal caribou in Ontario. The agreement includes commitments for: planning and implementing habitat restoration activities; increasing protection through protected areas and other effective area-based conservation measures; using evidence-based approaches to manage for self-sustaining local populations; monitoring and reporting on current and projected future population and habitat condition; and collaboration and implementation of conservation measures that are informed by independent experts, Indigenous communities and organizations, and stakeholders.
Agreement for the conservation of the Woodland caribou, boreal population with Athabasca Chipewyan First Nation and Mikisew Cree First Nation.	Environment and Climate Change Canada		https://publications.gc.ca/site/eng/9.910948/publication.html	2022	EN / FR	Forests; Food security; Cultural vitality; Traditional processes for deliberation; Wildlife and wildlife habitat; Species at risk; Indigenous Peoples	This agreement sets out conservation measures that the parties have agreed to take in order to support the achievement of a self-sustaining population consistent with the population and distribution objectives in the Recovery Strategy, in the Red Earth Range, West Side Athabasca River Range, Richardson Range, and, East Side Athabasca River Range (hereinafter referred to as "Shared Recovery Objective").
Air Quality in Ontario 2021 Report	Ministry of the Environment, Conservation and Parks		https://www.ontario.ca/document/air-quality-ontario-2021-report	2023	EN / FR	Air quality	Learn about the state of ambient air quality in 2021 and long-term trends for key airborne pollutants affecting Ontario's air quality.
Albany River Provincial Park Interim Management Statement	Ministry of the Environment, Conservation and Parks		https://www.ontario.ca/page/albany-river-provincial-park-management-statement	2001	EN	Water and river systems; Lower Albany River; Upper Albany River	This interim statement is intended to guide the use of natural resources and related activities within the park until such a time as a Park Management Plan is prepared.
Albany River Provincial Park Life Science Inventory	Ministry of the Environment, Conservation and Parks		Held by Ministry of Environment, Conservation, and Parks	2007	EN	Lower Albany River; Not public; Upper Albany River; Water and river systems	This report details research related to geological, biological, cultural and social sciences and assist with the management of the area. The study involves surveying the entire waterway via canoe and all animal sightings, birds heard, nest locations and rare plants observed are recorded. Vegetation plots are completed along route to be used as baseline data for future study. Portages and campsites along route are inspected, rated and recorded as well as any other significant geological features such as cliffs. Recreational highlights for canoeists or boaters would also be recorded such as waterfalls, rapids (Class type) and other aesthetic features. This information is logged digitally in a GPS unit, filed in a digital format and then a formal life science/Recreation/Cultural report is produced along with visual maps.
Amended Environmental Assessment Report for the Phase 1 New Transmission Line to Pickle Lake Project	Golder Associates Ltd.		https://opiikapawlin-my.sharepoint.com/personal/contact_oslp_ca/_layouts/15/onedrive.aspx?id=%2Fpersonal%2Fcontact%5Fosp%5Fca%2FDocuments%2FEA%20Documents%2FPhase%201%2FFinal%20Amendment%2FPhase%201%5FFinal%5FEA%5FAMendment%2Epdf&parent=%2Fpersonal%2Fcontact%5Fosp%5Fca%2FDocuments%2FEA%20Documents%2FPhase%201%2FFinal%20Amendment&ga=1	2019-08	EN	Current use; Economic development and livelihoods; Fish and fish habitat; Forests; Hydrology; Indigenous Peoples; Infrastructure; Land cover; Social and economic; Species at risk; Treaty rights; Water and river systems; Wildlife and wildlife habitat	Desktop baseline hydrogeological conditions report for the lands between Eagle and Pickle Lakes.
Amended Recovery Strategy for the Woodland Caribou (Rangifer tarandus caribou), Atlantic-Gaspésie Population, in Canada	Environment and Climate Change Canada		https://publications.gc.ca/site/eng/9.907286/publication.html	2022	EN / FR	Wildlife and wildlife habitat; Species at risk	This recovery strategy is for the Woodland Caribou (Rangifer tarandus caribou), Atlantic-Gaspésie population, herein referred to as "Gaspésie caribou". This is an amended recovery strategy, which is an update of the recovery strategy for the Gaspésie caribou, published by Environment Canada (2007) under the title "Gaspésie Woodland Caribou Recovery Plan (2002-2012) (Rangifer tarandus caribou)."
Amended recovery strategy for the Woodland Caribou (Rangifer tarandus caribou), Boreal population, in Canada	Government of Canada		https://wildlife-species.canada.ca/species-risk-registry/virtual_sara/files/plans/Rs-CaribouBorealeAmdMod-v01-2020Dec-Eng.pdf	2020	EN	Cultural vitality; Forests; Indigenous Peoples; Species at risk; Wildlife and wildlife habitat	The Amended Recovery Strategy for the Woodland Caribou (Rangifer tarandus caribou), Boreal Population, in Canada (December 2020) is a federal Species at Risk Act recovery strategy published by Environment and Climate Change Canada that updates the original 2012 strategy. It sets population and habitat objectives for the boreal caribou across Canada, identifies and refines critical habitat (including new identification in northern Saskatchewan), summarizes threats such as habitat disturbance, and outlines broad recovery approaches, monitoring, and implementation considerations to support the species' survival and recovery.
An Assessment of the Groundwater Resources of Northern Ontario	Singer, S.N.; Chen, C.K.		https://ia801702.us.archive.org/24/items/8793_ome/8793.pdf	2002	EN	Geology; Hydrology; Water and river systems	
An estimate of the Black Scoter, Melanitta nigra, population moulting in James and Hudson bays	Ross, R. Kenyon	10.5962/p.354971	https://www.biodiversitylibrary.org/part/354971	1983	EN	Wildlife and wildlife habitat; Migratory birds; Avifauna	Results of annual surveys of Black Scoter, Melanitta nigra populations in Hudson and James bays.
An exploratory survey of summer water chemistry and plankton communities in lakes near the Sutton River, Hudson Bay Lowlands, Ontario, Canada	Paterson, A.M; Keller, W.; Rühland, K.M.; Jones, F.C.; Winter, J.G.	10.1657/1938-4246-46.1.121	https://www.tandfonline.com/doi/full/10.1657/1938-4246-46.1.121	2014	EN	Fish and fish habitat	Assessment of regional water chemistry and plankton (phytoplankton and crustacean zooplankton) for a suite of lakes near the Sutton River region of the north-central Hudson Bay Lowlands (HBL). Used the ordination analyses to examine the spatial variation in water chemistry and plankton across lakes, and to explore the factors that may explain this variation. Based on data collected during summer from 2009 to 2011, it was found that in addition to geology, water chemistry was strongly influenced by a lake's proximity to salt water and the degree of permafrost development within its catchment. Phytoplankton composition varied across lakes based on differences in water depth and nutrient concentrations, with non-filamentous cyanobacteria and chlorophytes more common in shallow lakes, and deeper lakes dominated by planktonic diatoms or filamentous cyanophytes. Crustacean zooplankton community composition and richness in the HBL lakes was similar to communities found in Ontario lakes in more temperate regions within the Precambrian Shield. These baseline data provide a foundation upon which future surveys in this climatically sensitive region may be compared.
An investigation of contaminants and benthic communities in the major rivers of the Hudson Bay Lowland, Ontario	McCrea, R.C; Kwiatkowski, R.E.; Campbell, D.E.; McCarthy, P.P.; Norris, T.A.		https://publications.gc.ca/site/eng/9.863894/publication.html	1984	EN / FR	Fish and fish habitat	A comprehensive water quality study was conducted June 4-11, 1981, near the mouths of the five major rivers of the Hudson Bay Lowland. A wide range of trace organic and trace metal contaminants were measured in water, fish, suspended and bottom sediments. Although levels of organochlorine pesticides were generally low in the water samples, a wide range of compounds were detected. Total PCB's (polychlorinated biphenyls), ?z-BHC and p,p'-DDE were most often detected in fish and the concentrations of all of the compounds present were very low. Polychlorinated biphenyls were the only compounds detected in suspended sediment samples and all trace organic contaminants were below the detection limit in bottom sediment. The results of the survey conducted to determine benthic structure indicate that a large number of benthic species were present in each river, but that no one species predominated. The Chironomidae and Tubificidae families were the two major taxonomic groups in terms of numbers of individuals in each river.
An updated assessment of human activities, the environment, and freshwater fish biodiversity in Canada	Chu, C; Minns, CK; Lester, NP; Mandrak, NE	10.1139/cjfas-2013-0609	https://cdsciencepub.com/doi/10.1139/cjfas-2013-0609	2014	EN	Biodiversity; Fish and fish habitat; Scenario development	Changes in resource development and expansions of urban centers suggest that the intensity and types of anthropogenic stressors affecting Canada's watersheds are changing. Chu et al. (2003) integrated indices of freshwater fish biodiversity, environmental conditions, and anthropogenic stress to identify priority watersheds for conservation and management. Here, we update those indices using recent climate and census data to assess changes through time. We also applied different conservation and management scenarios to evaluate the robustness of our prioritization approach. Between time periods, the environmental and stress indices expanded northward because of warmer temperatures at higher latitudes and more intense anthropogenic stress in the northern regions of the provinces. Conservation priorities increased in northern British Columbia, Alberta, and Ontario but decreased in southern British Columbia, Saskatchewan, and south-central Quebec. Under multiple scenarios, conservation priorities were consistently highest in British Columbia, the Maritimes, southern Ontario, and southern Quebec. Future research to refine this assessment should focus on developing a nationwide georeferenced assessment of freshwater fisheries stress, quantifying spatial changes in the stressors, and evaluating the sensitivity of each index to the weighting of the individual variables. This work highlights the necessity for conservation and management strategies in Canada to keep pace with changing patterns in climate and human activities.

Anadromous brook trout (<i>Salvelinus fontinalis</i>) in the Hudson Bay Lowland of Ontario	Weir, J.B	Held by Ministry of Natural Resources	1981	EN	Fish and fish habitat	Anadromous brook trout (<i>Salvelinus fontinalis</i>) in the Hudson Bay Lowland of Ontario	
Anadromy in Arctic populations of lake trout (<i>Salvelinus namaycush</i>): Otolith microchemistry, stable isotopes, and comparisons with Arctic char (<i>Salvelinus alpinus</i>).	Swanson, H.K; Kidd, K.A.; Babaluk, J.A.; Wastle, R.J.; Yang, P.P.; Halden, N.M.; Reist, J.D.	10.1139/F10-022	https://www.researchgate.net/publication/237175958_Anadromy_in_Arctic_populations_of_lake_trout_Salvelinus_namaycush_Otolith_microchemistry_stable_isotopes_and_comparisons_with_Arctic_char_Salvelinus_alpinus	2010	EN	Fish and fish habitat	In the family Salmonidae, lake trout (<i>Salvelinus namaycush</i>) are considered the least tolerant of salt water. There are, however, sporadic reports of lake trout in coastal, brackish habitats in the Canadian Arctic. Otolith microchemistry analyses conducted on lake trout and Arctic char (<i>Salvelinus alpinus</i>) from four Arctic lakes in the West Kitikmeot region of Nunavut, Canada, revealed that 37 of 135 (27%) lake trout made annual marine migrations. Anadromous lake trout were in significantly better condition ($K = 1.17$) and had significantly higher C:N ratios (3.71) than resident lake trout ($K = 1.05$ and $C:N = 3.34$). Anadromous lake trout also had significantly higher ^{15}N (mean = 16.4), ^{13}C (mean=22.3), and ^{34}S (mean = 13.43) isotope ratios than resident lake trout (means = 12.84,26.21, and 1.93 for ^{15}N , ^{13}C , and ^{34}S , respectively) results were similar for Arctic char and agree with results from previous studies. Mean age of first migration for lake trout was 13years, which was significantly older than that for Arctic char (5years). This could be a reflection of size-dependent salinity tolerance in lake trout, but further research is required. These are the first detailed scientific data documenting anadromy in lake trout.
Analyzing Health, Social and Economical Effects Under the Impact Assessment Act	Impact Assessment Agency of Canada		https://www.canada.ca/content/dam/iaac-acei/documents/policy-guidance/analyzing-health-social-economical-effects/analyzing-health-social-and-economical-effects-under-the-impact-assessment-act.pdf	11/27/2020	EN / FR	Community health; Social and economic	Federal practitioner guidance on how health, social, and economic effects must be identified, analyzed, and considered in impact assessments of designated projects under Canada's Impact Assessment Act. It explains legislative requirements and practical expectations for proponents and practitioners, including how to identify valued components, understand effect pathways, collect and analyze data, engage meaningfully with the public and Indigenous peoples, and apply frameworks such as the determinants of health. The guidance also describes how these effects inform decision-making and post-decision phases, and it includes examples, tools, and data sources to support consistent and transparent assessment practices
Annoyance toward transportation and construction noise in rural suburban and urban regions across Canada	Michaud, David S.; Marro, Leonora; Denning, Allison; Shackleton, Shelley; Toutant, Nicolas; McNamee, James P.	10.1016/j.eiar.2022.106881	https://www.sciencedirect.com/science/article/pii/S0195925522001470	11/1/2022	EN	Community health	The Canadian Perspectives on Environmental Noise Survey investigated expectations and attitudes toward environmental noise in rural/remote, suburban and urban regions across Canada. A 26-item online questionnaire was completed by 6647 randomly selected Canadians 18 years of age and older between April 12, 2021 and May 25, 2021. Stepwise multivariate logistic regression modelled the odds of reporting very or extreme (i.e., high) noise annoyance toward road traffic, aircraft/helicopter, trains and construction noise. Five variables were common to all noise sources; 1) reporting the living area as very quiet, calm and relaxing; 2) sleep disturbance in general; 3) sleep disturbance attributed to road traffic noise; 4) noise sensitivity; and 5) reporting worsened annoyance toward environmental noise due to the COVID-19 pandemic. Duration of residency, perceived changes in nighttime and daytime noise over time, expectations of quiet, other specific causes of sleep disturbance, hearing impairment, road traffic audibility, and the impact of the pandemic on physical health, mental health, stress and indoor noise annoyance, each impacted the odds of reporting high annoyance to some, but not all modelled sources. Gender, rated physical and mental health (in general), anxiety or depression, overall well-being, and Indigenous status did not enter any of the multivariate models. Results are discussed in relation to the provision of advice on noise under Canada's Impact Assessment Act.
Anthropogenic Disturbance and Patch Dynamics in Circumpolar Arctic Ecosystems	Forbes, B. C.; Ebersole, J. J.; Strandberg, B.	10.1046/j.1523-1739.2001.015004954	https://conbio.onlinelibrary.wiley.com/doi/10.1046/j.1523-1739.2001.015004954.x	3/21/2002	EN	Biodiversity; Climate change; Infrastructure	The article summarizes the results of recent studies of patchy anthropogenic disturbance. The article pays particular attention to the natural regeneration of plant communities, emphasizes patch dynamics over the medium term (20–75 years), and discusses the data in the context of popular models of vegetation change following disturbance.
Anthropogenic Disturbance and Population Viability of Woodland Caribou in Ontario	Fryxell, J. M.; Avgar, T.; Liu, B.; Baker, J. A.; Rodgers, A. R.; Shuter, J.; Thompson, I. D.; Reid, D. E. B.; Kittle, A. M.; Mosser, A.; Newmaster, G. S.; Nudds, T. D.; Street, G. M.; Brown, G. S.; Patterson, B.	10.1002/jwmg.21829	https://doi.org/10.1002/jwmg.21829	2/10/2020	EN	Wildlife and wildlife habitat; Species at risk	Comparison of rates of survival and population growth by woodland caribou from two study sites in northern Ontario to clarify how spatial variation in land cover due to anthropogenic disturbance influences wildlife demography and long-term viability
Anthropogenic influence would increase intense snowfall events over parts of the Northern Hemisphere in the future	Chen, H; Sun, J; Lin, W	10.1088/1748-9326/abbc93	https://doi.org/10.1088/1748-9326/abbc93	2020	EN	Climate change	Snowfall is an important element of the climate system and generally has particularly large economic and human impacts. Simulations with climate models have indicated a decline in mean snowfall with warming in most regions. The response of intense snowfall events to a changing climate, however, is unclear. Thus, the degree which anthropogenic influence is responsible for intense snowfall change and how intense snowfall will respond to the changing climate in the future are addressed here using new simulations from Coupled Model Intercomparison Project phase 6 models. The results show that anthropogenic influences on changes in snowfall are detectable across the lands of the Northern Hemisphere and generally result in a decreasing trend in snowfall events. However, increased anthropogenic activity has increased intense snowfall occurrences over most parts of Asia, North America, and Greenland. With additional warming in the future, while the length of the snowy season will be shortened and the areas where snowfall occurs will be reduced, the occurrence probability of an intense snowfall event is projected to significantly increase with a level of high confidence over these regions by the end of this century. This suggests that these regions, including most parts of northern China, would suffer from more intense snowfall events in the future due to a continuous increase in anthropogenic influence.
Antipredator strategies of caribou: dispersion along shorelines	Bergerud, A. T.	10.1139/z85-199	https://cdsciencepub.com/doi/10.1139/z85-199	1985-06	EN	Public; Species at risk; Wildlife and wildlife habitat	A small herd of 15–31 caribou (<i>Rangifer tarandus</i>) inhabited a shoreline strip of habitat along Lake Superior from 1972 to 1983. By remaining near the shoreline, they were spaced away from the major distributions of wolves (<i>Canis lupus</i>) and lynx (<i>Lynx canadensis</i>) that hunted mainly inland for moose (<i>Alces alces</i>) and snowshoe hares (<i>Lepus americanus</i>), respectively. Lake Superior also provided a means of escape from wolves, and offshore islands constituted safe parturition sites. The persistence of this herd is consistent with the hypothesis that viable caribou populations cannot survive on ranges frequented by high numbers of wolves (maintained mainly by moose prey) unless there are special habitat features providing escape for cows with young calves.
Appendix F Air Quality Technical Support Document - Cote Gold Project Technical Support Document: Air Quality Final	AMEC Americas Limited		https://www.aeic-iaac.gc.ca/050/documents/p80036/9304E.pdf	2014	EN	Air quality; Mining; Public	Air quality assessment report in support of the federal and provincial environmental assessment for the Cote Gold Project in the Chester and Neville Townships, District of Sudbury in Northeastern Ontario.
Appendix Q-1 Air Quality Assessment Report Rainy River Gold Project	AMEC Americas Limited		https://iaac-aeic.gc.ca/050/documents_staticpost/80007/97751/Vol3_AppQ-1_RRP_Final_EA_AQ_Assess.pdf	2013	EN	Air quality; Mining; Public	Air quality assessment report in support of the federal and provincial environmental assessment for the Rainy River Gold Project in the Township of Chapple, Ontario.
Application of a spatially-explicit caribou PVA model across Ontario ranges	Ministry of Natural Resources, Forestry Science and Research Branch		Held by Ministry of Natural Resources and Forestry Science and Research Branch	2013	EN	Forests; Not public; Species at risk	Update and apply a spatially-explicit caribou PVA model to the 14 caribou ranges in Ontario and use it to determine the relative influence of specific factors and different combinations of factors on long-term probability of persistence. Operationalize the model and apply it to an FMU.
Aquatic species at risk map	Fisheries and Oceans Canada		https://www.dfo-mpo.gc.ca/species-especes/sara-lep/map-carte/index-eng.html	8/23/2019	EN	Water and river systems; Species at risk; Fish and fish habitat	This map is intended to provide an overview of the distribution of aquatic species at risk and the presence of their critical habitat within Canadian waters.
Aquifer depressurization and water table lowering induces landscape scale subsidence and hydrophysical change in peatlands of the Hudson Bay Lowlands	Balliston, Nicole E.; Price, Jonathan S.	10.1016/j.scitotenv.2022.158837	https://www.sciencedirect.com/science/article/pii/S0048969722059368	1/10/2023	EN	Hydrology	The depositional history of the Hudson Bay Lowlands (HBL) in Ontario, Canada has created a low relief, poorly drained landscape, favouring the formation of one of the largest peatland complexes in the world. High volume dewatering associated with resource extraction in this area, such as the De Beers Victor Diamond Mine, tests the ability of the underlying confining layer to limit water losses in the peatlands above. This research quantifies the deepening of water tables and increase in effective stress related to mine dewatering and the resulting changes to bog and fen peatland hydrophysical structure and function. Long-term implications of these impacts are discussed. One impacted and two unimpacted transects were instrumented for meteorological (precipitation and evapotranspiration) and hydrophysical (hydraulic head, hydraulic conductivity (Ksat), and surface elevation) monitoring over a 12-year period in the vicinity of the Victor Mine. Over this study period, the unimpacted peatlands operated within relative hydrological equilibrium, demonstrated through shallow water tables, negligible subsidence, and stable Ksat. Contrastingly, all impacted peatlands experienced deeper watertables, larger downwards gradients, and measurable long-term subsidence (4–15 cm). Hydrological impacts were highest in bogs with a thin underlying confining layer even if they were farther from the point of dewatering, highlighting the need for environmental monitoring programs which incorporate an assessment of aquitard thickness. Where subsidence occurred, associated decreases in Ksat deflected bog-fen-tributary flow-paths deeper, reducing the upwards transport of solute rich water to downgradient fens. The long-term effects of these landscape scale changes should be studied further, particularly since climate change in this region will potentially increase water deficits and further alter peatland connectivity. Peatland studies should be conducted in different landscapes experiencing water table lowering due to drought or depressurization in order to better understand the associated subsidence patterns and hydrophysical changes in varying geological and morphological regimes.
Archaeological Survey of the Lower Albany River	Julig, P.		Held by the Ministry of Citizenship and Multiculturalism	1987	EN	Lower Albany River; Not public; Physical and cultural heritage	This study is outside the limits of the Assessment Area, but does provide some general discussion of physiography, including a delineation of the limits of the glacial period Tyrell Sea, and game resources across northern Ontario.

Archived - Chimney Swift General Habitat Description	Ministry of the Environment, Conservation and Parks	https://www.ontario.ca/page/chimney-swift-general-habitat-description	7/22/2025		Wildlife and wildlife habitat; Avifauna; Species at risk	This document is a technical, science-based description of the area of habitat protected for the Chimney Swift.
Aroland First Nation, Environmental and Regulatory Reviews - Discussion Paper	Aroland First Nation	https://s3.ca-central-1.amazonaws.com/ehq-production-canada/files/answers/files/46b7df2a798d14d9b24becb70889b00bdf8a72f004773454/original/2017-08-24_Aroland_First_Nation_-_Discussion_Paper_Written_Submission.pdf?1503943760&utm_campaign=website&utm_source=ehq&utm_medium=email	2017	EN	Cumulative effects; Treaty rights; Indigenous Peoples; Infrastructure	Discussion paper on Aroland First Nation's key issues with environmental assessments and their recommendations.
Arrested development: A brief economic history of Northern Ontario, 1870 to 2020	Di Matteo, L.	10.1080/02722011.2022.2042139 https://www.tandfonline.com/doi/full/10.1080/02722011.2022.2042139	2022	EN	Food security; Economic development and livelihoods; Community health; Social and economic	Northern Ontario's economy began as a booming nineteenth-century resource frontier because of international market demand for natural resource commodities, private sector business investment, and government initiatives in transportation and protectionism. During Northern Ontario's development, economic growth was most robust during eras when these engines came together to provide economic growth and employment creation. Export-led growth approaches to development suggest that such a growth process ultimately expands population and market size and creates self-sustaining economic growth. However, Northern Ontario never made that transition because of the inability to retain more linkages from resource extraction because of decision-making external to the region. As a result, the latter part of the twentieth century and early twenty-first century became an era of arrested development. Economic decline since the 1970s caused by less labor-intensive transportation and resource sectors was met with ineffective and essentially palliative government attempts to counter the decline.
Arsenic, chromium, and other elements of concern in fish from remote boreal lakes and rivers: Drivers of variation and implications for subsistence consumption	Lescord, G.L.; Johnston, T.A.; Heerschap, M.J.; Keller, W.; Southee, F.M.; O'Connor, C.M.; R.D. Dyer, B.A. Branfireun; Gunn, J.M.	10.1016/j.envpol.2019.113878 https://pubmed.ncbi.nlm.nih.gov/32032983/	2020	EN	Food security; Cultural vitality; Current use; Fish and fish habitat	Eating fish provides numerous health benefits, but it is also a dominant pathway for human exposure to contaminants. Many studies have examined mercury (Hg) accumulation in fish, but fewer have considered other elements, such as arsenic (As) and chromium (Cr). Recently, freshwater fish from several pristine boreal systems across northern Ontario, Canada, have been reported with elevated concentrations of As and Cr for reasons that are not well understood. Our goal was to investigate the ecological and environmental influences over concentrations of As, Cr, and other elements in these fish to better understand what affects metal uptake and the risk to consumers. We measured 10 elements (including As, Cr, Hg) as well as carbon (δ13C), nitrogen (δ15N), and sulfur (δ34S) stable isotopes in 388 fish from 25 lake and river sites across this remote region. These data were used to determine the effect of: 1) trophic ecology; and 2) watershed geology on piscine elemental content. Overall, most element concentrations were low, often below provincial advisory benchmarks (ABs). However, traces of Hg, As, Cr, and selenium (Se) were detected in most fish. Based on their exceedance of their respective ABs, the most restrictive elements on fish consumption in these boreal systems were Hg > As > Cr. Arsenic and Se, but not Cr concentrations were related to fish size and trophic ecology (inferred from δ13C and δ15N), suggesting bioaccumulation of the former elements. Fish with enriched δ34S values, suggestive of anadromous behaviour, had marginally lower Hg but higher Se concentrations. Modeling results suggested a strong effect of site-specific factors, though we found weak trends between piscine elemental content and geological features (e.g., mafic intrusions), potentially due to the broad spatial scale of this study. Results from this study address gaps in our understanding of As and Cr bioaccumulation and will help to inform fish consumption guidelines.
Assessing the contribution of traditional foods to food security for the Wapekeka First Nation of Canada	Robidoux, Michael A; Winnepongta, Derek; Santosa, S; Haman, François	10.1139/apnm-2020-0951 https://cdsciencepub.com/doi/full/10.1139/apnm-2020-0951	2021	EN	Food security; Cultural vitality; Treaty rights; Inter and intra generational values; Social and economic; Current use; Indigenous Peoples	This study provides a novel multidisciplinary approach that draws from firsthand experiences working with First Nations community members in a remote subarctic region in northwestern, Ontario, to estimate their community's total food requirement and the amount of wild animal food sources needed to sustain yearly food intake.
Assessing the potential cumulative impacts of land use and climate change on freshwater fish in northern Ontario	Trisurat, Y; Kanchanasaka, B; Kreft, H	Held by Wildlife Conservation Society Canada	2017	EN	Cumulative effects; Fish and fish habitat	Assessment on cumulative anthropogenic and climate change impacts on freshwater fish and fish habitat in northern Ontario.
Assessing the Treatment of Climate Change Impacts and Adaptation in Project- Level East in the Canadian Mining Sector	OCCIAR; RSI	https://policycommons.net/artifacts/1181981/assessing-the-treatment-of-climate-change-impacts-and-adaptation-in-project-level-east-in-the-canadian-mining-sector/1735110/	2014	EN	Mining; Climate change	Evaluation and characterization of the treatment of climate impacts and adaptation considerations in project-level Environmental Assessments (EAs) in the Canadian mining sector. The report highlights actions taken to reduce climate change-related risks at the project level, the strengths and weaknesses of current approaches to factoring climate change adaptation into project EAs, and identify actions to advance the role of project EAs in supporting climate adaptation decision-making in Canada's mining sector. Six project EAs, including the 2004 Victor diamond Mine (DeBeers) EA, were evaluated in this study.
Atlantic and Great Lakes Sea Duck Migration Study: Final Report	Sea Duck Joint Venture	https://seaduckiv.org/wp-content/uploads/2023/09/AGLSDMS_FinalReport_Sept2022.pdf	2022	EN	Wildlife and wildlife habitat; Migratory birds; Avifauna	Results of a large, multi-partner satellite telemetry study examining the migration patterns, seasonal movements, and habitat use of sea ducks across the Atlantic Coast and Great Lakes. Led by the Sea Duck Joint Venture, the report synthesizes data collected over multiple years for key species (including scoters, eiders, and long-tailed ducks) to identify important breeding, molting, staging, and wintering areas, with the goal of informing conservation planning, management decisions, and offshore development risk assessments.
Atlas of the Breeding Birds in Ontario (2001-2005)	Cadman, M.D.; Sutherland, D.A.; Beck, G.G.; Lepage, D; Couturier, A.R.	https://www.birdsontario.org/atlas-2/book/	2007	EN / FR	Biodiversity; Migratory birds; Avifauna; Species at risk; Public	The goal of the Atlas is to map the distribution and relative abundance of Ontario's approximately 300 species of breeding birds – from as far south as Middle Island in Lake Erie, to Hudson Bay in the north. The Atlas is a partnership between the same five organizations as Atlas-2: Birds Canada, Canadian Wildlife Service (Environment and Climate Change Canada), Ministry of Northern Development, Mines, Natural Resources and Forestry – Government of Ontario, Ontario Field Ornithologists (OFO), and Ontario Nature.
Attawapiskat Cree Land Tenure and Use 1901-1989	Cummins, Bryan	https://macsphere.mcmaster.ca/handle/11375/8611	1992	EN	Physical and cultural heritage; Cultural vitality; Treaty rights; Inter and intra generational values; Diverse economies and livelihoods; Sustainability	This thesis is an examination of Attawapiskat (James Bay) Cree land tenure and use from 1901-1989.
Attawapiskat Cree Land Use and State Intervention	Cummins, Bryan	https://ojs.library.carleton.ca/index.php/ALGOP/article/view/1022	1990	EN	Inter and intra generational values; Social and economic; Current use; Wildlife and wildlife habitat; Sustainability	Paper that examines the Attawapiskat Cree land use both historically and as it exists today (1990). The objective is to look at the shifts in extent and nature of land use and how they may be related to Euro-Canadian incursion.
Attawapiskat First Nation Community Based Land Use Plan	Neegan Naynowan Stantec LP	http://www.attawapiskat.org/wp-content/uploads/20150706AFNCBLUPTermsofReference.pdf	2015	EN	Food security; Economic development and livelihoods; Community health; Physical and cultural heritage; Cultural vitality; Inter and intra generational values; Traditional processes for deliberation; Diverse economies and livelihoods; Current use; Sustainability; Indigenous Peoples	Community Based Land Use Plan to address environmental and cultural issues through input from community members. The plan will be used as a guide for considerations of sustainable economic development related to natural resources on Attawapiskat First Nation's traditional lands, which extend into the Assessment Area.
Attawapiskat Watershed Region - Content Collection	Natural Resources Canada; Impact Assessment Agency of Canada	https://osdp-psdo.canada.ca/dp/en/search/metadata/NRCAN-ROF-1-2C82DC9C-FB7D-4B75-ACE6-F69F57B0EB45	10/1/2023	EN / FR	Attawapiskat River; Water and river systems; Fish and fish habitat	Content collection with datasets relevant to the Attawapiskat watershed region, one of the five secondary watersheds in Northern Ontario surrounding the Ring of Fire.
Avoidance of Industrial Development by Woodland Caribou	Dyer, S. J.; O'Neill, J. P.; Wasef, S. M.; Boutin, S.	10.2307/3803106 https://www.jstor.org/stable/3803106	2001	EN	Forests; Food security; Current use; Wildlife and wildlife habitat; Species at risk	This paper analyzed caribou locations in comparison to anthropogenic infrastructure and determined that caribou avoid human developments. The level of avoidance appeared to be related to the level of human activity in the study area.
Bad Prospects: The Mining Exploration Financial Model that Rewards a Few While Creating Excessive Risks in the Shared Watersheds of British Columbia and Alaska	Environmental Investigation Agency Inc.	https://eia.org/wp-content/uploads/2024/01/Bad-Prospects-Report.pdf	2024	EN	Mining; Water and river systems	The transboundary watershed region, a vital and heavily glaciated ecological and cultural area where large salmon rivers flow from Northwest British Columbia (B.C.) into Southeast Alaska, faces escalating pressure from B.C. mining exploration propelled by a complex version of the Prospect Generator Model (PGM).
Bank Swallow (Species at Risk Webpage)	Ministry of the Environment, Conservation and Parks	https://www.ontario.ca/page/bank-swallow	3/9/2023	EN / FR	Migratory birds; Avifauna; Species at risk	Provide information on the status of the Bank Swallow (e.g., endangered or threatened), general life history and a place to direct the general public or Proponents for further information regarding the species (e.g., Recovery Strategies, Government Response Statements, etc.)

Bank Swallow government response statement	Ministry of the Environment, Conservation and Parks	https://www.ontario.ca/page/bank-swallow-government-response-statement	4/21/2022	EN / FR	Migratory birds; Avifauna; Species at risk	Ontario's policy direction for the protection and recovery of Bank Swallow.	
Barn Swallow (Species at Risk Webpage)	Ministry of the Environment, Conservation and Parks	https://www.ontario.ca/page/barn-swallow	5/18/2023	EN / FR	Migratory birds; Avifauna	Provide information on the status Barn Swallow (e.g., endangered or threatened), general life history and a place to direct the general public or Proponents for further information regarding the species (e.g., Recovery Strategies, Government Response Statements, etc.)	
Barn Swallow Government Response Statement	Ministry of the Environment, Conservation and Parks	https://www.ontario.ca/page/barn-swallow-government-response-statement	6/18/2021	EN / FR	Migratory birds; Avifauna	This document outlines the actions the government intends to take or support to help recover the Barn Swallow.	
Baseline Air Monitoring of Fine Particulate Matter and Trace Elements in Ontario's Far North, Canada.	Yushan, Su; Sofowote, Uwayemi; Munoz, Anthony; Noble, Michael; Charron, Chris; Todd, Aaron; Celio, Vabona; Dabek-Zlotorzynska, Ewa; Kryukova, Alla; Switzer, Teresa	10.3390/app11136140	https://www.mdpi.com/2076-3417/11/13/6140#:~:text=The%20maximum%2024%20h%20PM,or%20more%20of%20the%20samples.	2021	EN	Air quality	Large mineral deposits have been discovered in Ontario's Far North and are being considered for further development. Particulate matter and trace elements can be emitted from potential mining activities and these air pollutants are associated with health risks and harmful to the sensitive ecosystem. An air monitoring station, powered by solar panels and a wind turbine, was established in this near-pristine area to monitor baseline levels of fine particulate matter (PM2.5) and trace elements downwind of a proposed mine site. Levels of PM2.5 and trace elements observed from 2015 to 2018 were much lower than measurements observed in southern Ontario, suggesting minimal influence of primary emissions in the study area. One episodic PM2.5 event in July 2015 was attributable to wildfire emissions in northern Ontario. Only 8 out of the 31 target elements were detected in 25% or more of the samples. Good correlations among As, Se, Pb, and Sb, between Mn and Fe, as well as between Ce and La indicated they originated from long-range atmospheric transport from the south. Ontario's Ambient Air Quality Criteria were not exceeded for any target air pollutants. Four years of air measurements filled the data gap of baseline information in this near-pristine study area and can be used to assess impacts of potential mining activities in the future. Field operations during this study period indicated that the battery-powered air instruments and meteorological sensors worked well in the harsh environment of Ontario's Far North even in cold winter months. The field experiences gained in this study can be applied to future air monitoring activities in harsh environments where no direct power supply is available and site access is limited.
Baseline Hydrology Statistics	Ministry of Natural Resources and Forestry	https://geohub.lio.gov.on.ca/documents/45e20303edd94af6ac38417786ba65c/about	2/25/2014	EN / FR	Water and river systems; Hydrology	To estimate baseline hydrology statistics (stream flow regime) in the Southwestern Hudson Bay and Nelson River watersheds. Provides an understanding of water quantity. Baseline hydrology statistics were calculated for Water Survey of Canada HYDAT gauges in the Southwestern Hudson Bay and Nelson River watersheds	
Bedrock Geology of Ontario East-Central Sheet (Map 2543)	Ontario Geological Survey	https://www.geologyontario.mines.gov.on.ca/publication/M2543	1991	EN	Geology	Shallow bedrock mapping	
Bedrock Geology of Ontario Northern Sheet (Map 2541)	Ontario Geological Survey	https://www.geologyontario.mines.gov.on.ca/publication/M2541	1991	EN	Geology	Shallow bedrock mapping	
Beneath the Surface Uncovering the Economic Potential of Ontario's Ring of Fire	Hjartarson, J; McGuinty, L; Boutilier, S; Majernikova, E.	https://oc.c.ca/wp-content/uploads/Beneath_the_Surface_web_1.pdf	2014	EN	Economic development and livelihoods; Social and economic	This report examines the economic potential of the Ring of Fire. It predicts the potential economic contributions that can be brought about by developing the area. It also lists and explores developmental challenges in the Ring of Fire area.	
Benthic communities in five major rivers of the Hudson Bay Lowland, Canada	Campbell, D; Kwiatkowski, R.; McCrea, R.C.	10.2166/wqrj.1986.018	https://iwaponline.com/wqrj/article/21/2/235/40579/Benthic-Communities-in-Five-Major-Rivers-of-the	1986	EN	Attawapiskat River; Water and river systems; Lower Albany River; Moose River; Upper Albany River; Winisk River; Fish and fish habitat	A total of one hundred and twenty six species of macroinvertebrates were collected from five major Ontario rivers (Moose, Albany, Attawapiskat, Winisk and Severn) of the Hudson Bay Lowland. Benthic communities in all rivers were dominated primarily by chironomids and oligochaetes except in the East channel of the Moose River where gastropods were also a common taxon. Diversity, as measured by both species richness and the Shannon-Weiner index, was not significantly different in each river. Species distribution was related to substrate composition, river velocity and depth at each station. Community similarity analysis showed that rivers geographically closest together, sharing common flow directions and similar drainage basins resembled each other most in terms of benthic communities. The exception to this was the East channel of the Moose River which showed little resemblance to the other Lowland rivers studies. This was attributed to the highly channelized nature of the Moose River and the origin of the East channel itself which is fed by waters draining the Clay Belt, a unique subprovince of the Canadian shield.
Benthic macroinvertebrate communities in five rivers of the Coastal Hudson Bay Lowland	Jones, F.C; Sinclair, S.; Keller, W.	10.1007/s00300-013-1407-4	https://link.springer.com/article/10.1007/s00300-013-1407-4	2014	EN	Fish and fish habitat	As a precursor to developing a biomonitoring program for rivers of the Coastal Hudson Bay Lowland, this study characterized and compared the benthic macroinvertebrate communities and water chemistry in 5 remote, previously undescribed, rivers near Fort Severn, Ontario, Canada. The pH of river water ranged from 8.1 to 8.7, total phosphorus from 11 to 26 µg L ⁻¹ , dissolved organic carbon from 8 to 12 mg L ⁻¹ , and chloride from 56 to 153 mg L ⁻¹ . A total of 57 benthic macroinvertebrate taxa were represented, and the 10 most numerically dominant were the Chironominae (26 % of collected individuals), Orthoclaudiinae (16 %), oligochaetous Clitellata (9 %), Hyalellidae (7 %), Hydropsychidae (6 %), Gammaridae (5 %), Elmidae (5 %), Sphaeriidae/Psidiidae (4 %), Nemata (3 %), and Tanypodinae (3 %). Rivers' positions in ordinations of chemical and biological datasets were similar, suggesting that water chemistry has a role in structuring riverine benthic communities in the study region. Correlations between water-chemistry or habitat predictors and site-scores in the ordination of benthic macroinvertebrate taxa counts suggested that biological community structure was most associated with river-water pH, nutrient concentrations (e.g., total phosphorus, nitrogenous compounds, dissolved organic carbon, calcium, and silicate), the relative abundance of submerged macrophytes, conductivity (i.e., the concentrations of chloride and various other dissolved ions), and several geomorphological variables (e.g., bank-full river width, current speed, and the size of the dominant inorganic particles in the pavement layer of the streambed). Interest in mineral extraction and other resource-based exploration in Ontario's Far North is increasing. This study represents a start on baseline characterization for ecological monitoring and cumulative effects assessment that should proceed along with northern development.
Best management practices for Aggregate Activities and Woodland Caribou in Ontario	Ministry of Natural Resources and Forestry	https://files.ontario.ca/mnr_sar_bmp_aggr_car_en_1.pdf	2017	EN / FR	Forests; Wildlife and wildlife habitat; Species at risk	Best management practices to help avoid or mitigate adverse effects and reduce threats to caribou when planning or undertaking aggregate-related activities.	
Best Management Practices for Excluding Barn Swallows and Chimney Swifts from Buildings and Structures	Ministry of Natural Resources and Forestry	https://files.ontario.ca/barschwswbmpenpdffinalv.1.017ja241.pdf	2017	EN / FR	Avifauna; Species at risk; Infrastructure	The purpose of this document is to provide information on methods that can be used outside of the period each year in Ontario when the species are active and carrying out important life processes relating to breeding, nesting and rearing to exclude Barn Swallow (<i>Hirundo rustica</i>) and Chimney Swift (<i>Chaetura pelagica</i>) from buildings and structures. The intended audience is proponents who need to implement exclusion measures once they have determined that Barn Swallow or Chimney Swift nest in a building or structure that requires alteration. Knowledge that the structure is used for nesting may have been determined by observations of nesting activity or by the presence of an old nest.	
Best management practices for mineral exploration and development activities and Woodland Caribou in Ontario	Ministry of Natural Resources and Forestry	http://www.ontarioprospectors.com/opawp/wp-content/uploads/2011/10/MNR_SAR_BMP_MIN_DEV_CAR_EN.pdf	2017	EN / FR	Forests; Wildlife and wildlife habitat; Species at risk	Best management practices to help avoid or mitigate adverse effects and reduce threats to caribou when planning or undertaking mining activities.	
Best management practices for renewable energy, energy infrastructure and energy transmission activities and Woodland Caribou in Ontario	Ministry of Natural Resources and Forestry	https://www.ontario.ca/page/best-management-practices-renewable-energy-energy-infrastructure-and-energy-transmission-activities	2020	EN / FR	Forests; Wildlife and wildlife habitat; Species at risk; Infrastructure	Best management practices to help avoid or mitigate adverse effects and reduce threats to caribou when planning or undertaking energy-related activities.	
Best Management Practices for the Protection, Creation and Maintenance of Bank Swallow Habitat in Ontario	Ministry of Natural Resources and Forestry	https://files.ontario.ca/bansbmpenpdfinalv.1.117mar17.pdf	2017	EN / FR	Wildlife and wildlife habitat; Avifauna; Species at risk	The purpose of the ministry's Best Management Practices for the protection, creation and maintenance of Bank Swallow habitat in Ontario is to provide information to support effective management of Bank Swallows, listed as Threatened in Ontario	
Best management practices for tourism activities and Woodland Caribou in Ontario	Ministry of the Environment, Conservation and Parks	https://www.ontario.ca/page/best-management-practices-tourism-activities-and-woodland-caribou-ontario	7/15/2021	EN / FR	Wildlife and wildlife habitat; Sustainability; Species at risk	These Best Management Practices (BMPs) are meant to be used by tourism proponents who are planning or conducting tourism activities. BMPs should be used during all phases of an activity and/or development, while working in the area of continuous and discontinuous distribution of woodland caribou (forest-dwelling boreal population), to reduce and/or mitigate direct and indirect impacts to caribou and caribou habitat. Woodland caribou (forest-dwelling boreal population) are a threatened species in Ontario and receive protection under the Endangered Species Act, 2007.	
Best Practices Technical Note: Creating Nesting Habitat for Barn Swallows	Ministry of Natural Resources and Forestry	https://files.ontario.ca/creatingbarsnestinghabitatfinal17mar09_0.pdf	2016	EN / FR	Wildlife and wildlife habitat; Avifauna; Species at risk	The purpose of this guidance document is to provide information on different ways to create nesting habitat for Barn Swallow (<i>Hirundo rustica</i>) and for modifying existing structures to make habitat suitable for Barn Swallow nesting in Ontario	

Beyond fill and spill: Hydrological connectivity in a sub-arctic bog-fen-tributary complex in the Hudson Bay Lowlands, Canada	Balliston, Nicole; Price, Jonathan S.	10.1002/hyp.14575	https://doi.org/10.1002/hyp.14575	2022	EN	Hydrology; Peatlands; Water and river systems	Patterned bog and fen peatlands, which dominate the landscape in the Hudson Bay Lowlands (HBL), act as important water storage and conveyance features in this region. In spite of their hydrological importance, there are currently no studies that define and characterize the thresholds of bog-fen-tributary hydrological connectivity in the HBL or their relation to seasonal and annual changes in water fluxes. To this end, hydrological (i.e., streamflow and groundwater levels) and meteorological (i.e., precipitation, snow depth, evapotranspiration, and temperature) data were collected at a 4.8 km ² bog-fen-tributary complex between 2007 and 2018. Connectivity thresholds were best characterized into three states (disconnected, connected, and high activity) that incorporated 41%, 47%, and 12% of the study period and 4%, 18%, and 78% of runoff, respectively. Runoff generally peaked in the spring due to snowmelt, while connectivity was highest in the peatlands in the fall months when precipitation exceeded evapotranspiration due to cooling temperatures. Warmer than average spring temperatures accelerated snowmelt rate faster than frost table thaw rate in the fen; this reduced the amount of meltwater that entered storage, increased drainage from bog to fen, and decreased overall connectivity in the unfrozen season. Cooler than average spring temperatures delayed bog connection and ground thaw; the late frost melt provided a source of water to the bogs after melt into the late spring and early summer. This study provides a basis for the modelling of peatland hydrological connectivity in the region in the drier conditions anticipated with climatic warming and regional resource extraction.
Beyond the Fields, The Value of Forest and Freshwater Foods in Northern Ontario	Palmer, A.B.; Boan, J; Burkhardt, R; Palmer, L		https://ontariounature.org/wp-content/uploads/2017/10/beyond_the_fields.pdf	2014	EN	Forests; Food security; Cultural vitality; Current use; Water and river systems	A joint undertaking project with Ontario Nature, the True North Community Co-operative, and Environment North. The project aims to gather and share information about forest and freshwater foods and food systems to inform land-use planning, and better protect human and ecosystem health.
Bioaccumulation and concentration of mercury in rivers and streams of the Hudson Bay Lowland	Warnock, A.L		https://ir.lib.uwo.ca/etd/3201/	2015	EN	Fish and fish habitat	Methylmercury (MeHg) is a neurotoxin that biomagnifies in northern aquatic food webs to high enough concentrations to cause concern for human consumption. The Hudson Bay Lowland of Canada is projected to experience climate and land-use impact in the immediate future, and these environmental stressors may affect the exposure to and subsequent bioaccumulation of MeHg in subarctic fish populations. The focus of this research is to evaluate the spatial variability in total and MeHg in water, sediment, and biota within and across a range of subarctic streams and river reaches of the Hudson Bay Lowland. This data was then used to project potential bioaccumulation in subarctic riverine food webs. Across all study sites, MeHg in surface water was low, with a mean concentration of 0.087 ± 0.012 ng/L. Water MeHg was strongly positively correlated to sediment MeHg (R ² = 0.80), and both water and sediment contained a high proportion of total mercury as MeHg. Some individual small-bodied fish mercury concentrations were found to be above Canadian subsistence and commercial sale guidelines. The highest mean concentrations of fish mercury were 361.6 µg/kg and 156.7 µg/kg found at the two sampling sites corresponding to those with the highest water and sediment MeHg concentrations. Furthermore, calculation of MeHg bioaccumulation factors (BAFs) suggests that MeHg transfers predictably and highly efficiently in this subarctic food web. Using BAFs to predict changes to MeHg in fish with potential future changes to MeHg in surface waters demonstrates that small changes in Hg at the bottom of a food web can have large implications for fish tissue Hg.
Bioclimatic, terrain, and specific peatland composition are major drivers of woodland caribou winter habitat suitability in northern Ontario	McFarlane, Samantha; Van Mierlo, Victoria; Manseau, Micheline; Kroeze, Allison; Eberhardt, Ewen; Girard, Judith	10.1139/cjz-2024-0121	https://cdnsiencepub.com/doi/10.1139/cjz-2024-0121	2025-01	EN	Peatlands; Forests; Wildlife and wildlife habitat; Species at risk	Mapping of winter habitat suitability is important for the persistence and conservation of at-risk woodland caribou (<i>Rangifer tarandus caribou</i> (Gmelin, 1788)). While well documented at the national scale for boreal woodland caribou, particularly in highly disturbed southern ranges, winter habitat suitability remains understudied in northern and intact ranges such as in northern Ontario. We used boosted regression tree species distribution modeling and environmental variables with ecological relevance to woodland caribou to predict and map suitable winter woodland caribou habitat in northeastern Ontario, Canada. The best model suggests that peatland types and the climatic effect of James and Hudson Bay may have a marked (68.8% cumulative relative influence) effect on woodland caribou habitat suitability. Based on this, a predictive model identified a large and clustered zone of winter woodland caribou habitat centered within the transition between the ecozones. By accounting for local-scale aspects of woodland caribou habitat and bioclimatic variables, our model provides comprehensive predictions of woodland caribou winter habitat suitability in this transition zone. Additional investigation of the role of peatland type in woodland caribou habitat suitability in different seasons and different regions may help further understand woodland caribou distribution and habitat use.
Biomonitoring under changing climate conditions: Assessing seasonal variability of benthic macroinvertebrate communities and stream characteristics in two ecozones in northern Ontario, Canada	Bourne, V.A.		https://zone.biblio.laurentian.ca/bitstream/10219/2781/1/Bourne%2c%20Vanessa_MSc%20Biology_Final%20Thesis.pdf	2017	EN	Fish and fish habitat	The vast "Ring of Fire" region, at the interface of the Boreal Shield and Hudson Plains ecozones in the far north of Ontario, Canada, is considered to be one of the most promising mineral exploration areas in Ontario in almost a century. The region is undeveloped and remote, accessible only by air, water or winter road. Multiple stresses to the natural ecosystems are anticipated with mining development, in a time of climate change which is predicted to significantly impact hydrological and temperature regimes (intensified spring freshet, more high discharge events, warmer temperatures for longer). Preserving and protecting the aquatic ecosystems in this pristine region will require effective baseline environmental monitoring in advance of development. Quantifying seasonal variation of habitat characteristics and benthic macroinvertebrate (BMI) communities, and assessing the seasonal difference between ecozones are considered key challenges in designing effective monitoring programs. In this study, I examined seasonal variability in habitat characteristics and BMI communities by sampling 43 stream sites distributed across the two ecozones. In 2015 each site was sampled three times during the open water season: post-freshet, mid-summer and fall. BMI communities varied among sampling seasons, but less variation was observed between the post-freshet and summer sampling periods than either of these compared to the fall. Ordination analyses of BMI communities identified to the family level indicated that sites from the same sampling season were more likely to group together. Water temperature, stream velocity and canopy coverage were the key factors associated with seasonal differences in benthic macroinvertebrates. Differences in location of the sampling sites across the two ecozones did not significantly impact seasonal variability, but differences may have been constrained by the common habitat features used because of the sampling protocol. Conducting sampling during the post-freshet or summer seasons is recommended for future stream bioassessments to reduce the influence of seasonal variability and thus ensure comparability over time.
Bioregions are predominantly climatic for fishes of northern lakes.	Loewen, C. J. G.; Jackson, D. A.; Chu, C.; Alofs, K. M.; Hansen, G. J. A.; Honsey, A. E.; Minns, C. K.; Wehrly, K. E	10.1111/geb.13424	https://onlinelibrary.wiley.com/doi/abs/10.1111/geb.13424	2021	EN	Fish and fish habitat	Recurrent species assemblages integrate important biotic interactions and joint responses to environmental and spatial filters that enable local coexistence. Here, we applied a bipartite (site-species) network approach to develop a natural typology of lakes sharing distinct fish faunas and provide a detailed, hierarchical view of their bioregions. We then compared the roles of key biogeographical factors to evaluate alternative hypotheses about how fish communities are assembled from the regional species pool.
Bird Conservation Strategy for Bird Conservation Region 7 in Ontario: Taiga Shield and Hudson Plains	Environment and Climate Change Canada		https://www.publications.gc.ca/site/eng/9.696528/publication.html	2013-08	EN / FR	Attawapiskat River; Avifauna; Biodiversity; Migratory birds; Moose River; Public; Species at risk; Wildlife and wildlife habitat; Winisk River	Science-based framework for conserving all bird species within the taiga and hudson plains region of Ontario. The report describes the region's ecological context, identifies priority bird species, key habitats, and principal threats, and outlines conservation objectives and recommended actions to support long-term population sustainability.
Bird conservation strategy for Bird Conservation Region 8 in Ontario Region: boreal softwood shield	Collins, Brigitte		http://nabci.net/wp-content/uploads/BCR-8-ON-FINAL_11September2014.pdf	2014-06	EN / FR	Migratory birds; Avifauna; Species at risk	Science-based framework for conserving all bird species within the boreal softwood shield region of Ontario. The report describes the region's ecological context, identifies priority bird species, key habitats, and principal threats, and outlines conservation objectives and recommended actions to support long-term population sustainability.
Bird trends from long-term observation data at sites in the Hudson Bay Lowlands	Brook, R. W.; Pollock, L.A.; Abraham, K. F.; Brown, G. S.	10.5751/ACE-01821-160110	https://www.researchgate.net/publication/350299830_Bird_trends_from_long-term_observation_data_at_sites_in_the_Hudson_Bay_Lowlands	2021	EN	Wildlife and wildlife habitat; Migratory birds; Avifauna; Species at risk	This study monitored breeding birds at two locations in the Hudson Bay Lowlands to determine long term populations trends. Daily observations occurred at both Study Sites between May 21 and Aug 4 over various years. At Burntpoint Creek, observations occurred from 2001, to 2005, and 2007 to 2018. Trends models were created for 52 species observed at Akimiski Island and 46 species at Burntpoint creek. Results indicated that at Akimiski Island, 14 species showed a positive trend, 18 showed a negative trend, and the remaining species showed a trend overlapping zero. At Burntpoint Creek, 12 species showed a positive trend and 12 species showed a negative trend, with remaining species showing a trend that overlapped zero. Two possible hypotheses for these changes include: 1) habitat changes caused by high densities of herbivores, and 2) climate change impacts on habitat and environment may influence breeding success.
Bobolink (Species at Risk Webpage)	Committee on the Status of Species at Risk in Ontario		https://www.ontario.ca/page/bobolink	2022	EN / FR	Migratory birds; Species at risk; Public	Indication of the status of the bobolink (e.g., endangered or threatened), the general life cycle, and a place where the general public or developers can obtain more information about the species (e.g., recovery strategies, government statements, etc.).

Body condition explains migratory performance of a long-distance migrant	Duijns, Sjoerd; Niles, Lawrence J.; Dey, Amanda; Aubry, Yves; Friis, Christian; Koch, Stephanie; Anderson, Alexandra M.; Smith, Paul A.	10.1098/rspb.2017.1374	https://royalsocietypublishing.org/doi/10.1098/rspb.2017.1374	2017-11	EN	Wildlife and wildlife habitat; Migratory birds; Avifauna	Body condition (i.e. relative mass after correcting for structural size) affects the behaviour of migrating birds, but how body condition affects migratory performance, timing and fitness is still largely unknown. Here, we studied the effects of relative body condition on individual departure decisions, wind selectivity, flight speed and timing of migration for a long-distance migratory shorebird, the red knot <i>Calidris canutus rufa</i> . By using automated VHF telemetry on a continental scale, we studied knots' migratory movements with unprecedented temporal resolution over a 3-year period. Knots with a higher relative body condition left the staging site later than birds in lower condition, yet still arrived earlier to their Arctic breeding grounds compared to knots in lower relative body condition. They accomplished this by selecting more favourable winds at departure, thereby flying faster and making shorter stops en route. Individuals with a higher relative body condition in spring migrated south up to a month later than individuals in lower condition, suggesting that individuals in better condition were more likely to have bred successfully. Moreover, individuals with a lower relative body condition in spring had a lower probability of being detected in autumn, suggestive of increased mortality. The pressure to arrive early to the breeding grounds is considered to be an important constraint of migratory behaviour and this study highlights the important influence of body condition on migratory decisions, performance and potentially fitness of migrant birds.
Bogs and fens in the Hudson Bay Lowlands	Sjörs, H.	10.14430/arctic3709	https://journalhosting.ucalgary.ca/index.php/arctic/article/view/66759	1959	EN	Peatlands; Attawapiskat River	Describes structural and vegetative features of bogs and fens in the peatlands area south and west of Hudson Bay, examined in summer 1957 mainly near the confluence of the Attawapiskat and Muketui Rivers (approx. 53 N, 86 W). Distinctive features of the ridge-shaped raised bogs are their undulating surfaces, large shallow pools, and lateral seepages (small, shallow pools termed flarks, in a stepped arrangement down the bog edges). Bog vegetation, typical of ombrotrophic peatlands, is acidophilous and low in pH value except in limited areas, e.g. fissures caused by frost heaving where fen plants are found, also the lateral seepages where patches of true fen vegetation appear along the rows of flarks. The plant communities are almost identical with those of similar raised bogs in Sweden and Finland. Fen surfaces are covered by large pools, and alternating low ridges low ridges and flarks. The fen water is highly minerotrophic, resulting in vegetation richer in mineral nutrients than that of the bogs, and similar to the "rich fen" or "brown fen" vegetation of Scandinavia. Roundish "black-spruce islands" are conspicuous fen features; they have permafrost cores as do knolls (palsas) north eastward near Sutton and Hawley Lakes.
Breeding Bird Survey results	Environment Canada		https://wildlife-species.canada.ca/breeding-bird-survey-results	1/21/2021	EN / FR	Avifauna; Biodiversity; Migratory birds; Public; Species at risk	Detailed population trend information based on data collected through the North American Breeding Bird Survey (BBS), for approximately 300 Canadian bird species.
Brook charr mortalities during extreme temperature events in Sutton River, Hudson Bay Lowlands, Canada	Gunn, J.; Snucins, E.	10.1007/s10750-010-0201-3	https://link.springer.com/article/10.1007/s10750-010-0201-3	2010	EN	Fish and fish habitat	Fish die-offs during warming events have rarely or ever been recorded within arctic watersheds. The 2001 mortality of anadromous brook charr (<i>Salvelinus fontinalis</i>) in the Sutton River in the Hudson Bay Lowlands may be the first documented case of an increasing number of such events, as climate warming affects north latitude systems. Warm air temperatures (daily maximums >30°C) combined with unusual thermal stratification conditions in the upstream lake appeared to have created the lethal conditions, but changing marine environments likely triggered the event. This highly productive brook charr population depends heavily on the local marine environment, not only for food, but also to moderate the continental climate of the region. The steadily shortening ice season in Hudson Bay appears to be greatly increasing the vulnerability of anadromous stocks to warming events.
Can Environmental Assessment Protect Caribou? Analysis of EA in Nunavut, Canada, 1999-2019	Cameron, E.; Kennedy, S.	10.4103/cs.cs.54_22	https://www.ijstor.org/stable/27230784	2023	EN	Wildlife and wildlife habitat; Species at risk	This paper analyses the environmental assessment of every proposed mining project that has undergone full review through the Nunavut Impact Review Board from 1999 to 2019, with specific emphasis on how impacts to caribou were identified and assessed. Caribou are the most important terrestrial species in Nunavut from a food security, traditional culture, and harvesting perspective, and mining is known to have impacts on caribou habitat, migration and calving behaviour, predation and hunting patterns, and other effects. Close study of how caribou impacts are discerned and evaluated within environmental assessment (EA) can thus reveal broader trends about both EA and the broader resource governance process. Although some project proposals were initially rejected, every EA ultimately concluded that impacts to caribou were not significant, despite evidence presented to the contrary.
Canada improves regulations that protect migratory birds in Canada	Environment and Climate Change Canada		https://www.canada.ca/en/environment-climate-change/news/2022/06/canada-improves-regulations-that-protect-migratory-birds-in-canada.html	6/9/2022	EN / FR	Wildlife and wildlife habitat; Avifauna; Species at risk	ECCC announced that it is modernizing Migratory Bird Regulations (MBR) as part of the Government of Canada's commitment to protecting and conserving migratory birds. The regulations are in addition to Canada's commitment to protect 25 percent of lands and waters by 2025, working toward 30 percent by 2030.
Canada Warbler (Species at Risk Webpage)	Ministry of the Environment, Conservation and Parks		https://www.ontario.ca/page/canada-warbler	5/19/2023	EN / FR	Migratory birds; Avifauna	Provide information on the status (e.g., endangered or threatened), general life history and a place to direct the general public or Proponents for further information regarding the species (e.g., Recovery Strategies, Government Response Statements, etc.)
Canada's Changing Climate Report	Elizabeth Bush; Greg Flato		https://changingclimate.ca/CCCR2019/	2019	EN / FR	Climate change	This report is about how and why Canada's climate has changed and what changes are projected for the future. Led by Environment and Climate Change Canada, it was released in 2019.
Canada's Air Pollutant Emission Inventory Report 1990-2021	Environment and Climate Change Canada		https://publications.gc.ca/collections/collection_2023/eccc/En81-30-2021-eng.pdf	2023	EN / FR	Air quality	Canada's Air Pollutant Emissions Inventory (APEI) is a comprehensive inventory of anthropogenic emissions of 17 air pollutants at the national, provincial and territorial levels. This inventory serves many purposes: it fulfills Canada's international reporting obligations under the 1979 Convention on Long-range Transboundary Air Pollution and the associated protocols ratified by Canada for the reduction of emissions of sulphur (expressed as sulphur dioxide or SO ₂), nitrogen oxides (NO _x), fine particulate matter (PM _{2.5}), cadmium (Cd), lead (Pb), mercury (Hg), volatile organic compounds (VOCs), dioxins and furans, and other persistent organic pollutants (POPs). The APEI also reports emissions of additional air pollutants including ammonia (NH ₃), carbon monoxide (CO), coarse particulate matter (PM ₁₀) and total particulate matter (TPM). In addition, the APEI supports monitoring and reporting obligations under the Canada-U.S. Air Quality Agreement and the development of air quality management strategies, policies and regulations, provides data for air quality forecasting, and informs Canadians about pollutants that affect their health and the environment.
Canada's surface water frequency	Government of Canada; Natural Resources Canada		https://open.canada.ca/data/en/dataset/2b76d117-d940-4eb8-bf26-91768081c5f	2/16/2023	EN / FR	Water and river systems	Data represents surface water occurrence frequency (percentage), which describes the frequency for each grid appeared as water in the 30 years time period of 1991 to 2020. The data covers Canada's entire landmass including all transboundary watersheds, and is at 30-meter spatial resolution.
Canadian Biodiversity: Ecosystem Status and Trends 2010	Government of Canada; Government of Newfoundland and Labrador; Government of Prince Edward Island; Government of Nova Scotia; Government of New Brunswick; Government of Ontario; Government of Manitoba; Government of Saskatchewan; Government of Alberta; Government of British Columbia; Government of Yukon; Government of Northwest Territories; Government of Nunavut		https://www.biodivcanada.ca/reports/canadian-biodiversity-ecosystem-status-and-trends-2010	2010	EN / FR	Peatlands; Forests; Biodiversity; Wildlife and wildlife habitat; Migratory birds; Avifauna; Species at risk; Fish and fish habitat	Canadian Biodiversity: Ecosystem Status and Trends 2010 is the first assessment of Canada's biodiversity from an ecosystem perspective. It presents 22 key findings derived from technical background reports.
Canadian Climate Data and Scenarios	Government of Canada		https://climate-scenarios.canada.ca/?page=main	n.d.	EN / FR	Climate change; Scenario development	Canadian Climate Data Scenarios support climate change impact and adaptation research in Canada through the provision of climate model and observational data.
Canadian Index of Multiple Deprivation	Statistics Canada		https://www23.statcan.gc.ca/imdb/p2SV.pl?Function=getSurvEv&SDDS=5274	2021-01	EN / FR	Family, youth, and children; Education; Food security; Economic development and livelihoods; Community health; Treaty rights; Social and economic	The purpose of the Canadian Index of Multiple Deprivation is to illustrate differences in deprivation between areas, and to better understand inequalities in various measures of socio-economic characteristics for geographical areas or population groups.
Canadian Model for Peatlands Version 1.0 A Model Design Document	Shawm, C.H; Bona, K.A; Thompson, D. K; Dimitrov, D. D; Bhatti, J. S; Hilger, A. B; Webster, K. L; Kurz, W. A.		https://publications.gc.ca/site/eng/9.819032/publication.html	2016	EN	Peatlands; Hydrology	A three-year forested peatland modeling project was developed in response to the need for national-scale greenhouse gas estimates from the extensive peatlands in Canada's forested areas.
Canadian National Fire Database	Canadian Forest Service		https://cwflis.cfs.nrcan.gc.ca/ha/nfdb	2021	EN / FR	Forests; Climate change	The Canadian National Fire Database (CNFDB) is a collection of forest fire data from various sources; these data include fire locations (point data) and fire perimeters (polygon data) as provided by Canadian fire management agencies (provinces, territories, and Parks Canada). Fires of all sizes are included in the database, but only those greater than 200 hectares in final size are shown in the map above — these represent a small percentage of all fires but account for most of the area burned (usually more than 97%).

Canadian Protected and Conserved Areas Database	Environment and Climate Change Canada	https://www.canada.ca/en/environment-climate-change/services/national-wildlife-areas/protected-conserved-areas-database.html	1/29/2021	EN / FR	Wildlife and wildlife habitat	Spatial and attribute data on marine and terrestrial protected areas (PA) and other effective area-based conservation measures (OECM) in Canada.
Canadian Wetland Inventory Map Version 3A	Government of Canada; Natural Resources Canada	https://open.canada.ca/data/en/dataset/87127901-bd6d-46de-9142-e1362d980174	2024-06	EN / FR	Peatlands; Water and river systems	The third generation of high resolution 10-m wetland inventory map of Canada, covering an approximate area of one billion hectares, was generated using multi-year (2016-2020), multi-source imagery (Sentinel-1, Sentinel-2, ALOS PALSAR-2, and SRTM) Earth Observation (EO) data as well as environmental features. Over 8800 wetland polygons were processed within an object-based random forest classification scheme on the Google Earth Engine cloud computing platform. The average overall accuracy of 90.5% is an increase of 4.7% over CWIM2.
Caribou (Boreal population) (Species at Risk Webpage)	Ministry of the Environment, Conservation and Parks	https://www.ontario.ca/page/caribou-boreal-population	11/3/2023	EN / FR	Wildlife and wildlife habitat; Species at risk	Provide information on the status (e.g., endangered or threatened), general life history and a place to direct the general public or Proponents for further information regarding the species (e.g., Recovery Strategies, Government Response Statements, etc.)
Caribou (Eastern Migratory population) (Species at Risk Webpage)	Ministry of the Environment, Conservation and Parks	https://www.ontario.ca/page/caribou-eastern-migratory-population	7/29/2021	EN / FR	Wildlife and wildlife habitat; Species at risk	Provide information on the status (e.g., endangered or threatened), general life history and a place to direct the general public or Proponents for further information regarding the species (e.g., Recovery Strategies, Government Response Statements, etc.)
Caribou (Rangifer tarandus) Boreal population: Report on the progress of the recovery strategy implementation (period 2017 to 2022) and the action plan implementation (period 2018 to 2023)	Environment and Climate Change Canada	https://www.canada.ca/en/environment-climate-change/services/species-risk-public-registry/report-progress-recovery-document/caribou-rangifer-tarandus-boreal-report-progress-recovery-strategy-2017-2022-action-plan-2018-2023.html	5/10/2024	EN / FR	Forests; Species at risk; Wildlife and wildlife habitat	Caribou (Rangifer tarandus) Boreal population: Report on the progress of the recovery strategy implementation (period 2017 to 2022) and the action plan implementation (period 2018 to 2023)
Caribou habitat use and vital rates in the Far North - Ring of Fire area (Ozhiski and Mississa ranges)	Ministry of Natural Resources	Held by Ministry of Natural Resources	2024	EN	Avifauna; Forests; Not public; Species at risk; Wildlife and wildlife habitat	Maintain up to 50 collared Boreal caribou in each of the Ozhiski and Mississa ranges (Far North - Ring of Fire area) and determine their habitat use and vital rates in areas of proposed linear features and mining developments.
Caribou Project	Ministry of Natural Resources and Forestry Science and Research Branch	Held by Ministry of Natural Resources	2008	EN	Forests; Species at risk	As described in Woodland Caribou in the Far North of Ontario: Background Information in Support of Land Use Planning (Berglund et al. 2014) the Far North caribou project has contributed to the implementation of Caribou Conservation Plan actions by: 1) providing movement, observation and biological sample data in support of ongoing research initiatives and long-term monitoring; 2) supporting implementation of a range management approach by informing range delineation and contributing data to range assessments; 3) informing land use planning related to protected areas, and data to support evaluation of management alternatives through range assessments; and 4) initiating a significant dialogue regarding caribou in the Far North, sharing data and insight regarding caribou ecology and behaviour with First Nation Communities and receiving Indigenous perspectives on caribou
Caribou Range Boundary	Ministry of the Environment, Conservation and Parks	https://geohub.lio.gov.on.ca/datasets/lio:caribou-range-boundary/about	8/29/2019	EN / FR	Wildlife and wildlife habitat; Species at risk	Shows areas where the health and prevalence of caribou can be linked to the attributes of the land that supports them.
Caribou Range Disturbance Indicator (Cumulative Disturbance)	Ministry of the Environment, Conservation and Parks	Held by Ministry of Environment, Conservation and Parks	2017	EN	Cumulative effects; Not public; Species at risk; Wildlife and wildlife habitat	Mapping product of the current anthropogenic and natural disturbances within a given caribou range, generated annually; and represents the loss or conservation of functional habitat and is used as an independent and indirect predictor of recruitment and likelihood of stable or increasing population growth.
Caribou Screening Tool (CST)	Ministry of the Environment, Conservation and Parks	Held by Ministry of Environment, Conservation and Parks	2017	EN	Not public; Species at risk; Wildlife and wildlife habitat	CST has been designed to assess project proposals and track cumulative effects in the context of the delineated caribou ranges. Consistent with the Range Management Policy (RMP), proposal screenings include estimating and tracking landscape level indicators, such as disturbance and the amount of habitat as compared to the Simulated Range of Natural Variation (SRNV), as well as sub-range habitat features such as proximity to nursery areas, winter observations, potential nursery areas, etc.
Caribou Utilization Distributions	Ministry of the Environment, Conservation and Parks	Held by Ministry of Environment, Conservation and Parks	2017	EN	Not public; Species at risk; Wildlife and wildlife habitat	A probability distribution giving the probability density that caribou are found at a given point in space and time. These were estimated from data sampling the location of individuals in space over a period of time using GPS collaring locations collected between 2009 - 2015.
Cat Lake - Slate Falls Community Based Land Use Plan	Cat Lake First Nation; Slate Falls First Nation; Ministry of Natural Resources	https://dr6t45jk9xcmk.cloudfront.net/documents/2293/cat-lake-slate-falls-community-based-land-use-plan.pdf	2011	EN	Food security; Economic development and livelihoods; Community health; Physical and cultural heritage; Cultural vitality; Inter and intra generational values; Traditional processes for deliberation; Diverse economies and livelihoods; Current use; Sustainability; Indigenous Peoples	Cat Lake-Slate Falls community based land use plan. The plan addresses a 1.5 million hectare area in northern Ontario. The plan defines three land use areas, land use designations, and permitted activities.
Causes and Consequences of Broad-Scale Changes in the Distribution of Migratory Caribou (Rangifer tarandus) of Southern Hudson Bay	Newton, Erica J.; Abraham, Kenneth F.; Schaefer, James A.; Pond, Bruce A.; Brown, Glen S.; Thompson, John E.	10.14430/arctic4524 https://journalhosting.ucalgary.ca/index.php/arctic/article/view/67566/51469	2015	EN	Forests; Wildlife and wildlife habitat; Climate change; Species at risk; Public	Understanding the factors driving changes in species distributions is fundamental to conservation, but for wide-ranging species this is often complicated by the need for broad-scale observations across space and time. In the last three decades, the location of summer concentrations of migratory caribou (Rangifer tarandus) in southern Hudson Bay (SHB), Canada, has shifted south and east as much as 500 km. We used long-term data (1987 – 2011) to test two hypotheses that could explain the distribution shift: forage depletion and anthropogenic disturbance. Over time and space, we compared the body size of live-captured adult female caribou, dietary quality from fecal nitrogen in July, the location of VHF- and GPS-collared female caribou in July, distribution of all-terrain vehicle (ATV) tracks and caribou tracks in August, and the proximity of collared caribou to sections of the coast with higher ATV activity in spring and summer. The forage depletion hypothesis was supported by greater body size and dietary quality in caribou of the eastern portion of SHB than in western SHB animals in 2009 – 11. The anthropogenic disturbance hypothesis was supported by the negative correlation of the distributions of ATV tracks and caribou tracks on the coast in 2010 and the fact that caribou avoided areas with ATV activity by 10 – 14 km. In 1987, collared caribou were observed largely along the coast in western SHB in mid-July, while in 2009 – 11, they were inland in western SHB and along the coast in eastern SHB. While these locations demonstrate a substantial change in summer distribution over three decades, we were unable to differentiate between forage depletion and anthropogenic disturbance as a single causal factor of the distribution shift.
Changes in floodplain regimes over Canada due to climate change impacts: Observations from CMIP6 models	Mohanty, M.P.; Simonovic, S.P.	10.1016/j.scitotenv.2021.148323 https://doi.org/10.1016/j.scitotenv.2021.148323	2021	EN	Water and river systems; Climate change	With the recent Coupled Model Intercomparison Project Phase 6 (CMIP6), water experts and floodmodellers are curious to explore the efficacy of the new and upgraded climate models in representing flood inundation dynamics and how they will be impacted in the future by climate change. In this study, for the first time, we consider the latest group of General Circulation Models (GCMs) from CMIP6 to examine the probable changes in floodplain regimes over Canada. A set of 17 GCMs from Shared Socioeconomic Pathways (SSPs) 4.5 (medium forcing) and 8.5 (high end forcing) common to historical (1980 to 2019), near-future (2021 to 2060), and far-future (2061 to 2100) time-periods are selected. A comprehensive framework consisting of hydrodynamic flood modelling, and statistical experiments are put forward to derive high-resolution Canada-wide floodplain maps for 100 and 200-yr return periods. The changes in floodplain regimes for the future periods are analyzed over drainage basin scale in terms of (i) changes in flood inundation extents, (ii) changes in flood hazards (high and very high classes), and (iii) changes in flood frequency. Our results show significant rise (>30%) in flood inundation extents in the future periods; particularly intense over western and eastern regions. The flood hazards are expected to cover ~16% more geographical area of Canada. We also find that large areas in northern and western Canada and a few spots in the eastern parts of Canada will be getting flooded more frequently compared to the historical period. The observations derived from this study are vital for enhancing flood preparedness, optimal land-use planning, and refurbishing both structural and non-structural flood control options for improved resilience. The study instills new knowledge on revamping the existing flood management approaches and adaptation strategies for future protection.
Changes in hydrology of a boreal fen following the placement of an access road and below ground pipeline	Elmes, M.C; Petrone, R.M; Volik, O.; Price, J.S	10.1016/j.ejrh.2022.101031 https://www.sciencedirect.com/science/article/pii/S2214581822000441	2022	EN	Hydrology; Infrastructure; Peatlands; Water and river systems	Flow obstruction was most prominent where the fen intersected the road. Changes to hydrophysical properties from pipeline construction were most pronounced in the top 10 cm of peat, which demonstrated significantly higher bulk density (by 170% and 112%) and lower hydraulic conductivity (by 94% and 91%) above the buried pipeline and in adjacent cleared locations, respectively, relative to areas not cleared or directly disturbed during pipeline development. Changes to water table levels from the pipeline were more pronounced farther down-gradient as the pipeline cut through the fen obliquely to direction of flow, and water tables became more variable on the side where the flow face had decreased in length. If built through peatlands, pipelines should be oriented parallel to flow direction and located along the central axis of the fen. Additional culverts should be considered in the event of building a pipeline through an already existing road to facilitate flow on either side

Changes in permafrost extent and active layer thickness in the Northern Hemisphere from 1969 to 2018	Li, G; Zhang, M; Pei, W; Melnikov, A; Khristoforov, I; Li, R; Yu, F	10.1016/j.scitotenv.2021.150182	https://doi.org/10.1016/j.scitotenv.2021.150182	2022	EN	Climate change	Understanding the evolutions of the permafrost extent and active layer thickness (ALT) in the Northern Hemisphere (NH) are critical for global carbon flux simulation, climate change prediction, and engineering risk assessment. The temporal change characteristics of the permafrost extent and ALT for the NH have not been studied. We used the Kudryavtsev method, integrating a 0.5° × 0.5° spatial resolution of air temperature, soil texture, snow depth, vegetation type, soil volumetric moisture content, and organic content to simulate the changes of permafrost extent and ALT in the NH from 1969 to 2018. The results indicated that permafrost extent decreased from 23.25 × 10 ⁶ km ² (average from 1969 to 1973) to 21.64 × 10 ⁶ km ² (average from 2014 to 2018), with a linear rate of 70.023 × 10 ⁶ km ² /a. Siberia had the highest degradation rate of 0.014 × 10 ⁶ km ² /a, followed by Alaska, Mongolian Plateau, Qinghai-Tibet Plateau, Northern Canada, and Greenland, with linear rates of 70.012 × 10 ⁶ , 70.005 × 10 ⁶ , 70.004 × 10 ⁶ , 70.0014 × 10 ⁶ , and 70.0004 × 10 ⁶ km ² /a, respectively. The average ALT in the NH increased at a linear rate of 0.0086 m/a. Alaska and Mongolian Plateau had the highest thickening rate of 0.024 m/a, followed by Qinghai-Tibet Plateau, Siberia, Northern Canada, and Greenland, which had linear rates of 0.009, 0.008, 0.0072, and 0.003 m/a, respectively. The uncertainty of the results could be attributed to the inaccurate forcing data and limitations of the Kudryavtsev model.
Chapter 8: Understanding the Cumulative Effects of Human Activities on Barren-Ground Caribou	Gunn, A; Johnson, C. J; Nishi, J. S; Daniel, C. J; Russell, D. E; Carlson, M.; Adamczewski, J. Z.		https://wrrb.ca/sites/default/files/Gunn_2011_CumulativeEffectsBarrenGroundCaribou_CRC.pdf	2011	EN	Mining; Cumulative effects; Food security; Cultural vitality; Wildlife and wildlife habitat; Species at risk; Infrastructure dynamics.	Research on cumulative effects affecting migratory barren-ground caribou in northern Canada, emphasizing the interaction of industrial development, harvesting, predation, climate variability, and landscape change across broad spatial and temporal scales. It integrates spatial models of caribou distribution and avoidance behaviour with energetic and demographic processes, supported by landscape-scale simulation tools, to examine how multiple disturbances combine over time to influence habitat use, individual condition, and population dynamics.
Chemical characterization and sourcing of Upper Great Lakes cherts by INAA	Julig, P. J; Pavlish, L. A; Clark, C; Hancock, R. G.		https://ontarioarchaeology.org/wp-content/uploads/oa054-03_julig.pdf	1992	EN	Physical and cultural heritage	Instrumental neutron activation analysis is used to determine chert sources in Northern Ontario. These varieties of chert were used by different Indigenous groups in the past to create tools. Determining chert sources offers insight to population movement and trade networks in the past.
Chimney Swift (Species at Risk Webpage)	Ministry of the Environment, Conservation and Parks		https://www.ontario.ca/page/chimney-swift	4/12/2022	EN / FR	Migratory birds; Avifauna; Species at risk	Provide information on the status (e.g., endangered or threatened), general life history and a place to direct the general public or Proponents for further information regarding the species (e.g., Recovery Strategies, Government Response Statements, etc.)
Chronic sleep disturbance among adult Canadians: Associations and implications to the evaluation of noise impacts under Canada's <i>Impact Assessment Act</i>	Michaud, David S.; Marro, Leonora; Denning, Allison; Shackleton, Shelley; Toutant, Nicolas; McNamee, James P.	10.1016/j.ear.2023.107109	https://www.sciencedirect.com/science/article/pii/S019592523000756	7/1/2023	EN	Community health	The Canadian Perspectives on Environmental Noise Survey was completed online by 6647 randomly selected Canadians 18 years of age and older between April 12 and May 25, 2021. The survey objective was to explore attitudes, perceptions, and expectations toward environmental noise in rural and non-rural Canada. The questionnaire assessed self-reported high sleep disturbance (HSD) in the previous year, at home. The prevalence of HSD was 7.8% overall. A list of potential sources of sleep disturbance was provided to the full sample, where 6.1%, 5.2%, and 3.0% reported HSD by noisy neighbors, road traffic noise and indoor noise, respectively. Stress/anxiety or worrying about something was selected most frequently at 12.9%. Finally, 7.6% and 5.5% reported pain/illness and partner's sleep disturbance, respectively, as sources of HSD. Reported HSD was significantly higher among respondents below 55 years of age, females, lower income groups, unemployed respondents, those on paid leave (sick, maternity, disability), and living in an urban area. Expectations of quiet, perceiving nighttime noise to have increased over time, high noise sensitivity, hearing and being highly annoyed by road traffic noise was also associated with an increased prevalence of reporting HSD. In contrast to hearing impairment and heart disease (including high blood pressure); rated physical health, mental health, anxiety/depression, and reporting a sleep disorder, were associated with increased HSD. The perceived effects of the COVID-19 pandemic on health and annoyance toward environmental and indoor noise also influenced HSD. In the fully adjusted multivariate logistic regression model, the effect of age, gender, changes in nighttime noise, road traffic noise annoyance, noise sensitivity and sleep disorder remained statistically significant. The univariate and multivariate models showed a similar prevalence of HSD between Indigenous Peoples and non-Indigenous Canadians. Results are discussed in relation to the provision of advice on sleep and health under Canada's Impact Assessment Act.
Circa 2010 Land Cover of Canada: Local Optimization Methodology and Product Development	Latifovic, Rasim; Pouliot, Darren; Othof, Ian	10.3390/rs91111098	https://www.mdpi.com/2072-4292/9/11/1098	2017-10	EN	Land cover	Land cover information is necessary for a large range of environmental applications related to climate impacts and adaptation, emergency response, wildlife habitat, etc. In Canada, a 2008 user survey indicated that the most practical land cover data is provided in a nationwide 30 m spatial resolution format, with an update frequency of five years. In response to this need, the Canada Centre for Remote Sensing (CCRS) has generated a 30 m land cover map of Canada for the base year 2010, as the first of a planned series of maps to be updated every five years, or more frequently. This land cover dataset is also the Canadian contribution to the 30 m spatial resolution 2010 Land Cover Map of North America, which is produced by Mexican, American and Canadian government institutions under a collaboration called the North American Land Change Monitoring System (NALCMS). This paper describes the mapping approach used for generating this land cover dataset for Canada from Thematic Mapper (TM) and Enhanced Thematic Mapper (ETM+) Landsat sensor observations. The innovative part of the mapping approach is the local optimization of the land cover classifier, which has resulted in increased spatial consistency and accuracy. Training and classifying with locally confined reference samples over a large number of partially overlapping areas (i.e., moving windows) ensures the optimization of the classifier to a local land cover distribution, and decreases the negative effect of signature extension. A weighted combination of labels, which is determined by the classifier in overlapping windows, defines the final label for each pixel. Since the approach requires extensive computation, it has been developed and deployed using the Government of Canada's High-Performance Computing Center (HPC). An accuracy assessment based on 2811 randomly distributed samples shows that land cover data produced with this new approach has achieved 76.60% accuracy with no marked spatial disparities.
Cliffs Chromite Project Stage 2 Archaeological Assessment - Cliffs Chromite Mine Site, Kenora District, Ontario	Golder Associates Ltd.		Held by the Ministry of Citizenship and Multiculturalism	2015	EN	Mining; Not public; Physical and cultural heritage	Stage 2 archaeological assessment was undertaken of the study area of the project. No archaeological resources were found, and no further assessment is required.
Climate Atlas of Canada	Prairie Climate Centre, University of Winnipeg		https://climateatlas.ca/home-page	2025	EN / FR	Climate change; Scenario development	The Climate Atlas of Canada combines climate science, mapping, and storytelling together with Indigenous Knowledges and community-based research and video to inspire awareness and action.
Climate Change and Health in Northern Ontario	Northern Ontario Climate Change and Health (NOCHH) collaborative		https://www.nwhu.on.ca/wp-content/uploads/2022/10/Climate-Change-and-Health-in-Northern-Ontario-August-2022.pdf	2022-08	EN	Community health; Climate change	
Climate change and woodland caribou in Northwestern Ontario: a risk analysis	Racey, Gerald D.	10.7557/2.25.4.1777	https://septentrio.uit.no/index.php/rangifer/article/view/1777	5/1/2005	EN	Climate change; Public; Species at risk; Wildlife and wildlife habitat	Woodland caribou (Rangifer tarandus caribou) range occupancy and populations have declined in northwestern (NW) Ontario over the last 100 years primarily due to human-induced factors. Recovery efforts are underway to halt this decline by reducing risk factors. Climate forecasts suggest a 4–5 °C increase in May–August mean temperature over the next century with little change in precipitation. Resulting increases in extreme weather events and increased fire weather severity will likely increase the amount of forest burned, reduce the area of older forest, alter distribution and abundance of forest tree species and plant communities, and increase abundance of alternate prey. The reduced amount of older forest preferred by caribou will be in greater demand by the forest industry leading to more conflict over ecological and economic values. Most of these factors will increase risk to caribou survival. Although forests may experience enhanced productivity, forest management practices will try to adapt harvest, regeneration, silviculture and fire management practices to both maintain economic benefits and increase the ability of forests to sequester carbon. The interaction of climate-induced forest change and forest management practices adds uncertainty to caribou conservation efforts at the southern edge of its current range. This uncertainty reinforces the need for a precautionary approach to forest management, increased research and monitoring effort, sustained emphasis on caribou recovery, and careful rationalization of restoration efforts where greatest opportunities for success may be realized.
Climate Change Impacts on Water and Wastewater Infrastructure at Moose Factory Final Report	Stantec Consulting		https://pievc.ca/wp-content/uploads/2021/01/2018-09-20-on-moose-factory-fn-pievc-risk-assessment-final-report-1.pdf	2018	EN	Housing and infrastructure; Climate change; Infrastructure	A climate change risk assessment of the water and wastewater infrastructure of Moose Factory using the First Nations Infrastructure Resilience Toolkit (PIEVC protocol adapted for use by First Nations). A climate risk profile was developed for the water supply and wastewater systems infrastructure, support buildings, operations personnel, and third-party services. A climate profile (current and projected climate conditions and trends) of the Moose Factory region is included in the report.
Climate Change Impacts on Water and Wastewater Infrastructure at Moose Factory	Stantec Consulting Ltd.		https://pievc.ca/wp-content/uploads/2021/01/2018-09-20-on-moose-factory-fn-pievc-risk-assessment-final-report-1.pdf	2018	EN	Housing and infrastructure; Water and river systems; Climate change; Moose River; Infrastructure	A climate change risk assessment of the water and wastewater infrastructure of Moose Factory using the First Nations Infrastructure Resilience Toolkit (PIEVC protocol adapted for use by First Nations). A climate risk profile was developed for the water supply and wastewater systems infrastructure, support buildings, operations personnel, and third-party services. A climate profile (current and projected climate conditions and trends) of the Moose Factory region is included in the report.

Climate Change Risk Assessment, Kasabonika Lake First Nation - Infrastructure	Stantec Consulting	https://pievc.ca/wp-content/uploads/2021/03/Stantec-Kasabonika-Lake-First-Nation-March-2020.pdf	2020	EN	Community safety; Housing and infrastructure; Community health; Cultural vitality; Climate change; Sustainability; Indigenous Peoples; Infrastructure	A climate change risk assessment of Kasabonika Lake community infrastructure using the First Nations Infrastructure Resilience Toolkit (PIEVC protocol adapted for use by First Nations). A climate risk profile was developed for the selected community infrastructure (community buildings, water and wastewater treatment systems, roads, and third party services) and vulnerabilities to current and future weather and climate events associated with the impacts of climate change. A climate profile (current and projected climate conditions and trends) of the Kasabonika Lake region is included in the report.	
Climate-informed forecasts reveal dramatic local habitat shifts and population uncertainty for northern boreal caribou	Stewart, F. E. C.; Micheletti, T.; Cumming, S. G.; Barros, C.; Chubaty, A. M.; Dookie, A. L.; Duclos, I.; Eddy, I.; Hache, S.; Hodson, J.; Hughes, J.; Johnson, C. A.; Leblond, M.; Schmiegelow, F. K.; Tremblay, J. A.; McIntire, E. J. B.	https://doi.org/10.1002/eap.2816	https://esajournals.onlinelibrary.wiley.com/doi/full/10.1002/eap.2816	2023	EN	Wildlife and wildlife habitat; Climate change; Species at risk	The article used a novel ecological forecasting framework to provide climate-sensitive projections of habitat and demography for five boreal caribou monitoring areas within the Northwest Territories (NWT), Canada, over 90 years. It quantifies uncertainty around forecasted mean values. The results suggest habitat suitability may increase in central and southwest regions of the NWT's Taiga Plains ecozone but decrease in southern and northwestern regions driven by conversion of coniferous to deciduous forests.
Climate-informed forecasts reveal dramatic local habitat shifts and population uncertainty for northern boreal caribou	Stewart, Frances E. C.; Micheletti, Tatiane; Cumming, Steven G.; Barros, Ceres; Chubaty, Alex M.; Dookie, Amanda L.; Duclos, Isabelle; Eddy, Ian; Haché, Samuel; Hodson, James; Hughes, Josie; Johnson, Cheryl A.; Leblond, Mathieu; Schmiegelow, Fiona K. A.; Tremblay, Junior A.; McIntire, Eliot J. B.	10.1002/eap.2816	https://onlinelibrary.wiley.com/doi/abs/10.1002/eap.2816	2/8/2023	EN	Climate change; Species at risk; Wildlife and wildlife habitat	Most research on boreal populations of woodland caribou (<i>Rangifer tarandus caribou</i>) has been conducted in areas of high anthropogenic disturbance. However, a large portion of the species' range overlaps relatively pristine areas primarily affected by natural disturbances, such as wildfire. Climate-driven habitat change is a key concern for the conservation of boreal-dependent species, where management decisions have yet to consider knowledge from multiple ecological domains integrated into a cohesive and spatially explicit forecast of species-specific habitat and demography. We used a novel ecological forecasting framework to provide climate-sensitive projections of habitat and demography for five boreal caribou monitoring areas within the Northwest Territories (NWT), Canada, over 90 years. Importantly, we quantify uncertainty around forecasted mean values. Our results suggest habitat suitability may increase in central and southwest regions of the NWT's Taiga Plains ecozone but decrease in southern and northwestern regions driven by conversion of coniferous to deciduous forests. We do not project that boreal caribou population growth rates will change despite forecasted changes to habitat suitability. Our results emphasize the importance of efforts to protect and restore northern boreal caribou habitat despite climate uncertainty while highlighting expected spatial variations that are important considerations for local people who rely on them. An ability to reproduce previous work, and critical thought when incorporating sources of uncertainty, will be important to refine forecasts, derive management decisions, and improve conservation efficacy for northern species at risk.
Climate-Resilient Buildings and Core Public Infrastructure: An Assessment of the Impact of Climate Change on Climatic Design Data in Canada	Cannon, A.J.; Jeong, J.I.; Zhang, X.; Zwiers, F.W.	https://publications.gc.ca/collections/collection_2021/eccc/En4-415-2020-eng.pdf	2020	EN / FR	Climate change; Housing and infrastructure; Infrastructure; Scenario development	The report provides an assessment of how climatic design data relevant to users of the National Building Code of Canada (NBCC 2015, Table C-2) and the Canadian Highway Bridge Design Code (CHBDC/CSA S6 2014, Annex A3.1) might change as the climate continues to warm.	
Common Nighthawk (Species at Risk Webpage)	Ministry of the Environment, Conservation and Parks	https://www.ontario.ca/page/common-nighthawk	4/12/2022	EN / FR	Migratory birds; Avifauna; Species at risk	Provide information on the status of the Common Nighthawk (e.g., endangered or threatened), general life history and a place to direct the general public or Proponents for further information regarding the species (e.g., Recovery Strategies, Government Response Statements, etc.)	
Community Energy Planning in Remote Indigenous Communities: A Case Study with Eabametoong First Nation	Shantz, Joanne	https://atrium.lib.uoguelph.ca/xmlui/bitstream/handle/10214/14291/Shantz_Joanne_201809_MA.pdf?sequence=1&isAllowed=y	2018	EN	Economic development and livelihoods; Social and economic; Traditional processes for deliberation; Indigenous Peoples; Infrastructure	This thesis presents a case study in partnership with Eabametoong First Nation that reveals how community energy planning operates in the context of remote Indigenous communities.	
Community Well-Being Index	Indigenous Services Canada	https://www.sac-isc.gc.ca/SAC-ISC/CWB/index-map-en.html	1/31/2024	EN / FR	Education; Economic development and livelihoods; Community health; Social and economic	The Community Well-Being (CWB) index measures socio-economic well-being for communities across Canada over time. It has 4 components: education, labour force activity, income and housing.	
Comparative regional assessment of factors impacting freshwater fish biodiversity in Canada	Chu, C; Minns, C. K.; Mandrak, N.E.	10.1139/f03-048	https://www.researchgate.net/publication/237175512_Comparative_regional_assessment_of_factors_impacting_freshwater_fish_biodiversity_in_Canada	2003	EN	Biodiversity; Fish and fish habitat	This study presents a broad analysis of freshwater fish species biodiversity in relation to environmental and stress metrics throughout Canada. Species presence absence data were used to calculate richness and rarity indices by tertiary watershed. Richness is higher in the southern parts of Canada, whereas rarity is concentrated in a ring of rarity around the periphery of the country. Environmental and stress indices were developed for each watershed using readily available mapped information. The environmental index was estimated using growing degree-days above 5°C, elevation range (m) within the watershed, mean annual sunshine hours, and mean annual vapour pressure (kPa). The number of crop farms, forestry, waste management, and petroleum refining facilities, road density (km-1000 km-2), dwelling density, and discharge sites (chimneys and laundry outlets) per 1000 km2 described the human stresses in each watershed. Conservation priority rankings were developed for the watersheds using an integrative index of the three indices. Watersheds in southern Ontario and British Columbia were ranked high because they contain the greatest biodiversity and the most stress. This study indicates how regional analyses can guide fisheries and watershed management.
Composition of fish consumed by the James Bay Cree	Belinsky, D.L.; Kuhnlein, H.V.; Yeboah, F.; Penn, A.F.; Chan, H.M.	10.1006/jfca.1996.0022	https://www.sciencedirect.com/science/article/pii/S0889157596900228	1996	EN	Fish and fish habitat	Five species of adult female fish were harvested in Autumn from coastal and inland reservoir areas within the territory of the James Bay Crees of Quebec, Canada. Whitefish (<i>Coregonus clupeaformis</i>), cisco (<i>Coregonus artedii</i>), brook trout (<i>Salvelinus fontinalis</i>), lake trout (<i>Salvelinus namaycush</i>), and pike (<i>Esox lucius</i>) were harvested, portioned, and analyzed for proximate composition, heavy metals (Hg, Cd, As, Pb), nutritional minerals (Ca, Fe, Zn, Cu), and a complete profile of fatty acids. Liver of pike and lake trout and eggs of whitefish, cisco, and lake trout were also analyzed. Although liver and eggs are important traditional cultural food resources, nutrient data in liver and eggs have not been previously reported, except for whitefish eggs. Pike and lake trout flesh and liver and eggs of lake trout had Hg levels exceeding 0.5 µg/g. All samples had greater amounts of unsaturated fatty acids (mono- and polyunsaturates) than saturated fatty acids. Fe and Zn were low (<0.5 mg/100 g) in flesh, but were higher in portions of liver and eggs, thus providing dietary complement.
Consideration of Bill 173, An Act to amend the Mining Act	Chief Arthur Moore	https://www.ola.org/en/legislative-business/committees/general-government/parliament-39/transcripts/committee-transcript-2009-aug-12#P663_189566	2009	EN	Mining; Treaty rights; Indigenous Peoples	Chief Arthur Moore of Constance Lake First Nation, spoke on behalf of the Mattawa First Nations Tribal Council regarding the Mining Amendment Act, including Aroland First Nation, Constance Lake First Nation, Eabametoong First Nation, Ginoogaming First Nation, Long Lake No. 58 First Nation, Marten Falls First Nation, Neskantaga First Nation, Nibinamik First Nation, and Webeque First Nation.	
Consistent declines in wing lengths of Calidridine sandpipers suggest a rapid morphometric response to environmental change	Anderson, Alexandra M.; Friis, Christian; Gratto-Trevor, Cheri L.; Morrison, R. I. Guy; Smith, Paul A.; Nol, Erica	10.1371/journal.pone.0213930	https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0213930	4/3/2019	EN	Wildlife and wildlife habitat; Migratory birds; Climate change; Avifauna	A recent study demonstrated that semipalmated sandpiper (<i>Calidris pusilla</i>) wing lengths have shortened from the 1980s to the present-day. We examined alternative and untested hypotheses for this change at an important stopover site, James Bay, Ontario, Canada. We evaluated morphometric patterns in wing length and bill length by age and sex, when possible, and assessed if wing shape has also changed during this time-period. We investigated patterns of morphological change in two additional Calidridine sandpipers, white-rumped sandpipers (<i>Calidris fuscicollis</i>) and least sandpipers (<i>Calidris minutilla</i>), to determine if shorter wing lengths are a widespread pattern in small sandpipers. We also examined allometric changes in wing and bill lengths to clarify if wing length declines were consistent with historical scaling relationships and indicative of a change in body size instead of only wing length change. We found that including sex and wing shape in analyses revealed important patterns in morphometric change for semipalmated sandpipers. Wing lengths declined for both sexes, but the magnitude of decline was smaller and not significant for males. Additionally, semipalmated sandpiper wings have become more convex, a shape that increases maneuverability in flight. Wing lengths, but not bill lengths, declined for most species and age classes, a pattern that was inconsistent with historical allometric scaling relationships. For juvenile semipalmated sandpipers, however, both bill and wing lengths declined according to historical scaling relationships, which could be a consequence of nutritional stress during development or a shift in the proportion of birds from smaller-sized, western breeding populations. Except for juvenile semipalmated sandpipers, we did not find evidence for an increase in the proportion of birds from different breeding populations at the stopover site. Given the wide, hemispheric distribution of these sandpipers throughout their annual cycles, our results, paired with those from a previous study, provide evidence for wide-spread reduction in wing lengths of Calidridine sandpipers since the 1980s. The shorter wing lengths and more convex wing shapes found in this study support the hypothesis that selection has favored more maneuverable wing morphology in small sandpipers.
COSEWIC assessment and status report on the caribou, <i>Rangifer tarandus</i> , eastern migratory population, Tornat Mountains population, in Canada	Côté, Steeve D.; Festa-Bianchet, Marco; Forbes, Graham	https://publications.gc.ca/collections/collection_2018/eccc/CW69-14-754-2017-eng.pdf	2017	EN / FR	Forests; Species at risk; Wildlife and wildlife habitat	"Caribou (<i>Rangifer tarandus</i>) are a medium-sized member of the deer family. Their relatively long legs and large hooves facilitate living in deep snow associated with northern environments. Caribou are central to the culture, spirituality, and subsistence of many northern Aboriginal communities, and are also important to non-Aboriginal people across Canada. Caribou exhibit high variability in morphology, ecology, and behaviour across their circumpolar range. In 2011, COSEWIC recognized 12 designatable units (DUs); this report assesses the Eastern Migratory population (EM; DU4), and the Tornat Mountains population (TM; DU 10)"	

COSEWIC assessment and status report on the Hoary Bat <i>Lasiurus cinereus</i> , Eastern Red Bat <i>Lasiurus borealis</i> and Silver-haired Bat, <i>Lasionycteris noctivagans</i> , in Canada	COSEWIC		https://www.canada.ca/en/environment-climate-change/services/species-risk-public-registry/cosewic-assessments-status-reports/hoary-bat-eastern-red-bat-silver-haired-bat-2023.html	2023	EN / FR	Wildlife and wildlife habitat; Species at risk	Hoary Bats, Eastern Red Bats, and Silver-haired Bats are medium to large in body size relative to other bats species in Canada, with Hoary Bats being the largest species in Canada. All three species have now been listed as Endangered by COSEWIC due to recent population declines in Canada.
COSIA In-Site Oil Sands Shared Practices for Working in and Around Wetlands	Osko, T; Gillies, C.; Pyper, M.		https://www.cclmportal.ca/resource/cosia-situ-oil-sands-shared-practices-working-and-around-wetlands	2018	EN	Hydrology; Water and river systems	Wetlands are a critical and valued component of boreal landscapes in northeastern Alberta, and they comprise a significant proportion of operational tenures within the in-situ oil sands region. While companies have made progress on avoidance and mitigation strategies to reduce their impacts to wetlands, they also face many common challenges, including pad, road, and culvert settlement; culvert bowing and failure; and tree mortality or other vegetation changes in wetlands adjacent to roads. This document compiles a toolbox of shared practices currently in use by COSIA companies, or which have been used but were found to be unsuccessful.
Eastern wood-pewee (Species at risk webpage)	Committee on the Status of Species at Risk in Ontario		https://www.ontario.ca/page/eastern-wood-pewee	2013	EN / FR	Avifauna; Migratory birds; Public; Species at risk	Provide information on the status of the Eastern wood-pewee (e.g., endangered or threatened), general life history and a place to direct the general public or Proponents for further information regarding the species (e.g., Recovery Strategies, Government Response Statements, etc.)
Cost Benefit Analysis of Climate Change Impacts and Adaptation Measures for Canadian Mines	Rogers; Douglas		http://www.climateontario.ca/doc/p_ECCEC/1-AP261-FinalReport-FINAL.PDF	2015	EN	Mining; Climate change	Assessment of the economic impact of climate change on mine operations, with focus on evaluating costs and benefits associated with climate change impacts and adaptation measure for mining operations in two locales, including Glencore's Sudbury Integrated Nickel Operations. The report provides examples of the costs associated with climate change impacts and adaptation measures and demonstrates ways in which the results can inform decision-making.
Critical Habitat for Aquatic Species at Risk	Fisheries and Oceans Canada		https://open.canada.ca/data/en/dataset/d6177a8c-5d7d-49eb-8290-31e6a45d786c	9/26/2016	EN / FR	Fish and fish habitat; Species at risk	The Species at Risk (SAR) Program is responsible for carrying out DFO's mandate under the Species at Risk Act (SARA) to protect, recover and conserve all listed aquatic SAR in Canada. Critical habitat is defined under section 2 of SARA as: "the habitat that is necessary for the survival or recovery of a listed wildlife species and that is identified as the species' critical habitat in the recovery strategy or in an action plan for the species".
Cultural Preservation and Self-Determination Through Land Use Planning: A Framework for the Fort Albany First Nation	Minkin, Daniel Paul		https://fngovernance.org/wp-content/uploads/2020/06/Cultural_Preservation_Self-Determination_Through_Land_Use_Planning-A_Framework.pdf	2008	EN	Physical and cultural heritage; Cultural vitality; Social and economic; Current use; Indigenous Peoples	Preliminary research into a community based land use plan for the Fort Albany First Nation. Includes semi-structured interviews with 12 members of the first nation, and two staff members of the Mushkegowuck Council. Interviews focused on the substantive values that community members see as worthy of protection or management through the land use plan, and on the procedural values that ought to guide the process.
Cumulative ecological and socioeconomic effects of forest management, natural disturbance and climate change in ON managed forests. Note 5	Venier, L.; Emilson, E. J. S.		https://ostrnrcan-dostnrcan.canada.ca/handle/1845/245392	2021	EN	Forests; Cumulative effects; Social and economic; Climate change	There are ongoing harvesting operations in Ontario's managed forest areas. Broad-scale strategic planning in the context of cumulative effects can help inform the approach for this development; however, data is not currently available. The project's overarching goal is to support strategic planning for future land use and provide options for industrial land use and conservation. This project will use existing databases for priority areas, and will conduct analyses to identify the impact of climate change and multiple land use activities on a suite of environmental and social indicators. The indicators of concern to be considered in the project are elements of biodiversity, including caribou, birds and mercury in fish. These indicators were selected with consideration of socio-economic consequences, including potential effects on Indigenous communities and timber supply. This project is part of a larger cumulative effects project that will develop a comprehensive framework for measuring and projecting cumulative effects using ensemble modelling to address uncertainties.
Cumulative Effects Assessment and Scenario Analysis	Ministry of Northern Development Mines, Natural Resources and Forestry (NRF)		Available Ministry of Northern Development Mines, Natural Resources and Forestry	2016	EN	Cumulative effects; Not public; Scenario development	To prototype a decision support tool for cumulative effects assessment (CEA) and scenario analysis. Related objectives are to raise awareness and understanding of cumulative effects, and to provide an opportunity for Indigenous communities in the Ring of Fire to directly inform the cumulative effects project. The following six steps are used to guide the project, designed to support Far North long-term environmental monitoring efforts: 1. Map out relationships among sectors (e.g. forestry/mining), drivers (e.g. road construction/water crossings), intermediate effects (e.g. habitat fragmentation/Access) and system responses (e.g. recruitment/mortality); 2. Quantitatively model important relationships; 3. Develop alternative scenarios for major drivers (pilot study); 4. Explore outcomes and sensitivities by adjusting parameters and scenarios (pilot study); 5. Determine key environmental components to monitor; 6. Provide a system to integrate information and knowledge, and to understand effects of planning decisions.
Cumulative Effects Assessment in the Moose River Basin - Background Literature Review	Abraham, D.M.		Held by Ministry of Natural Resources, Northeast Region	1998	EN	Community health; Cumulative effects; Moose River; Not public	The goal of the Moose River Basin environmental information partnership was to develop an information management system for the Moose River Basin to assist in the identification and evaluation of cumulative environmental effects for planning and development purposes. The purpose of the literature review document was to provide background information in support of the workshop. In the literature review, the following were identified as valued ecosystem components: Human (health, fishing, trapping, transportation and navigation, tourism, archeological sites, employment, infrastructure, treat and aboriginal rights) and Human Impacts (cultural impacts on Aboriginal peoples, impacts on individuals as well as communities, drinking water quality, navigability, impacts on subsistence fisheries, flooding, archeological sites).
Customized Spatial Climate Models for North America	McKenney, D.W.; Hutchinson, M. F.; Papadopol, P.; Lawrence, K.; Pedlar, J; Campbell, K; Milewska, E; Hopkinson, R.F.; Price, D; Owen, T	10.1175/BAMS-D-10-3132.1	http://dx.doi.org/10.1175/BAMS-D-10-3132.1	2011	EN	Climate change	This article provides information on the methodology and development of the NRCanmet gridded dataset which provides high resolution historical temperature and precipitation data. /Article abstract: Over the past two decades, researchers at Natural Resources Canada's Canadian Forest Service, in collaboration with the Australian National University (ANU), Environment Canada (EC), and the National Oceanic and Atmospheric Administration (NOAA), have made a concerted effort to produce spatial climate products (i.e., spatial models and grids) covering both Canada and the United States for a wide variety of climate variables and time steps (from monthly to daily), and across a range of spatial resolutions. Here we outline the method used to generate the spatial models, detail the array of products available and how they may be accessed, briefly describe some of the usage and impact of the models, and discuss anticipated further developments. Our initial motivation in developing these models was to support forestry-related applications. They have since been utilized by a wider range of agencies and researchers. This article is intended to further raise awareness of the strengths and weaknesses of these climate models and to facilitate their wider application.
Daily NDVI and Snow Mask Composite Products from VIIRS SNPP	Government of Canada; Natural Resources Canada		https://open.canada.ca/data/en/dataset/90882264-f1e1-45e2-8e29-84b41f4d65e3	11/1/2022	EN / FR	Land cover	The dataset includes two data products derived from the Visible Infrared Imaging Radiometer Suite (VIIRS) imager operated by the US National Oceanic and Atmospheric Administration (NOAA) onboard Suomi National Polar-Orbiting Partnership (SNPP) satellite: 1) Normalized Difference Vegetation Index (NDVI) 2) Snow Mask (Snow) with supplementary information about data quality and scene identification
De Beers Canada Inc. Victor Mine Mercury Performance Monitoring 2022 Annual Report per Certificate of Approval #3960-7q4k2g Conditions 7(5) and 7(6)	Hood, A.		https://www.debeersgroup.com/~media/Files/D/De-Beers-Group-V2/documents/reports/canada/2022-victor-mine-mercury-performance-monitoring-annual-report.pdf	2018	EN	Fish and fish habitat	This annual report summarizes Victor Mine site mercury monitoring data collected for the 2022 calendar year related to Certificate of Approval (C. of A.) #3960-7Q4K2G, and provides summaries of earlier data and trends where appropriate. Data collected up to the end of 2017 continue to support the opinion that mine dewatering is unlikely to result in substantive increases in mercury release to area surface waters due to mine dewatering activities. Localized increases in methyl mercury concentrations have, however, been noted over the past few years in downstream Granny Creek waters. This increase has been attributed to sulphate releases to the local muskeg environment from mine rock and ore material drainage, and is likely unrelated to mine dewatering effects on the muskeg environment.
De Beers Group & Attawapiskat First Nation Partner to Monitor Fish Habitat at Former Victor Mine	De Beers Group		https://nationtalk.ca/story/de-beers-group-attawapiskat-first-nation-partner-to-monitor-fish-habitat-at-former-victor-mine	2023	EN	Water and river systems; Fish and fish habitat; Indigenous Peoples	Article about monitoring that will be completed at the Victor Mine for Fish Habitat.
Decline of regional ecological integrity: Loss, distribution and natural heritage value of roadless areas in Ontario, Canada	Quinby, R; Elliott, R; Quinby, F.	10.1016/j.envc.2022.100584	https://www.sciencedirect.com/science/article/pii/S266701022001408	2022	EN	Forests; Current use; Wildlife and wildlife habitat; Species at risk	Only eight years remain to increase nature protection by 20 million ha in Ontario from 10.7% to 30% by 2030 to meet government commitments. Rapid identification and assessment of unprotected roadless areas (RAs) would help to achieve this goal by focussing natural heritage protection efforts in areas with high ecological and conservation value. In Ontario, little is known about the location and extent of RAs, thus the purpose of this study was to map and describe RAs in Ontario, and to discuss their value. Total length of roads in Ontario increased from ~90,000 km in 1916 to ~607,500 km in 2020 – an increase of ~517,500 km (675%) over 104 years. Within Ontario's managed forest region (MFR; excludes the Far North), RAs declined from ~34 million ha in 1916 to ~18.5 million ha in 2020 resulting in a loss of ~15.5 million ha reducing RA cover in the region to 35.6%. Doubling logging production by 2030 per a new Ontario policy could reduce RAs by as much as 20% to ~14.8 million ha by 2030, potentially resulting in their depletion between 2090 and 2100. In 1880, woodland caribou occupied ~43 million ha in Ontario's MFR, which declined to ~10 million ha by 1990. Caribou occupancy in this region could be eliminated by ~2024 and extirpated from all of Ontario by 2070. If all remaining RAs in the MFR were designated as protected areas, Ontario would achieve 92.7% of the 30 x 30 goal. RAs in Ontario continue to be degraded, fragmented and eliminated.

Declines in Populations of Woodland Caribou	McLoughlin, Philip D.; Dzus, Elston; Wynes, Bob; Boutin, Stan	10.2307/3802682	https://www.jstor.org/stable/3802682	2003	EN	Public; Species at risk; Wildlife and wildlife habitat	We summarize the demography of woodland caribou (<i>Rangifer tarandus caribou</i>) inhabiting 6 ranges in northeast Alberta, Canada, from 1993 to 2002. Among ranges, mean annual survival of radiomarked adult females averaged 0.88 (range: 0.86-0.93). Predation by wolves (<i>Canis lupus</i>) and other predators was implicated as the most common cause of death for adult caribou in northeast Alberta. Pregnancy rates (90-100%) and calf production (75-95%) were relatively high in all caribou ranges; however, mean annual recruitment was near or below 20 calves per 100 cows in most ranges ($\bar{x} = 17.1$, range = 11.4-22.7). Caribou populations in 3 ranges have declined at average rates exceeding those that would lead to a 50% decline from initial population size over 3 generations; another population is declining at half this rate. Populations of caribou in 2 ranges appear to be stable, declining marginally since inception of our study. The current distribution, intensity, amount, and type of human activity in and near caribou ranges is likely compromising the integrity of caribou habitat. Treatment of declines will require new land-use guidelines that promote caribou conservation.
Defining the Pen Islands Caribou Herd of southern Hudson Bay	Abraham, Kenneth F.; Thompson, John E.	10.7557/2.18.5.1439	https://septentrio.uit.no/index.php/rangifer/article/view/1439	3/1/1998	EN	Public; Species at risk; Wildlife and wildlife habitat	In this paper, we describe the Pen Islands Herd of caribou, the largest aggregation of caribou in Ontario (it also occupies a portion of northeastern Manitoba). Photographic counts showed the herd had a minimum population of 2300 in 1979, 4660 in 1986, 7424 in 1987 and 10 798 in 1994. Throughout the 1980s, the Pen Islands caribou exhibited population behaviour similar to migratory barren-ground caribou herds, although morphology suggests they are woodland caribou or possibly a mixture of subspecies. The herd had well-defined traditional tundra calving grounds, formed nursery groups and large mobile post-calving aggregations, and migrated over 400 km between tundra summer habitats and boreal forest winter habitats. Its migration took it into three Canadian jurisdictions (Ontario, Manitoba, Northwest Territories) and it was important to residents of both Manitoba and Ontario. It is clear that the herd should be managed as a migratory herd and the critical importance of both the coastal and variable large winter ranges should be noted in ensuring the herd's habitat needs are secure.
Delineating Boreal and Eastern Migratory ranges and investigating metapopulation dynamics of Boreal caribou using genome-wide data	Ministry of Northern Development, Mines, Natural Resources and Forestry, Science and Research Branch		Held by Ministry of Northern Development, Mines, Natural Resources and Forestry, Science and Research Branch	2024	EN	Forests; Not public; Species at risk; Wildlife and wildlife habitat	Sequence low coverage genomes of 25 known Boreal and 25 known Eastern Migratory caribou and develop a simple genetic test that will allow researchers to genetically differentiate the ecotypes. Results will be used to assess connectivity between local populations by measuring gene flow between populations, as well as measuring inbreeding and diversity levels of each population.
Detailed Project Description - Marten Falls All-Season Community Access Road	AECOM Canada Ltd.		https://iaac-aeic.gc.ca/050/documents/p80184/132152E.pdf	2019	EN	Air quality; Community health; Current use; Diverse economies and livelihoods; Economic development and livelihoods; Fish and fish habitat; Forests; Geology; Hydrology; Indigenous Peoples; Infrastructure; Public; Social and economic; Treaty rights; Water and river systems; Wildlife and wildlife habitat	Project description for the Marten Falls All-Season Community Access Road. The Project may alter the demographics, population, regional economy, labour market and public services within communities within or near the Project area. These changes may result in a different socio-economic environment within communities including differing structures based on the construction and operation of the Project. Potential Project effects are likely to include, but are not limited to:...
Determination of Natural Winter Mitigation of Road Dust Emissions from Mining Operations in Northern Canada	Golder Associates Ltd.		https://reviewboard.ca/upload/project_document/EIR0607-001_Road_Dust_Emission_Study_-_De_Beers_Canada.PDF	2012	EN	Air quality	Golder Associates Ltd. was retained to develop a road dust monitoring program at the Victor Mine in northern Ontario during the summer and winter from 2011 -2012. The objective of the study was to evaluate the natural mitigation of haul truck dust emissions due to winter conditions.
Determining Landscape/Range Level Indicator(s) that Predict Self-Sustaining Caribou Populations	Ministry of Natural Resources and Forestry Science and Research Branch		Held by Ministry of Natural Resources and Forestry Science and Research Branch	2017	EN	Forests; Wildlife and wildlife habitat; Species at risk	Evaluate quality of alternative response variables (i.e., recruitment, adult survival and Lambda/per capita rate of increase) across Ontario ranges, in terms of sample sizes and associated error estimates. Select response variable(s) with greatest precision associated with annual, range-specific vital rate estimates and Determine which predictor variables to include in model selection process. Assess and repeat Environment Canada's (2011) candidate regression models using predictor and response variables.
Development of a risk assessment software for cumulative effect	Antwi, Effah Kwabena; Osei, Gifty; Owusu-Banahene, Wlafa; Boakye-Danquah, John; Okafor, Prisca-Maria; Korankye, Kobina; Darko, Akua Nyamekye; Yohuno (Apronti), Priscilla Toloo	10.1016/j.mex.2025.103155	https://www.sciencedirect.com/science/article/pii/S2215016125000032	6/1/2025	EN	Public	Regional Risk Assessment is essential for evaluating the environmental impacts of large-scale resource development projects. However, existing Regional Assessment (RA) frameworks often lack generalizability which hinders standardization. To address these challenges, the Risk Assessment Framework for Cumulative Effects (RAFCE) was developed to provide a standardized approach for impact identification, prioritization, and mitigation during RA. Despite these strengths, the RAFCE's reliance on spreadsheet-based manual data entry and calculations, coupled with the absence of collaborative features, increases the risks of human error and inflates operational costs including time taken to complete an RA. This paper proposes a software implementation of RAFCE to enhance efficiency and accuracy in the RA process. This is a novel approach that provides a platform unique of its kind for systematically evaluating the cumulative effects of resource exploration by multiple stakeholders. The development process involved three main steps: <ul style="list-style-type: none"> •Developing a NoSQL Database to efficiently store and retrieves RA data, •Implementing an API and Backend with Java Spring Boot automates critical functionalities and •Building a React-based Frontend Development: that provides a user-friendly interface, that simplifies data entry and software interaction. By automating calculations and improving the user interface, the proposed software mitigates the risks associated with manual processes and significantly reduces the cost and time required for the RA process, thereby enhancing its reliability and efficiency.
Development of disaggregated energy use and greenhouse gas emission footprints in Canada's iron, gold, and potash mining sectors	Kumar Katta, A.; Davis, M; Kumar, A.	10.1016/j.resconrec.2019.104485	https://www.sciencedirect.com/science/article/pii/S092134491930391X	2020	EN	Mining; Climate change; Air quality	This study develops the disaggregated energy use and greenhouse gas (GHG) emission footprint for Canada's iron, gold, and potash mining sectors. Currently, only high-level aggregated data at the sectoral and regional levels exists in the literature. Through bottom-up energy demand tree development, we identified end-use processes for each mining operation in these sectors. The energy intensities for each end-user were calculated and used in a bottom-up energy-environmental model to determine the associated end-use process GHG emissions. The results were then used to develop Sankey diagrams that allow us to visualize the energy and GHG emissions flows from resource to end use energy-use sector, fuel type, and various jurisdictions in Canada. The overall energy and GHG emission intensities for iron, gold, and potash mining are 0.7, 149.8, 1.8 GJ/Mg and 33, 4922, 158 kg CO2 eq./Mg, respectively. Firing, ventilation, and product drying and steam generation end-use devices had the highest energy use share of 42%, 20%, and 47% in iron, gold, and potash mining sectors, respectively, in 2016. Firing in iron mining, ore transport in gold mining, and product drying and steam generation in potash mining were responsible for 66%, 22%, and 34% of the respective total sectoral GHG emissions. 56% of the GHG emissions were from Saskatchewan, followed by Quebec (18%), and Newfoundland and Labrador (14%). The results from this study provide benchmarks to develop energy savings and GHG mitigation strategies useful for decision making.
Distribution and relative abundance of caribou in the Hudson Plains Ecozone of Ontario	Magoun, Audrey J.; Abraham, Kenneth F.; Thompson, John E.; Ray, Justina C.; Gauthier, Michel E.; Brown, Glen S.; Woolmer, Gillian; Chenier, Christopher J.; Dawson, F. Neil	10.7557/2.25.4.1776	https://septentrio.uit.no/index.php/rangifer/article/view/1776	5/1/2005	EN	Public; Species at risk; Wildlife and wildlife habitat; Winisk River	To determine past distribution and relative abundance of caribou (<i>Rangifer tarandus caribou</i>) in the Hudson Plains Ecozone (HPE) of Ontario, we reviewed past HPE-wide winter systematic aerial surveys, partial winter systematic surveys, summer photographic surveys, incidental observations of caribou, and other sources of information from the period 1950—2003. We conducted new HPE-wide aerial surveys in February 2003 and 2004 to evaluate current distribution patterns. From this information, we defined 9 core wintering areas in the HPE and differentiated between 3 categories of relative abundance. Wintering areas for the January—March period have changed relatively little over the past 45 years. Summer distribution of caribou along the Hudson Bay coast apparently shifted or expanded from the area west of the Severn River to the central and eastern portions of the coast since the 1980s, and caribou observations have become much more common in the area east of the Winisk River since 1998. Because major resource development activities in the HPE are proposed and some are imminent, we recommend additional caribou surveys to document current caribou population identity, size, and distribution, and research projects to better define caribou wintering areas, calving areas, and movement patterns in the HPE.

Distribution of Caribou and Wolves in Relation to Linear Corridors	James, Adam R. C.; Stuart-Smith, A. Kari	10.2307/3802985	https://www.jstor.org/stable/3802985	2000	EN	Public; Species at risk; Wildlife and wildlife habitat	Linear corridors (roads, trails, seismic lines, and pipeline corridors) have been hypothesized to increase human harvest and predation pressure on woodland caribou (<i>Rangifer tarandus</i>). We tested the hypothesis that linear corridors affect caribou and wolf activities by examining the distribution of 2,616 telemetry locations of caribou, 27 caribou mortality sites, 592 telemetry locations of wolves (<i>Canis lupus</i>), and 76 sites where wolves had preyed on large ungulates relative to linear corridors in caribou range and well-drained sites in northeastern Alberta. Of the 98 radiocollared caribou, 35 were significantly further than random from corridors and only 3 were significantly closer. The mean difference between caribou and random locations (106 m) was significantly different from zero. Within caribou range, wolf locations were closer (134 m) than random to linear corridors. Wolf predation sites were not significantly closer to corridors than were wolf locations or random points. Caribou mortalities attributed to wolf predation were closer (316 m) to linear corridors than were wolf locations from all caribou, indicating that caribou that are close to linear corridors are at a higher risk of depredation. Each caribou mortality attributed to wolf predation was closer to a corridor than their telemetry locations while alive (mean difference = 204 m). Caribou mortalities caused by humans were 174 m closer to corridors than all live caribou locations, however this difference was not significant. Increased industrial activity in caribou range could have a significant effect on caribou population dynamics by increasing predation. The development of new corridors within caribou habitat should be minimized and existing corridors should be made unsuitable as travel routes to reduce the impacts of industrial development on caribou populations.
Does Dust from Arctic Mines Affect Caribou Forage?	Chen, W.; Leblanc, S.; White, H.; Prevost, C.; Milakovic, B.; Rock, C.; Sharam, G.; O'Keefe, H.; Corey, L.; Croft, B.; Gunn, A.; van der Wielen, S.; Football, A.; Tracz, B.; Peltissey, J.; Boulanger, J.	10.4236/jep.2017.83020	https://www.scirp.org/html/4-6703229_74747.htm?pagespeed=noscript	2017	EN	Wildlife and wildlife habitat; Air quality; Species at risk	This study investigates how dust from the Ekati diamond Mine affects the availability and quality of forage for the Bathurst caribou herd. This caribou herd has been drastic declines since the 1980s and has been reported to avoid mining projects. Results indicated that lichen cover was reduced within 1000 km of that haul road, likely because of the increase in soil pH associated with dust deposition.
Draft Ozhiski Survey Protocol	Ministry of the Environment, Conservation and Parks		Held by Ministry of the Environment, Conservation and Parks	2/28/2018	EN	Not public; Species at risk; Wildlife and wildlife habitat	The goal of the survey was to assess the current status of Woodland Caribou in the Ozhiski range, while also collecting data on other species such as Wolverine. Two stage aerial survey, both flying parallel transects following a previously established 10,000 ha grid through the Ozhiski range. Further information available upon request.
Drills Holes - Mining Lands Administration System	Ministry of Northern Development, Mines, Natural Resources and Forestry		https://data.ontario.ca/dataset/ontario-drill-hole-database	4/25/2022	EN / FR	Mining; Geology	The Ontario Drill Hole dataset contains index information for more than 126,000 percussion, overburden, sonic and diamond drill holes from assessment files on record with the Mines and Minerals Division. Data includes location, company name, company hole number, hole orientation, hole depth, and overburden depth if applicable. The presence of assay results within cutoff values for gold, silver, copper, zinc, lead, nickel and platinum group elements is noted. Source assessment file numbers are captured for cross referencing with the assessment file database (ODHD).
Drought at a coastal wetland affects refuelling and migration strategies of shorebirds Oecologia	Alexandra M. Anderson; Christian Friis; Cheri L. Gratto-Trevor; Christopher M. Harris; Oliver P. Love; R. I. Guy Morrison; Sean W. J. Prosser; Erica Not; Paul A. Smith	10.1007/s00442-021-05047-x	https://link.springer.com/article/10.1007/s00442-021-05047-x	10/16/2021	EN	Wildlife and wildlife habitat; Migratory birds; Avifauna	Droughts can affect invertebrate communities in wetlands, which can have bottom-up effects on the condition and survival of top predators. Shorebirds, key predators at coastal wetlands, have experienced widespread population declines and could be negatively affected by droughts. We explored, in detail, the effects of drought on multiple aspects of shorebird stopover and migration ecology by contrasting a year with average wet/dry conditions (2016) with a year with moderate drought (2017) at a major subarctic stopover site on southbound migration. We also examined the effects of drought on shorebird body mass during stopover across 14 years (historical: 1974-1982 and present-day: 2014-2018). For the detailed comparison of two years, in the year with moderate drought we documented lower invertebrate abundance at some sites, higher prey family richness in shorebird faecal samples, lower shorebird refuelling rates, shorter stopover durations for juveniles, and, for most species, a higher probability of making a subsequent stopover in North America after departing the subarctic, compared to the year with average wet/dry conditions. In the 14-year dataset, shorebird body mass tended to be lower in drier years. We show that even short-term, moderate drought conditions can negatively affect shorebird refuelling performance at coastal wetlands, which may carry-over to affect subsequent stopover decisions. Given shorebird population declines and predicted changes in the severity and duration of droughts with climate change, researchers should prioritize a better understanding of how droughts affect shorebird refuelling performance and survival.
Dynamic surface water maps of Canada from 1984 to 2019 Landsat satellite imagery	Othof, Ian; Rainville, Thomas	10.1016/j.rse.2021.113121	https://www.sciencedirect.com/science/article/pii/S0034425722002358	9/15/2022	EN	Water and river systems	Knowledge of the location of surface water in time and space is critical to inform policy on the environment, wildlife, and human welfare. Dynamic surface water maps have been created at continental to global scales from medium and coarse resolution satellite image archives, most notably by Pekel et al. (2016), who mapped global water dynamics from 1984 to 2015 Landsat data. Their occurrence layer, depicting the percentage of time that water was observed in each 30 m resolution cell, has been relied upon heavily by Natural Resources Canada's (NRCan) Emergency Geomatics Service (EGS) to map surface water during flood events. To generate dynamic surface water maps that are optimized for Canada's unique geography, the fully automated EGS surface water mapping methodology was applied in a cloud environment to the 1984-2019 Landsat archive over Canada. National-scale surface water maps and derived inundation frequency akin to Pekel's occurrence, as well as inter-annual wetting and drying trends calculated using per-pixel logistic regression, were produced to form the complete dataset. Separate comparisons of our frequency layer with Pekel's occurrence layer and Canada's water base layer from the National Hydrographic Network (NHN) were conducted. The comparison with Pekel's occurrence showed that our product contains a large number of unique water objects, the majority of which are correct when assessed against Google Earth (GE) imagery. Comparison with the NHN indicated that the NHN contained a large number of permanent water objects that were mapped as ephemeral water objects in our product, with the majority of these being verified in GE as true ephemeral water objects such as floodplains and wetlands. Wetting trends were found to be more than five times greater than drying trends across Canada, with notable wetting in the Prairie Pothole region and Low Arctic verified with examples of statistically significant wetting and drying features. The dataset will enhance EGS flood and river ice mapping operations, provide information on floodplain location and extent, and give insight into the effects of climate change on surface water availability.
Dynamic Surface Water Maps of Canada from 1984-2023 Landsat Satellite Imagery	Environment and Climate Change Canada		https://osdp-psdo.canada.ca/dp/en/search/metadata/NRCAN-FGP-1-62de5952-a5eb-4859-b086-22a8ba8024b8	2024	EN / FR	Water and river systems	Knowledge of the location of Earth's surface water in time and space is critical to inform policy decisions on environment, wildlife, and human security. Dynamic surface water maps generally represent water occurrence, also referred to as inundation frequency, depicting the percentage of valid observations when water is detected at the surface. The location and duration of surface water varies from areas of permanent water with 100% inundation frequency where water is always observed, to areas of permanent land with 0% inundation where water never occurs. Between these two extremes are areas of ephemeral water that experience periodic flooding with inundation frequencies between 0-100%. National-scale dynamic surface water information was generated for years 1984-2023 at 30m spatial resolution from the historical Landsat archive over Canada. The complete dataset consists of annual water maps and derived products including inundation frequency and inter-annual wetting and drying trends calculated using per-pixel logistic regression. The complete dataset enables an assessment of the timing, duration, and trends towards wetting or drying at regional to national scales.
Dynamics of lake sturgeon (<i>Acipenser fulvescens</i> Rafinesque, 1817) in a 'pristine' river	Haxton, T; Friday, M; Gillespie, M.	10.1111/jai.13560	https://onlinelibrary.wiley.com/doi/10.1111/jai.13560	2018	EN	Attawapiskat River; Water and river systems; Fish and fish habitat	Lake Sturgeon, <i>Acipenser fulvescens</i> , was assessed in a large, pristine river in northern Canada using a standardized protocol. Gill netting (38-127 mm and 204-306 mm stretched mesh) was conducted at five sites averaging 37 rkm in the Attawapiskat River in Ontario. The objectives were to ascertain relative abundance of Lake Sturgeon within a northern river; determine if Lake Sturgeon are randomly distributed within a 'pristine' river; assess if there is evidence of spatial structuring; and determine if there is genetic structuring within the river. Over the two years (2015 and 2016), 176 Lake Sturgeon were sampled with a mean total length of 851.1 mm (323.4 SD) and mean age of 21 years (12.2 SD). There was a significant difference in the mean total length of the Lake Sturgeon caught, with larger sturgeon in the upstream sites and smaller sturgeon in the downstream sites, signifying a spatial segregation of life stages within the Attawapiskat River. One hundred and fifty-four Lake Sturgeon were genotyped at 10 or more loci. There was no evidence of genetic divergence among sites or population structuring. In fact, parent-offspring relationships were determined using COLONY between upstream and downstream sites, a minimum distance of approximately 190 rkm. This study represents the first to assess a Lake Sturgeon population systematically using a standardized index approach at multiple sites in a 'pristine' river. It demonstrated the importance of a holistic approach to the river at a larger scale and a better understanding of life history requirements for conservation. For example, if only one of the upper sites were assessed, it might have been interpreted as the idyllic 'old growth' population with limited or no recruitment. The corollary from sampling only lower sites would be identifying a lack of adults and potentially erroneously declaring an overexploitation concern. This stresses the importance of a larger scale approach for assessing 'pristine' rivers and not using a small scale approach to make large scale inferences.

Eabametoong & Mishkeegogamang First Nations, Community Based Land Use Plan: Taashikaywin	Eabametoong First Nation; Mishkeegogamang First Nation; Ministry of Natural Resources		https://www.ontario.ca/page/eabametoong-and-mishkeegogamang-first-nations-far-north-community-based-land-use-planning-terms	2013	EN	Food security; Economic development and livelihoods; Community health; Physical and cultural heritage; Cultural vitality; Inter and intra generational values; Traditional processes for deliberation; Diverse economies and livelihoods; Current use; Sustainability; Indigenous Peoples	The terms of reference for Eabametoong and Mishkeegogamang First Nations Far North community based land use planning.
Eabametoong First Nation Knowledge and Use Scoping Study for Greenstone golds GP Inc.'s Proposed Hardrock Project	Olson, Rachel, DeRoy, Steve, Inc., Firelight Research		https://iaac-aeic.gc.ca/050/documents/p80068/119995E.pdf	2017	EN	Mining; Food security; Cultural vitality; Current use; Wildlife and wildlife habitat; Fish and fish habitat; Indigenous Peoples	Traditional knowledge and land use scoping study that provides baseline information, existing, and anticipated project interactions based on current and available Eabametoong First Nation knowledge and use data.
Eagle's Nest Project, A Federal/Provincial Environmental Impact Statement/Environmental Assessment Report	Knight Plésold Ltd.		https://wyloo.com/wp-content/uploads/2024/02/1-EA-EIS-Volume-1-Executive-Summary-compressed.pdf	2013	EN	Forests; Attawapiskat River; Cumulative effects; Food security; Economic development and livelihoods; Physical and cultural heritage; Treaty rights; Social and economic; Water and river systems; Wildlife and wildlife habitat; Species at risk; Fish and fish habitat; Indigenous Peoples	The mine site is on the traditional lands of the following First Nation communities: Marten Falls, Webequie, and Neskantaga. The transportation corridor crosses the traditional lands of these three communities along with Nibinamik and Eabametoong. Attawapiskat is down stream of the mine site, and Aroland is near the terminus.
Eastern small-footed myotis (Species at Risk Webpage)	Ministry of the Environment, Conservation and Parks		https://www.ontario.ca/page/eastern-small-footed-myotis	12/21/2023	EN / FR	Wildlife and wildlife habitat; Species at risk	Provide information on the status (e.g., endangered or threatened), general life history and a place to direct the general public or Proponents for further information regarding the species (e.g., Recovery Strategies, Government Response Statements, etc.)
Eastern Small-footed Myotis government response statement	Ministry of Natural Resources and Forestry		https://www.ontario.ca/page/eastern-small-footed-myotis-government-response-statement	2018	EN / FR	Forests; Wildlife and wildlife habitat; Species at risk	Ontario's policy direction for the protection and recovery of Eastern Small-footed Myotis.
Eastern Whip-poor-will (Species at Risk Webpage)	Ministry of the Environment, Conservation and Parks		https://www.ontario.ca/page/eastern-whip-poor-will	8/12/2021	EN / FR	Migratory birds; Avifauna; Species at risk	Provide information on the status (e.g., endangered or threatened), general life history and a place to direct the general public or Proponents for further information regarding the species (e.g., Recovery Strategies, Government Response Statements, etc.)
Eastern Whip-poor-will General Habitat Description	Ministry of the Environment, Conservation and Parks		https://www.ontario.ca/page/eastern-whip-poor-will-general-habitat-description	7/9/2021	EN / FR	Wildlife and wildlife habitat; Migratory birds; Avifauna; Species at risk	This document is a technical, science-based description of the area of habitat protected for the Eastern Whip-poor-will.
Eastern Whip-poor-will government response statement	Ministry of the Environment, Conservation and Parks		https://www.ontario.ca/page/eastern-whip-poor-will-government-response-statement	9/8/2020	EN / FR	Migratory birds; Avifauna; Species at risk	Ontario's policy direction for the protection and recovery of Eastern Whip-poor-will.
Eastern Whip-poor-will recovery strategy	Ministry of the Environment, Conservation and Parks		https://www.ontario.ca/page/eastern-whip-poor-will-recovery-strategy	6/17/2021	EN	Migratory birds; Avifauna; Species at risk	The recovery strategy for the Eastern Whip-poor-will (<i>Antrostomus vociferus</i>) was developed in accordance with the requirements of the Endangered Species Act, 2007 (ESA). This recovery strategy has been prepared as advice to the Government of Ontario, other responsible jurisdictions and the many different constituencies that may be involved in recovering the species. The recovery strategy does not necessarily represent the views of all individuals who provided advice or contributed to its preparation, or the official positions of the organizations with which the individuals are associated. The recommended goals, objectives and recovery approaches identified in the strategy are based on the best available knowledge and are subject to revision as new information becomes available. Implementation of this strategy is subject to appropriations, priorities and budgetary constraints of the participating jurisdictions and organizations. Success in the recovery of this species depends on the commitment and cooperation of many different constituencies that will be involved in implementing the advice set out in this strategy.
Eastern-breeding Lesser Yellowlegs are more likely than western-breeding birds to visit areas with high shorebird hunting during southward migration	McDuffie, Laura A; Christie, Katherine S; Harrison, Autumn-Lynn; Taylor, Audrey R; Andres, Brad A; Laliberté, Benoit; Johnson, James A	10.1093/ornithapp/duab061	https://doi.org/10.1093/ornithapp/duab061	2/1/2022	EN	Avifauna; Migratory birds; Species at risk; Wildlife and wildlife habitat	Shorebirds have experienced a precipitous reduction in abundance over the past four decades. While some threats to shorebirds are widespread (e.g., habitat alteration), others are regional and may affect specific populations. Lesser Yellowlegs (<i>Tringa flavipes</i>) are long-distance migrants that breed across the North American boreal biome and have declined in abundance by 60–80% since the 1970s. The documented harvest of Lesser Yellowlegs in the Caribbean and northeastern South America during southward migration is a possible limiting factor for the species, but it is unknown to what extent birds from different breeding origins may be affected. To address the question of differential occurrence in harvest zones during southward migration, we used PinPoint GPS Argos transmitters to track the southward migrations of 85 adult Lesser Yellowlegs from across the species' breeding range and 80° of longitude from Anchorage, Alaska, USA, to the Mingan Archipelago, Quebec, Canada. We classified migratory locations as inside or outside three zones with high levels of harvest (Caribbean, coastal Guianas, and coastal Brazil) and then fit generalized additive mixed models to estimate the probability of occurrence of Lesser Yellowlegs in harvest zones according to their breeding origin. Individuals from the Eastern Canada population had a higher probability of occurrence within one or more harvest zones and remained in those zones longer than individuals breeding in Alaska and western Canada. Linear regressions also suggested that longitude of the breeding origin is an important predictor of occurrence in harvest zones during southward migration. Lastly, our findings, combined with other sources of evidence, suggest that current estimated harvest rates may exceed sustainable limits for Lesser Yellowlegs, which warrants further investigation. • The Lesser Yellowlegs is experiencing a steep population decline. Addressing longstanding knowledge gaps, such as the potential impact that unregulated harvest has on specific breeding populations, helps scientists and managers develop and implement effective conservation actions for this vulnerable species. • Using GPS telemetry, we tracked the southward migration of 85 adult Lesser Yellowlegs across the Western Hemisphere to establish the specific populations that migrate through areas with high harvest. • Lesser Yellowlegs originating from the eastern part of their migratory range were more likely than western-breeding birds to occur within jurisdictions in the Caribbean and northeastern South America where shorebird harvest occurs. • Without considering differential occurrence of Lesser Yellowlegs within harvest regions, their decline will likely continue, resulting in the loss of biodiversity and an important cultural resource.
East-West Tie Transmission Project Amended Environmental Assessment Report; Section 17. Indigenous Current Use of Lands and Resources for Traditional Purposes	NextBridge Infrastructure		http://www.nextbridge.ca/~media/Microsites/Nextbridge/Documents/EWT_Amend_EA_September2018/EWT_Amend_EA_Section_17_Indigenous-Land-Resource-Use_September2018.pdf?la=en	2018	EN	Food security; Community health; Cultural vitality; Treaty rights; Inter and intra generational values; Diverse economies and livelihoods; Current use; Infrastructure	Traditional Land and Resource Use assessment to assess the effects of the East-West Tie Transmission Project on traditional wildlife harvesting, fish harvesting, plant and material harvesting, and use of cultural important sites and areas. First Nations communities identified: Animbiigoo Zaagi'igan Anishinaabek, Ginoogaming, Long Lake No. 58, and Métis Nation of Ontario.
Ecological Land Classification	Ministry of Natural Resources and Forestry Science and Research Branch		https://www.ontario.ca/page/ecological-land-classification	7/30/2025		Forests; Biodiversity; Wildlife and wildlife habitat; Geology; Land cover	Ecological land classification describes ecosystems using geology, climate, vegetation, terrain and soil.
Ecologically and Biologically Significant Areas	Fisheries and Oceans Canada		https://open.canada.ca/data/en/dataset/d2d6057f-d7c4-45d9-9fd9-0a58370577e0	2/17/2025	EN / FR	Biodiversity; Migratory birds; Public; Species at risk; Wildlife and wildlife habitat	Ecologically and Biologically Significant Areas (EBSAs) are areas within Canada's oceans that have been identified through formal scientific assessments as having special biological or ecological significance when compared with the surrounding marine ecosystem.
Ecology and biology of the lake sturgeon: a synthesis of current knowledge of a threatened North American Acipenseridae	Peterson, D.L; Vecsel, P.; Jennings, C.A.	10.1007/s11160-006-9018-6	https://link.springer.com/article/10.1007/s11160-006-9018-6	2007	EN	Fish and fish habitat	The lake sturgeon is one of the largest North American freshwater fish and was once common in most inland rivers and lakes of the US and Canadian Midwest. World demand for caviar and sturgeon meat led to a dramatic decline of lake sturgeon populations throughout much of its range. Along with overfishing, lake sturgeon populations have been negatively affected by habitat degradation. Recruitment factors and early life history are poorly understood. Today, renewed interest in lake sturgeon restoration has led to numerous state and federally-funded research activities. Research has focused on identifying and assessing the size structure of remnant stocks, the availability of spawning habitat, and factors affecting reproductive success. Additional studies are needed to improve hatchery techniques, to better understand recruitment mechanisms, and how genetic diversity among and within meta-populations may affect long-term recovery of depleted populations.

Ecology and food quality of fishes in coastal rivers of the Far North of Ontario	Heerschap, M.J		https://www.semanticscholar.org/paper/Ecology-and-food-quality-of-fishes-in-coastal-of-Heerschap/c747d377cc8914c671429fbae4903055ca5746d7	2018	EN	Fish and fish habitat	The Far North of Ontario is home to over 24 000 people in 31 communities, and many of these people rely heavily on wild fish as part of their diet. Six of these communities are situated on the lower reaches of large river systems near the coast of Hudson and James Bays. These large rivers, as well as numerous smaller rivers along the coast, are home to a variety of fish species, including some presumed anadromous (migrating between fresh and salt water) populations, that support important subsistence fisheries. However, little research has been carried out on fish resources of these river systems, and basic information is generally lacking. I examined fish populations from the lower reaches of 14 of these rivers in terms of growth, trophic ecology, life history, and their suitability for human consumption based on mercury and fatty acid content. Stable isotope and fatty acid compositions indicative of predation on marine food sources were most evident in the presumed anadromous species - Brook Trout, Lake Whitefish and Cisco. Compared to inland lakes of the same drainage basins, coastal river populations of Northern Pike and Walleye grew faster and occupied broader trophic niches, suggestive of an indirect marine influence on their diet. In contrast, Lake Whitefish tended to grow more slowly in coastal rivers than in inland lakes. Fish mercury concentrations in coastal rivers have not changed appreciably over the last ~ 30 years. Current fish mercury concentrations did not vary latitudinally among coastal rivers, but were significantly higher than in inland lakes for Walleye, Lake Whitefish and White Sucker. Fillet lipid and essential fatty acid (EPA+DHA) content decreased with increasing latitude in Northern Pike, but not in other species. Both mercury and essential fatty acid concentrations of fish muscle varied among rivers but there did not appear to be spatial concordance between them. Presumed anadromous species - Brook Trout, Lake Whitefish, Cisco - tended to have both the greatest concentrations of essential fatty acids and among the lowest mercury concentrations, making them an especially high quality food source. Walleye generally had the highest muscle mercury concentration and relatively low essential fatty acid content
Effect of mine dewatering on the peatlands of the James Bay Lowland: the role of marine sediments on mitigating peatland drainage	Whittington, P; Price, J.S.	10.1002/hyp.9858	https://onlinelibrary.wiley.com/doi/10.1002/hyp.9858	2013	EN	Mining; Peatlands; Hydrology	The wetlands of the James Bay Lowland comprise one of largest wetland complexes in the world, in part due to the properties (thickness and hydraulic conductivity) of the marine sediment (MS) that underlay them. Dewatering of an open-pit diamond mine is depressurizing the surrounding Silurian bedrock aquifer. To assess this isolation, we instrumented a 1.5km long transect of wells and piezometers located within the zone of the mine's influence that crossed a sequence of bogs, fens, and bedrock outcrops (bioherms). Results were differentiated between those areas with no MS (near bioherms) and those underlain by MS (non-bioherm) along the transect. Between 2007 and 2010 at near-bioherm and non-bioherm locations, average peat water tables declined 71 and 31cm, and hydraulic head declined 66 and 32cm, in bioherm and non-bioherm locations, respectively. Gradients varied from near zero (0.001) at the start of dewatering to 0.03 (after 5years) in non-bioherm areas and from 0.20 to 0.45 in near-bioherm areas. These gradients corresponded to fluxes (groundwater recharge) of approximately 0.26mm/day and 2.1mm/day, in non- and near-bioherm areas, respectively. Specific discharge (recharge) determined using the known mine dewatering rate and drawdown cone heads and areas corresponded well with measured recharge determined in the non-bioherm transect locations. A simple rearrangement of Darcy's Law used to calculate the specific discharge highlighted how the ratio of hydraulic conductivity to the thickness of the MS can be used to assess vulnerable areas. Therefore, given the increasing development in Ontario's Far North, considerable attention must be given to both the thickness and hydraulic conductivity of MS
Effect of sleep disturbance on biomarkers related to the development of adverse health outcomes: A systematic review of the human literature	Sivakumaran, Kapeena; Ritonja, Jennifer A.; Palmer, Nicole; Pasumarthi, Tejanth; Waseem, Haya; Yu, Tiffany; Denning, Allison; Michaud, David; Morgan, Rebecca L.	10.1111/jsr.13775	https://onlinelibrary.wiley.com/doi/pdfdirect/10.1111/jsr.13775	2023-06	EN	Community health	Literature suggests that unrestricted and undisturbed sleep is vital for basic human function and performance; however, it is unclear as to what amount of sleep disturbance leads to dysregulation in biomarkers, which may underscore the development of adverse health effects. This systematic review aims to identify the amount of sleep disturbance that contributes to biomarker changes as a potential precursor to the development of adverse health effects. English-language comparative studies available in PubMed, Cochrane Central, EMBASE, and CINAHL databases from 1 January 1980 to 31 July 2021 were searched. Where possible, random-effects meta-analyses were used to examine the effect of sleep disturbances on adverse health effects. The risk of bias of individual studies was assessed using the Cochrane Risk of Bias Tool and the Risk of Bias of Nonrandomised Studies - of Exposures instruments and the certainty of the body of evidence for each outcome was assessed using the Grading of Recommendations Assessment, Development and Evaluation approach. The search identified 92 primary studies reporting on blood pressure, hypertension, heart rate, cardiac arrhythmia, cardiac output, waist circumference, cortisol, adrenaline, noradrenaline, immune system markers, glucose, insulin, cholesterol, and triglyceride levels. Although some meta-analyses suggested there may be an association between sleep disturbances and certain outcomes, the certainty in the evidence was very low due to concerns with risk of bias, inconsistency across exposures, populations, and imprecision in the estimates of effects. Further research is needed to explore the point at which types, levels and duration of sleep disturbances may begin to increase the risk of developing adverse health outcomes to inform and tailor health interventions.
Effects of a Warming Climate on Daily Snowfall Events in the Northern Hemisphere	Danco, J.F.; DeAngelis, A.M.; Raney, B.K.; Broccoli, A.J.	10.1175/JCLI-D-15-0687.1	https://doi.org/10.1175/JCLI-D-15-0687.1	2016	EN	Climate change; Scenario development	Using simulations performed with 24 coupled atmosphere-ocean global climate models from phase 5 of the Coupled Model Intercomparison Project (CMIP5), projections of Northern Hemisphere daily snowfall events under the RCP8.5 emissions scenario are analyzed for the periods of 2021-50 and 2071-2100 and compared to the historical period of 1971-2000. The overall frequency of daily snowfall events is simulated to decrease across much of the Northern Hemisphere, except at the highest latitudes such as northern Canada, northern Siberia, and Greenland. Seasonal redistributions of daily snowfall event frequency and average daily snowfall are also projected to occur in some regions. For example, large portions of the Northern Hemisphere, including much of Canada, Tibet, northern Scandinavia, northern Siberia, and Greenland, are projected to experience increases in average daily snowfall and event frequency in midwinter. But in warmer months, the regions with increased snowfall become fewer in number and are limited to northern Canada, northern Siberia, and Greenland. These simulations also show changes in the frequency distribution of daily snowfall event intensity, including an increase in heavier snowfall events even in some regions where the overall snowfall decreases. The projected changes in daily snowfall event frequency exhibit some dependence on the temperature biases of the individual models in certain regions and times of the year, with colder models typically toward the positive end of the distribution of event frequency changes and warmer models toward the negative end, particularly in regions near the transition zone between increasing and decreasing snowfall.
Effects of Mine Development on Woodland Caribou Rangifer Tarandus Distribution	Weir, J.N.; Mahoney, S.P.; MacLaren, B; Ferguson, S.H.	10.2981/0909-6396(2007)13[66:EOMDOW]2.0.CO;2	https://bioone.org/journals/wildlife-biology/volume-13/issue-1/0909-6396-2007-13-66_EOMDOW_2_0_CO_2/Effects-of-Mine-Development-on-Woodland-Caribou-Rangifer-Tarandus-Distribution/10.2981/0909-6396(2007)13[66:EOMDOW]2.0.CO;2.full	2007	EN	Mining; Forests; Wildlife and wildlife habitat; Species at risk; Public	Knowledge of the effect of mining developments on caribou Rangifer tarandus is fragmentary. We examined the impact of the Hope Brook gold mine, southwestern Newfoundland, on the La Poile woodland caribou herd on a section of their year-round range. We examined the impact of the mine on caribou distribution during three phases of mine activity (pre-disturbance, construction and open-pit mining and underground mine and mill operation) in five seasons (winter, late winter, pre-calving, calving and autumn). Aerial surveys were conducted on a monthly basis from September 1985 to July 1991. Following initiation of the mine construction, caribou abundance increased with distance from the mine site in all seasons, and caribou avoided areas within 4 km of the site in most seasons. Within 6 km of the mine centre, group size and the number of caribou decreased as mine activity progressed in late winter, pre-calving and calving seasons. Although the impact of the mine was most prominent in the pre-calving and calving seasons, caribou responded to mine disturbance in all seasons. This highlights the importance of evaluating the year-round impact of human-induced environmental change.
Ekwan Watershed Region - Content Collection	Natural Resources Canada; Impact Assessment Agency of Canada		https://osdp-psdo.canada.ca/ftp/en/search/metadata/NRCAN-ROF-1-2C82DC9C-FB7D-4B75-ACE6-E69F57B0EB45/metadata/NRCAN-ROF-1-5F183851-3814-4352-85B8-D292FDC2CCA1/metadata/NRCAN-ROF-1-0FFAFED78-7DC7-4B7A-96D5-088F5C091D93	10/1/2023	EN / FR	Water and river systems; Ekwan River; Fish and fish habitat	The Ekwan Watershed Region is one of the five secondary watersheds in Northern Ontario surrounding the Ring of Fire, including: Winisk, Attawapiskat, Upper Albany, and Lower Albany. In addition to the datasets found in this collection for this specific watershed region, further datasets may be found in the topic-based content collections for Northern Ontario that are Canada-wide. Consider searching the following content collections for information that covers a larger area and may include this watershed region: Air, Climate, Water, Economy and Industry, Land, and Biodiversity.

Elevated contaminants contrasted with potential benefits of ω -3 fatty acids in wild food consumers of two remote first nations communities in northern Ontario, Canada	Seabert, T.A.; Pal, S.; Pinet, B.M.; Haman, F.; Robidoux, M.A.; Imbeault, P.; Krümmel, E.M.; Kimpe, L.E.; Blais, J.M.	10.1371/journal.pone.0090351	https://pubmed.ncbi.nlm.nih.gov/24598815/	2014	EN	Food security; Cultural vitality; Current use; Fish and fish habitat; Indigenous Peoples	Indigenous communities in Boreal environments rely on locally-harvested wild foods for sustenance. These foods provide many nutritional benefits including higher levels of polyunsaturated fatty acids (PUFAs; such as ω -3) than what is commonly found in store-bought foods. However, wild foods can be a route of exposure to dietary mercury and persistent organic pollutants (POPs) such as polychlorinated biphenyls (PCBs). Here, we show a strong association between the frequency of wild food consumption in adults (N=72) from two remote First Nations communities of Northern Ontario and environmental contaminants in blood (POPs) and hair (mercury). We observed that POPs and mercury were on average 3.5 times higher among those consuming wild foods more often, with many frequent wild food consumers exceeding Canadian and international health guidelines for PCB and mercury exposures. Contaminants in locally-harvested fish and game from these communities were sufficiently high that many participants exceeded the monthly consumption limits for methylmercury and PCBs. Those consuming more wild foods also had higher proportions of potentially beneficial ω -3 fatty acids including eicosapentaenoic acid (EPA) and docosahexaenoic acid (DHA). These results show that the benefits of traditional dietary choices in Boreal regions of Canada must be weighed against the inherent risks of contaminant exposure from these foods.
Animbiigoo Zaag'igan Anishinaabek (Lake Nipigon First Nation) TLRU Information and Mitigation Table - Energy East Pipeline	Animbiigoo Zaag'igan Anishinaabek (Lake Nipigon First Nation)		https://docs2.cer-rec.gc.ca/ll-eng/nisapi.dl/fetch/2000/90464/90552/2432218/2540913/2995824/2969282/A77055-17_V25_Mitigation_Tables_Boreal_Region_1of11_-_A5A9T4.pdf?nodeid=2968477&vernum=2	2016	EN	Community health; Physical and cultural heritage; Treaty rights; Diverse economies and livelihoods; Current use; Water and river systems; Wildlife and wildlife habitat; Indigenous Peoples	Traditional land and resource use (TLRU) study was conducted for the Energy East Pipeline Project to assess the effects of the project on the Lake Nipigon Reserve and TLRU areas. The study was conducted by Animbiigoo Zaag'igan Anishinaabek with support from Stantec Consulting Ltd., and included previously collected TLRU data from the First Nation. TLRU information and mitigation tables are included.
Ensemble Projections of Regional Climatic Changes over Ontario, Canada	Wang, X; Huang, G; Liu, J.; Li, Z; Zhao, S	10.1175/JCLI-D-15-0185.1	https://journals.ametsoc.org/view/journals/clim/28/18/jcli-d-15-0185.1.xml	2015	EN	Climate change; Scenario development	Wang et al. developed high-resolution climate projections for Ontario - temperature, precipitation, and rainfall intensity-duration-frequency (IDF) curves. Climatological conditions and projections for the 2030s, 2050s, and 2080s are presented. All three variables are projected to increase for the province. The Ontario Climate Change Data Portal (CCDP) is also presented. - Article abstract: In this study, high-resolution climate projections over Ontario, Canada, are developed through an ensemble modeling approach to provide reliable and ready-to-use climate scenarios for assessing plausible effects of future climatic changes at local scales. The Providing Regional Climates for Impacts Studies (PRECIS) regional modeling system is adopted to conduct ensemble simulations in a continuous run from 1950 to 2099, driven by the boundary conditions from a HadCM3-based perturbed physics ensemble. Simulations of temperature and precipitation for the baseline period are first compared to the observed values to validate the performance of the ensemble in capturing the current climatology over Ontario. Future projections for the 2030s, 2050s, and 2080s are then analyzed to help understand plausible changes in its local climate in response to global warming. The analysis indicates that there is likely to be an obvious warming trend with time over the entire province. The increase in average temperature is likely to be varying within [2.6, 2.7]°C in the 2030s, [4.0, 4.7]°C in the 2050s, and [5.9, 7.4]°C in the 2080s. Likewise, the annual total precipitation is projected to increase by [4.5, 7.1]% in the 2030s, [4.6, 10.2]% in the 2050s, and [3.2, 17.5]% in the 2080s. Furthermore, projections of rainfall intensity-duration-frequency (IDF) curves are developed to help understand the effects of global warming on extreme precipitation events. The results suggest that there is likely to be an overall increase in the intensity of rainfall storms. Finally, a data portal named Ontario Climate Change Data Portal (CCDP) is developed to ensure decision-makers and impact researchers have easy and intuitive access to the refined regional climate change scenarios.
Environmental Baseline Data Report - Hardrock Project - Fish and Fish Habitat	Stantec Consulting Ltd.		https://iaac-aeic.gc.ca/050/documents/p80068/119880E.pdf	2015	EN	Kenogami River; Fish and fish habitat	This Environmental Baseline Data Report describes fish communities and fish habitat (baseline conditions) in the project development area, local study area (LSA) and regional study area. Lakes within the LSA provide coolwater habitat. Habitat diversity increases with lake size, with larger lakes such as Kenogamis and Goldfield Lake providing a diversity of aquatic vegetation, cover and substrate types. Larger lakes also provided greater bathymetric structure (i.e. humps, shoals, flats, etc.). Smaller lakes and ponds offer more limited habitat diversity. There was an abundance of potential spawning habitat for Northern Pike and Yellow Perch throughout most lakes within the LSA. Important spawning and feeding habitat for species like Walleye and Lake Whitefish was documented where the Kenogamis River and Magnet Creek flow into Kenogamis Lake. Important spawning habitat for these species may also be provided by rocky mid-lake shoals in Kenogamis Lake and Goldfield Lake. More than 4,400 individual fish and 23 species were captured by Stantec in the LSA between September 2013 and October 2014. No species identified were listed as federal or provincial species at risk, nor are species at risk expected to occur in the LSA.
Environmental Baseline Data Report - Hardrock Project: Socio-Economic	Stantec Consulting Ltd.		https://iaac-aeic.gc.ca/050/documents/p80068/119885E.pdf	2015	EN	Mining; Economic development and livelihoods; Physical and cultural heritage; Social and economic; Diverse economies and livelihoods; Current use; Infrastructure	This report provides baseline data for the RAA surrounding the hard rock mining project. Baseline data is provided for the following valued components: Economy Employment and Business, Community Services and Infrastructure, and Land and Resource Use.
Environmental Code of Practice for Metal Mines	Environment and Climate Change Canada		https://www.canada.ca/en/environment-climate-change/services/canadian-environmental-protection-act-registry/publications/code-practice-metal-mines.html	2009	EN / FR	Mining; Community health	The Environmental Code of Practice for Metal Mines describes operational activities and associated environmental concerns of this industrial sector. The document applies to the complete life cycle of mining, from exploration to mine closure, and environmental management practices are recommended to mitigate the identified environmental concerns. The recommended practices in the Code include the development and implementation of environmental management tools, the management of wastewater and mining wastes, and the prevention and control of environmental releases to air, water and land. The Code of Practice will be adopted by Environment Canada and others as a guidance document that recommends environmental protection practices for the mine life cycle. The Code applies specifically to metal mines but will provide useful guidance for all sectors of the mining industry
Environmental Racism on Indigenous Lands and Territories	Jacobs, Beverly		https://www.cpsa-acsp.ca/papers-2010/Jacobs.pdf	5/20/2010	EN	Community safety; Community health; Treaty rights; Water and river systems; Indigenous Peoples	Case study of environmental racism in Kashechewan related to toxic-water supply exposure in 2005.
Environmental scan to identify domestic and international good practices to integrate SGBA+ in Health Impact Assessment	Marieka Sax; Jane Stinson; Deborah Stenstra; Leah Levac; Rebecca Tatham		https://www.criaw-icref.ca/publications/environmental-scan-sgba/	2021	EN	Family, youth, and children; Community health; Physical and cultural heritage	The 2019 Canadian Impact Assessment Act introduced a new federal process for assessing a broad range of effects of proposed major resource and infrastructure projects. New requirements include an assessment of health, social, environmental, and economic impacts over the long-term, as well as consideration of “the intersection of sex and gender with other identity factors” (Impact Assessment Agency of Canada (IAAC) 2019). Motivated by this legislative change, this report—prepared at the request of Health Canada—presents findings from a comprehensive environmental scan identifying practical tools and resources for integrating a sex and gender-based plus analysis (SGBA+) into Health Impact Assessment (HIA). We followed a six-step process that included: scoping the field through conversations with field experts; developing and piloting a search strategy; applying the search strategy to look for academic, practitioner, and community literature; screening the resulting items; extracting data from items included in final results; and undertaking a content analysis on all final items. In total, 216 items are included in the findings presented in this report.
Establishing trace element concentrations for lichens and bryophytes in the ring of fire region of the Hudson Bay Lowlands, Ontario, Canada	McDonough, Andrew M.; Bird, Adam W.; Luciani, Michael A.; Todd, Aaron K.	10.1007/s10661-022-09890-0	https://pubmed.ncbi.nlm.nih.gov/35218420/	2/26/2022	EN	Air quality	Peatlands dominate the landscape of the Hudson Bay Lowlands in Ontario, Canada. Recently, mineral deposits of chromium (Cr), nickel (Ni), and copper (Cu) were discovered in the region and anticipated future industrial mining operations have the potential to impact the environment. Lichens and bryophytes are considered excellent biomonitors and indicators of deposition, deriving their nutrients directly from the atmosphere. Trace element concentrations in lichens and bryophytes have not been reported in the Hudson Bay Lowlands. Here, we seek to determine the baseline trace element concentrations of six non-vascular species (Evernia mesomorpha, Bryoria spp., Cladonia stellaris, Cladonia stygia, Sphagnum fuscum, and Sphagnum capillifolium) common to the region, explore linear relationships of trace elements with iron (Fe) as a signature of particulates with geogenic origin, and calculate trace element enrichment factors. Thalli, foliage, and peat (0-30 cm) were collected from 55 locations between 2013 and 2018 and analyzed for trace elements. Thalli and foliar concentrations are among the lowest reported in the broader literature and differ substantially from peat. Fe concentrations were significantly correlated (Pearson's $r \geq 0.8$) with aluminum (Al), titanium (Ti), and vanadium (V) in all six species. Enrichment factors show some anthropogenic deposition effects non-vascular organism chemistry. Most trace element concentrations in lichens and bryophytes are indicative of long-range atmospheric transport of dust, but some is attributed to industry, with only minimal inclusions from the local area. Epiphytic lichens are well suited for ongoing atmospheric biomonitoring as industrialization commences.

Estimating and Mapping Extreme Ice Accretion Hazard and Load Due to Freezing Rain at Canadian Sites	Sheng, C.; Tang, Q.; Hong, H.P.	10.1007/s13753-023-00466-1	https://doi.org/10.1007/s13753-023-00466-1	2023	EN	Climate change	The ice accretion load in Canadian structural design codes is developed based on an operational ice accretion prediction model. In the present study, three models are employed to predict the ice accretion amount on a flat surface and horizontal wire at Canadian sites. The results confirm that the model used by Canadian practice for predicting ice accretion leads to a conservative estimate as compared to the remaining two models. The results also indicate that the use of the Gumbel distribution for the annual maximum ice accretion is adequate for regions prone to ice accretion and that the lognormal distribution may be considered for regions with a moderate or negligible amount of ice accretion. Maps of the ice accretion hazard at five selected Canadian sites are developed. Statistical analysis of an equivalent wind speed that is concurrent with the iced wire is carried out, showing that the concurrent wind speed for the 50-year return period value of the annual maximum ice accretion amount is smaller than the 50-year return period value of the annual maximum wind speed. It is shown that the statistical characteristics of the annual maximum concurrent wind speed on iced wire differ from that of the annual maximum wind speed.
Estimating the zone of influence of industrial developments on wildlife: a migratory caribou Rangifer tarandus groenlandicus and diamond mine case study	Boulanger, J.; Poole, K. G.; Gunn, A.; Wierzbowski, J.	10.2981/11-045	https://bioone.org/journals/wildlife-biology/volume-18/issue-2/11-045/Estimating-the-zone-of-influence-of-industrial-developments-on-wildlife/10.2981/11-045.full	2012	EN	Mining; Wildlife and wildlife habitat; Species at risk; Infrastructure	The Bathurst caribou herd has been exposed to a mining boom in the area since the early 1990s. Two open pit mines and one underground diamond mine were developed between 1996 and 2005. The goal of this study was to determine the zone of influence of these mines on the caribou herd. A modelling exercise was conducted using caribou records from aerial surveys and satellite collar data. Results indicated that the zone of influence from open-pit mining in the summer was approximately 14 km (based on the aerial survey data), and approximately 11 km (based on the satellite data).
Evaluating trivalent chromium toxicity on wild terrestrial and wetland plants	Lukina, A. O.; Boutin, C.; Rowland, O.; Carpenter, D. J.	10.1016/j.chemosphere.2016.07.055	https://www.sciencedirect.com/science/article/pii/S004565351630950X	11/1/2016	EN	Mining	Elevated chromium levels in soil from mining can impact the environment, including plants. Mining of chromium is concentrated in South Africa, several Asian countries, and potentially in Northern Ontario, Canada, raising concerns since chromium toxicity to wild plants is poorly understood. In the first experiment, concentration-response tests were conducted to evaluate effects of chromium on terrestrial and wetland plants. Following established guidelines using artificial soil, seeds of 32 species were exposed to chromium (Cr3+) at concentrations simulating contamination (0–1000 mg kg–1). This study found that low levels of chromium (250 mg kg–1) adversely affected the germination of 22% of species (33% of all families), while higher levels (500 and 1000 mg kg–1) affected 69% and 94% of species, respectively, from 89% of the families. Secondly, effects on seedbanks were studied using soil collected in Northern Ontario and exposed to Cr3+ at equivalent concentrations (0–1000 mg kg–1). Effects were less severe in the seedbank study with significant differences only observed at 1000 mg kg–1. Seeds exposed to Cr3+ during stratification were greatly affected. Seed size was a contributing factor as was possibly the seed coat barrier. This study represents an initial step in understanding Cr3+ toxicity on wild plants and could form the basis for future risk assessments.
Evening Grosbeak (Species at Risk Webpage)	Committee on the Status of Species at Risk in Ontario		https://www.ontario.ca/page/evening-grosbeak	2017	EN / FR	Avifauna; Migratory birds; Public; Species at risk	Provide information on the status of the Evening Grosbeak (e.g., endangered or threatened), general life history and a place to direct the general public or Proponents for further information regarding the species (e.g., Recovery Strategies, Government Response Statements, etc.)
Evidence from the Historical Record to Support Projection of Future Wind Regimes: An Application to Canada	Cheng, C.S.	10.1080/07055900.2014.902803	https://doi.org/10.1080/07055900.2014.902803	2014	EN	Climate change	Cheng compares historical wind gust observations (>=50 and >=90 km/hr wind gusts) across Canada for the 1953-2009 time period to daily temperature and pressure anomalies to analyze changes in wind regimes under climate change. Cheng found that gust wind speed has increased with an increase in daily temperature anomaly and a decrease in daily pressure anomaly. - Article abstract: In the field of climate change impact analysis, bidirectional changes in projections of future wind regimes varying among studies, locations, and models have been described in the literature, which is understandable from a global perspective. However, we should attempt to find evidence in the historical record to support these projections. This paper attempts to address this issue by analyzing historical wind gust observations for up to 57 years (1953–2009) over Canada. Two wind gust analysis techniques were used: the speed of daily wind gust events >50 km h?1 was compared with (1) the climatological daily temperature anomaly and (2) the climatological daily sea level air pressure anomaly. In addition, the frequency of daily wind gust events >90 km h?1 was compared with both daily temperature and pressure anomalies. The results indicate that during the past five decades gust wind speed over Canada increased significantly as the daily temperature anomaly increased and the daily pressure anomaly decreased. About 50–60% of daily wind gust events >90 km h?1 occurred with positive daily temperature anomalies and negative daily pressure anomalies. One major conclusion is that the methods used in and results derived from this study might be applied to climate change impact analysis to support projections of future wind regimes.
Existing and planned infrastructure projects: Impacts and potential compatibility with the Canadian northern corridor	Munzur, A.	10.55016/ojs/spp.v15i1.72528	http://dx.doi.org/10.11575/spp.v15i1.72528	2022	EN	Economic development and livelihoods; Infrastructure	This paper reviews linear infrastructure projects in Canada's North and Near-North that could feasibly constitute a segment of the Canadian Northern Corridor (CNC). The CNC concept connects Canada's Atlantic, Pacific and Arctic coasts and Hudson Bay through a linear infrastructure corridor. In accordance with the aims and scope of the CNC, this assessment covers linear infrastructure modes like rail, road, pipeline, electrical transmission and communications infrastructure, and ports as supporting infrastructure and gateways to the rest of the world. The assessment reviews infrastructure projects in two categories: existing and planned. For each infrastructure project reviewed under these categories, geographical characteristics, compatibility with the CNC in terms of purpose and scope, and details about funding and regulatory processes are provided.
Existing caribou habitat and demographic models need improvement for Ring of Fire impact assessment: A roadmap for improving the usefulness, transparency, and availability of models for conservation	Dyson, Matt; Endicott, Sarah; Simpkins, Craig; Turner, Julie W.; Avery-Gomm, Stephanie; Johnson, Cheryl A.; Leblond, Mathieu; Neilson, Eric W.; Rempel, Rob; Wiebe, Philip A.; Baltzer, Jennifer L.; Stewart, Frances E. C.; Hughes, Josie	10.1101/2022.06.01.494350	https://www.biorxiv.org/content/10.1101/2022.06.01.494350v3	6/22/2022	EN	Cumulative effects; Species at risk; Wildlife and wildlife habitat	Environmental impact assessments often rely on best available information, which may include models that were not designed for purpose and are not accompanied by an assessment of limitations. We reproduced available models of boreal woodland caribou resource selection and demography and evaluated their suitability for projecting impacts of development in the Ring of Fire on boreal caribou in the Missisa range (Ontario, Canada). The specificity of the resource selection model limited usefulness for predicting impacts, and high variability in model coefficients among ranges suggests responses vary with habitat availability. The spatial demographic model projects decreasing survival and recruitment with increasing disturbance, but high variability among populations implies the importance of these impacts depends on population status, and there is no current status estimate. New models that are designed for forecasting, informed by more current herd status information and information from neighbouring ranges, are required to better inform decisions. To demonstrate how open-source tools and reproducible workflows can improve the transparency and reusability of models we developed an R package for data preparation, resource selection, and demographic calculations. Open-source tools, reproducible workflows, and reusable forecasting models can improve our collective ability to inform wildlife management decisions in a timely manner.
Existing Conditions Fact Sheet: Fish and Fish habitat	Marten Falls First Nation		https://www.martenfallsaccessroad.ca/wp-content/uploads/2023/10/Existing-Conditions_Fish-and-Fish-Habitat.pdf	2023	EN	Fish and fish habitat	Fact Sheet prepared by Marten Falls First Nation providing early existing condition information on Fish and Fish habitat. Includes information on benthic invertebrates, watercourse crossings, and fish presence.
Expanding the Praxis of Indigenous Rights: Alternatives to Colonial Relations in the Regional Land Use Planning Process of the Mushkegowuk Cree	Bowie, R.L.D.		https://yorkspace.library.yorku.ca/xmlui/handle/10315/34519	2018	EN	Cumulative effects; Physical and cultural heritage; Cultural vitality; Treaty rights; Natural law; Traditional processes for deliberation; Current use	This research examines the conflict between provincial and Indigenous land use planning approaches in northern Ontario that involve the traditional territories of the Mushkegowuk Cree.
Exposure, access, and inequities: Central themes, emerging trends, and key gaps in Canadian environmental justice literature	Giang, A.; Boyd, D.; Ono, A.; Mclroy-Young, B	https://doi.org/10.1111/cag.12754	https://onlinelibrary.wiley.com/doi/10.1111/cag.12754	2022	EN	Community safety; Community health; Social and economic	Environmental injustices—in the form of inequitable distribution of environmental risks and benefits, uneven access to decision-making processes, and misrecognition of communities—have been documented globally. However, in Canada, many have argued that the story of environmental injustice is less widely known, with more fragmented research that has produced little in terms of public policies intended to alleviate injustice. This paper uses a meta-narrative review approach to map the evolution of environmental justice research in Canada between 2006-2017, and characterize how central themes, emerging trends, and gaps in the literature have changed since the last review of this kind was completed. We conducted a systematic search of publications addressing environmental justice in Canada, yielding 820 publications. We coded abstracts to assess patterns of coverage across space, time, topics, and populations of focus. We find that Canadian environmental justice literature has continued to grow in quantity and scope, addressing more dimensions of environmental harms and benefits, and from an increasingly integrated perspective. However, there remain important and persistent gaps in its coverage. Future research that more fully addresses these geographic (e.g., Atlantic and Prairie regions), topical (e.g., focus on prevention), and recognition (e.g., racialization) gaps is needed to inform policy-making and promote justice.
Extreme Flow Statistics	Ontario Ministry of Natural Resources and Forestry		https://www.arcgis.com/home/item.html?id=a386dc33d0ba44308c3d8c436aaa0d8b	2/21/2025	EN / FR	Abitibi River; Hydrology; Kenogami River; Lower Albany River; Mattagami River; Moose River; Public; Upper Albany River; Water and river systems; Winisk River	This dataset represents estimates for single-station annual flood and low-flow frequency in the Southwestern Hudson Bay and the Nelson River watershed systems, calculated for the Water Survey of Canada's (WSC) database called HYDAT.

Far North Biodiversity Project	Ontario Biodiversity Council	https://sobr.ca/the-far-north-biodiversity-project/	2014	EN	Forests; Biodiversity; Cultural vitality; Current use; Water and river systems; Wildlife and wildlife habitat; Species at risk	This project aims to support Far North land use planning process by undertaking an inventory of the region's terrestrial diversity. At the broader scale, the project provides information on the occurrence and distribution of selected terrestrial biodiversity components (birds, mammals, reptiles and amphibians, invertebrates) across community planning areas. In addition, previously identified areas of high natural heritage value were targeted for site-specific sampling as these areas may be considered for some level of protection through land use planning exercises.
Far North Collaring Project Data	Ministry of Natural Resources and Forestry	Held by the Ministry of Natural Resources and Forestry	2014	EN	Not public; Wildlife and wildlife habitat	A data sharing agreement would be required with MNRF to obtain this data.
Far North Hydrology and Elevation Maps	Ministry of Natural Resources and Forestry	https://data.ontario.ca/dataset/far-north-hydrology-and-elevation-maps	11/2/2010	EN / FR	Water and river systems; Hydrology	These maps are available for the Far North Land Use Planning Area at 2 scales (1:100,000 and 1:250,000). The maps were created as a resource for community-based Land Use Planning in the Far North of Ontario.
Far North Information and Knowledge Management Plan Progress Report	Ministry of Natural Resources and Forestry	Held by Ministry of Natural Resources and Forestry	2019	EN	Not public; Physical and cultural heritage	This progress report provides an update on the MNRF's Far North Branch supported science and information projects undertaken between 2008 and 2018.
Far North Land Cover Data Specifications Version 1.4	Ministry of Natural Resources and Forestry	https://www.publicdocs.mnr.gov.on.ca/mirb/Far%20North%20Land%20Cover%20-%20Data%20Specification.pdf	2014-11	EN	Land cover	Data dictionary and data specifications for the Far North Land Cover Database
Far North Land Use Strategy: A Draft	Ministry of Natural Resources and Forestry	https://www.ossqa.com/multimedia/0/draft_far_north_strategy_2015_09_29.pdf	2015	EN	Biodiversity; Diverse economies and livelihoods; Economic development and livelihoods; Infrastructure; Land cover; Sustainability	Through the Far North Land Use Planning Initiative, Ontario is working jointly with First Nations to prepare community based land use plans to guide orderly development in the Far North while maintaining biodiversity, ecological systems and functions, and protecting ecological systems and natural heritage and cultural values.
Far North Planning Advisory Council: Consensus Advice to the Ontario Minister of Natural Resources	Far North Planning Advisory Council	https://wildlandleague.org/attachments/274245.pdf	2009-03	EN	Economic development and livelihoods; Forests; Indigenous Peoples; Physical and cultural heritage; Traditional processes for deliberation; Treaty rights	
Far North Riverine Ecological Assessment	Etheridge, D	N/A	2015	EN	Fish and fish habitat	Developing and implementing scientifically sound methodologies to assess and monitor the state of Far North aquatic ecosystems is of importance, and timely, given the emerging priorities associated with development in the Ring of Fire, community based land use planning and other economic development. The goal of this project is to build baseline knowledge of riverine ecosystems in the Far North and complement ongoing and future monitoring and research efforts in the area, while advancing community based interests, capacity for community based riverine monitoring and opportunities for knowledge sharing
Fawn River Indigenous Protected Area Ecological Atlas - Fish	Chetkiewicz, Cheryl; Farrell, Clair; O'Connor, Constance; Harris, Lorna; Southee, Meg	https://wcsringoffire.ca/wp-content/uploads/2022/07/KIAtlas-Fish.pdf	2022	EN	Fish and fish habitat	Report on the ecosystems of the Fawn River Indigenous Protection Area. Specifically focusing on fish and fish habitat.
Final Report and Recommendations of the Royal Commission on the Northern Environment	J.E.J. Fahlgren	https://archive.org/details/finalreponrenviron00onta/page/n3/mode/2up	1985	EN	Economic development and livelihoods; Forests; Indigenous Peoples; Mining; Treaty rights	
Finding Lichen for Caribou	Canada Centre for Remote Sensing; Natural Resources Canada; Four Rivers Environmental Services; Matawa First Nations Management	https://storymaps.arcgis.com/stories/2bb940b2d3bd4d94b5dea08169c12bf3	11/30/2022	EN / FR	Food security; Cultural vitality; Wildlife and wildlife habitat; Species at risk	
Fire Disturbance Area	Government of Ontario	https://geohub.lio.gov.on.ca/datasets/lio:fire-disturbance-area/about	2/21/2025	EN / FR	Land cover	A Fire Disturbance Area represents the mapped exterior perimeter of a forest fire. Mapping is derived from a variety of sources, such as GPS points and digitized paper maps. Prior to 1998, only fires greater than 200 hectares were mapped. Since 1998, fires greater than 40 hectares have been mapped. If adequate mapping exists for fires less than 40 hectares in size, they will be included in this data class.
First Mining Gold Springpole Gold Project: Project Description	First Mining Gold Corp.	https://iaac-aec.gc.ca/050/documents/p80149/121859E.pdf	2018	EN	Mining; Food security; Economic development and livelihoods; Physical and cultural heritage; Treaty rights; Current use; Water and river systems; Wildlife and wildlife habitat; Air quality; Geology; Hydrology; Avifauna; Species at risk; Fish and fish habitat; Indigenous Peoples; Infrastructure	Potential effects on Indigenous peoples, including effects on areas of cultural importance or specific uses. First Nation engagement included: Cat Lake, Slate Falls, and Métis Nation of Ontario.
First Nation Communities	Government of Canada; Indigenous Services Canada	https://open.canada.ca/data/en/dataset/b6567c5c-8339-4055-99fa-63f92114d9e4	9/26/2016	EN / FR	Indigenous Peoples	The First Nations geographic location dataset contains the geographic location of First Nations (groups and subgroups) in Canada as points as well as basic attributes data. The location identifies where the First Nations live. Each First Nation point represents its administrative office address as it is registered in Indigenous Services Canada (ISC) Band Governance Management System (BGMS).
First Nation Profiles	Government of Canada	https://fnp-ppn.aadnc-aandc.gc.ca/fnp/Main/index.aspx?lang=eng	11/14/2008	EN / FR	Housing and infrastructure; Economic development and livelihoods; Treaty rights; Social and economic; Indigenous Peoples	The First Nation Profiles is a collection of information that describes individual First Nation communities across Canada. The profiles include general information on a First Nation along with more detailed information about its reserve(s), governance, federal funding, geography, registered population statistics and various Census statistics.
First Nations Food, Nutrition and Environment Study, Summary of Findings and Recommendations for eight Assembly of First Nations regions 2008-2018	University of Ottawa; Université de Montréal; Assembly of First Nations	https://www.fnfnes.ca/docs/CRA/FNFNES_Report_Summary_Oct_20_2021_FINAL.pdf	2021	EN	Food security; Cultural vitality; Current use; Indigenous Peoples	Comprehensive study to address gaps in knowledge about diet, traditional food and environmental contaminants to First Nations. Participating First Nation communities include: Kitchenuhmaykoosib Inninuwug, Webequie, Marten Falls, Fort Albany, and Attawapiskat.
First results using light level geolocators to track Red Knots in the Western Hemisphere show rapid and long intercontinental flights and new details of migration pathways	Niles, L.J.; Burger, J.; Porter, R.R.; Dey, A.D.; Minton, C.D.T.; Gonzalez, P.M.; Baker, A.J.; Fox, J.W.; Gordon, C	https://www.waderstudygroup.org/article/2213/	2010	EN	Avifauna; Migratory birds; Public; Species at risk	Geolocators affixed to Darvic leg flags were attached to the tibia of 47 Red Knots <i>Calidris canutus rufa</i> during the 2009 spring migratory stopover in Delaware Bay, New Jersey, United States. We found no difference between the behavior of birds with and without geolocators in the weeks after release and saw a greater proportion of birds with geolocators than those with inscribed leg-flags a year after release. There were no significant differences in the resighting rate in Delaware Bay in the year of attachment or in places other than Delaware Bay during the ensuing twelve months. Three individuals were re-captured in May 2010 in Delaware Bay. All three birds flew to the Arctic, only one apparently bred, and all three wintered in South America. The longest roundtrip flight was 26,700 km, which included an 8,000 km, 6-day flight from southern Brazil to the coast of North Carolina. All three wintered away from the main sites thought to be used by the subspecies. Two birds appeared to detour around weather systems. These results suggest that geolocators are likely to afford valuable new insights to our understanding of Red Knot migration strategies as well as their breeding and wintering locations, and underpin their conservation.
Fish Activity Area	Ministry of Natural Resources and Forestry	https://geohub.lio.gov.on.ca/datasets/lio:fish-activity-area/about	6/25/2021	EN / FR	Fish and fish habitat; Public	The fish activity area data represents the consolidation of two fish data classes collected by the Ministry of Natural Resources and Forestry. The data estimates locations used by fish for activities such as spawning and nursing young. Locations are represented as polygons. They may be related to a specific species or described more generally.

<p>Fish and aquatic sampling activities in the Hudson Bay Lowlands Ecozone of the Far North of Ontario: 2008-2018</p>	<p>Patterson, K; Johnston, T; Keller, Bill</p>	<p>https://www.researchgate.net/publication/347472931_Fish_and_aquatic_sampling_activities_in_the_Hudson_Bay_Lowlands_Ecozone_of_the_Far_North_of_Ontario_2008-2018</p>	<p>2020</p>	<p>EN</p>	<p>Attawapiskat River; Fish and fish habitat</p>	<p>Aquatic ecosystems of the Hudson Bay Lowlands Ecozone (HBLE) in Ontario are relatively pristine but face growing pressure from human-caused stressors. Lakes and rivers of this region are also among the most poorly studied in Ontario. In recent years, fish research and monitoring activities in HBLE waters have increased, with the intent of building knowledge of the basic biology and ecology of fish populations, determining baseline environmental conditions ahead of further human-caused disturbances, understanding the factors that influence the mercury cycle, and updating and refining food quality information for commonly harvested fishes. Summarized here are results of research from projects conducted from 2008 to 2018 on 23 lakes, 15 coastal rivers (flowing into Hudson and James bays), and 20 small inland streams in the HBLE. Apart from a few deeper lakes in the Sutton Ridges region, lakes of the HBLE are generally shallow, well-mixed, and have uniform temperature profiles and low water clarity. Most sampled lakes and the larger rivers are mesotrophic (moderate productivity) and support coolwater fish communities, with the large rivers containing a greater diversity of large-bodied benthivorous (bottom feeding) fishes. Among the large-bodied fishes, northern pike (<i>Esox lucius</i>), lake sturgeon (<i>Acipenser fulvescens</i>), and brook trout (<i>Salvelinus fontinalis</i>) grew the fastest. Benthivore growth rates were slightly lower in rivers than in lakes, but this trend was reversed for piscivores (fish eating species). The most pronounced difference was in northern pike, which grew on average 80% faster in large rivers than in lakes. Stable carbon (C), nitrogen (N), and sulphur (S) isotope analyses of fish and other biota were used to interpret food web structure and habitat use. In the Attawapiskat River drainage basin, the most intensively sampled area, food web structure in C-N isotopic space was similar between the lower reach of the main-stem river and upstream lakes, except that lake whitefish (<i>Coregonus clupeaformis</i>) and cisco (<i>Coregonus artedii</i>) had elevated $\delta^{13}C$ and $\delta^{15}N$ in the river site, indicative of feeding in marine habitats. Anadromous behaviour (migration between freshwater and marine habitats) in riverine populations of these 2 species was also inferred from concurrent analysis of the microchemistry of otoliths (small bones from inner ear). Muscle $\delta^{34}S$ in all sampled fishes increased moving downstream in the Attawapiskat River across the HBLE. Among lower reaches of coastal rivers, fish $\delta^{34}S$ varied considerably but was higher in those species assumed to be anadromous (brook trout and lake whitefish) than in those assumed to be non-anadromous (northern pike). Muscle total mercury concentrations for fish of the HBLE did not differ markedly from those reported for fish from other waters of northern Ontario. Among fish species sampled from the HBLE, muscle mercury concentration was highest in walleye for both lakes and rivers; on average, walleye muscle mercury concentration was more than double that in northern pike at a standard size of 1000 g. In large-bodied fishes of coastal rivers, muscle mercury concentration has remained stable over the past 30-35 years for most species but has declined significantly for walleye. Fish mercury concentration was slightly higher in large rivers than in lakes of the HBLE, a trend that was most pronounced in benthivores. Fish species of large rivers also varied in concentrations of other metals. Muscle concentrations of arsenic, selenium, and chromium were higher in the benthivore lake whitefish than in the piscivore northern pike. The nutritional value of fish from the coastal rivers was also evaluated for fillet lipid content and composition. Fillet concentrations of 2 nutritionally significant polyunsaturated fatty acids, docosahexaenoic acid (DHA) and eicosapentaenoic acid (EPA), varied considerably among species and populations in the HBLE, but were generally higher than those reported from Great Lakes fish populations. From a food quality perspective, the assumed anadromous species — brook trout, lake whitefish, and cisco — had the best combination of high EPA+DHA content and low mercury concentration. We recommend that future fish research and monitoring in the HBLE expand to include representative lakes from all major drainage basins and more sites along the major rivers. Further research is needed to determine seasonal movements and habitat use of fishes in large river systems. Research efforts should be directed towards generating baseline data needed to detect environmental change and refining fish consumption guidelines using a risk-benefit framework.</p>
<p>Fish and fish habitat protection policy statement, August 2019</p>	<p>Government of Canada, Fisheries and Oceans Canada</p>	<p>https://www.dfo-mpo.gc.ca/onw-ppe/policy-politique-eng.html</p>	<p>8/29/2019</p>	<p>EN</p>	<p>Fish and fish habitat</p>	<p>Fish and fish habitat protection policy statement, August 2019</p>
<p>Fish ON-Line</p>	<p>Ontario Ministry of Natural Resources</p>	<p>https://www.ltoapplications.trc.gov.on.ca/fishonline/Index.html?viewer=FishONLine.FishONLine&locate=en-CA&extent=10903918.692811137%252C5100929.59061221%252C-7694786.497287149%252C7143326.986391578&layers=0v8HO%2F1aoGj06F3%2F10OzgHB386Jhu07luV02%2Fim9F30AsIE</p>	<p>2024</p>	<p>EN / FR</p>	<p>Fish and fish habitat; Public</p>	<p>This is a summary of information dealing with fishing licences and fishing laws. This summary is neither a legal document nor a complete collection of the current regulations. It is meant to be a convenient reference only.</p>
<p>Fisheries and Oceans Canada Species at Risk Distribution (Range)</p>	<p>Fisheries and Oceans Canada</p>	<p>https://open.canada.ca/data/en/dataset/e0fabad5-9379-4077-87b9-5705f28c490b</p>	<p>7/25/2017</p>	<p>EN / FR</p>	<p>Fish and fish habitat; Species at risk</p>	<p>This spatial database has been developed to identify areas in which aquatic species listed under SARA may be found. Distribution and range information are identified for species listed as Endangered, Threatened or Special Concern under the Species at Risk Act.</p>
<p>Fishing Beteau Lake & the magical Attawapiskat River</p>	<p>Gillis, Rob</p>	<p>https://northernontario.travel/superior-country/fishing-beteau-lake-and-attawapiskat-river</p>	<p>2023</p>	<p>EN</p>	<p>Attawapiskat River; Water and river systems; Fish and fish habitat</p>	<p>Article written by Mr. Gillis outlining a trip he took.</p>
<p>Flight Times and Abundance of Three Shorebird Species Staging near Chickney Channel, James Bay, Ontario, Summer 2012</p>	<p>Friis, C; Burrell, K.G; Mackenzie, S.</p>	<p>https://www.researchgate.net/profile/Christian-Friis-2/publication/314246115_Flight_times_and_abundance_of_three_shorebird_species_staging_near_Chickney_Channel_James_Bay_Ontario_summer_2012/links/58bdcb78aca27261e52e95ba/Flight-times-and-abundance-of-three-shorebird-species-staging-near-Chickney-Channel-James-Bay-Ontario-summer-2012.pdf</p>	<p>2013</p>	<p>EN</p>	<p>Migratory birds; Avifauna</p>	<p>The goal of this project was to understand population trends of shorebird species staging along the south-western James Bay coast, to understand movement patterns and causes, and to identify important shorebird staging habitat. Daily shorebird surveys were conducted between July 15 and August 15 2012, which focused on 3 species: dunlins, White-rumped Sandpiper and Seim-palmated sandpipers. The foraging activity and location of these species were affected by tide levels. Foraging behaviour differs by prey species.</p>
<p>Flooding in the James Bay region of Northern Ontario, Canada: Learning from traditional knowledge of Kashechewan First Nation</p>	<p>Khalafzai, Muhammad-Arshad K; McGee, Tara K; Partee, Brenda</p>	<p>https://www.sciencedirect.com/science/article/pii/S2212420918306988</p>	<p>2019</p>	<p>EN</p>	<p>Community safety; Housing and infrastructure; Education; Community health; Inter and intra generational values; Water and river systems; Indigenous Peoples</p>	<p>Traditional Knowledge has the potential to increase our understanding of many kinds of ecological phenomenon including floods. This article offers insights into the nature of spring flooding and its impacts in the southwestern James Bay region of northern Ontario, Canada from the perspectives of residents of Kashechewan First Nation. This article highlights the important contribution of Kashechewan First Nation's traditional knowledge to understanding and reducing disaster risks in this flood-prone region. Through a collaboration with Kashechewan First Nation, traditional knowledge was documented in 2016 during 17 in-depth interviews, participatory flood mapping workshops, on-site walks, and photography. The results of this study show that spring flooding has occurred seasonally over many generations in the region and has not increased significantly over time. However, the timing and extent of spring flooding has changed in recent years with warming temperatures in the region (i.e., earlier spring, snowmelt, and rapid runoff) and impacts are exacerbated by landscape and resource developments (e.g., inadequate infrastructure, substandard ring-shaped dyke wall, and downriver winter ice road) which have increased the frequency and scale of spring ice breakup and ice jams. These ecological changes have created the increased risk of flooding for the community of Kashechewan. The methodological approach which used participatory techniques may be useful for ongoing flood monitoring and disaster risk reduction activities in southwestern James Bay and elsewhere among the Canadian Indigenous communities.</p>
<p>Flyway-scale GPS tracking reveals migratory routes and key stopover and non-breeding locations of lesser yellowlegs</p>	<p>McDuffie, Laura A.; Christie, Katherine S.; Taylor, Audrey R.; Nol, Erica; Friis, Christian; Harwood, Christopher M.; Rausch, Jennie; Laliberte, Benoit; Gesmundo, Callie; Wright, James R.; Johnson, James A.</p>	<p>https://onlinelibrary.wiley.com/doi/abs/10.1002/ece3.9495</p>	<p>2022</p>	<p>EN</p>	<p>Avifauna; Migratory birds; Species at risk; Wildlife and wildlife habitat</p>	<p>Many populations of long-distance migrant shorebirds are declining rapidly. Since the 1970s, the lesser yellowlegs (<i>Tringa flavipes</i>) has experienced a pronounced reduction in abundance of 63%. The potential causes of the species' decline are complex and interrelated. Understanding the timing of migration, seasonal routes, and important stopover and non-breeding locations used by this species will aid in directing conservation planning to address potential threats. During 2018-2022, we tracked 118 adult lesser yellowlegs using GPS satellite tags deployed on birds from five breeding and two migratory stopover locations spanning the boreal forest of North America from Alaska to Eastern Canada. Our objectives were to identify migratory routes, quantify migratory connectivity, and describe key stopover and non-breeding locations. We also evaluated predictors of southbound migratory departure date and migration distance. Individuals tagged in Alaska and Central Canada followed similar southbound migratory routes, stopping to refuel in the Prairie Pothole Region of North America, whereas birds tagged in Eastern Canada completed multi-day transoceanic flights covering distances of >4000 km across the Atlantic between North and South America. Upon reaching their non-breeding locations, lesser yellowlegs populations overlapped, resulting in weak migratory connectivity. Sex and population origin were significantly associated with the timing of migratory departure from breeding locations, and body mass at the time of GPS-tag deployment was the best predictor of southbound migratory distance. Our findings suggest that lesser yellowlegs travel long distances and traverse numerous political boundaries each year, and breeding location likely has the greatest influence on migratory routes and therefore the threats birds experience during migration. Further, the species' dependence on wetlands in agricultural landscapes during migration and the non-breeding period may make them vulnerable to threats related to agricultural practices, such as pesticide exposure.</p>

Foodways in a Muskeg Community	Honigmann, John J.	https://publications.gc.ca/collections/collection_2017/aanc-inac/R42-3-1962-1-eng.pdf	1948	EN	Food security; Indigenous Peoples; Peatlands; Physical and cultural heritage	Anthropological fieldwork among the Attawapiskat First Nation living on the west coast of James Bay, Ontario was carried out from July 1947 to June 1948. Attawapiskat traditional hunting grounds covered the Study Area.
Forest and terrestrial ecosystem impacts of mining	Frellich, Lee E.	frellich_2014_-_report_september_22_2014.pdf	2014	EN	Mining; Forests	The purpose of this document is to point out potential impacts to terrestrial ecosystems that could occur due to copper-nickel exploration and mining in the primary and secondary footprints in the Quetico-Superior Ecosystem, and in particular, impacts likely to affect the Boundary Waters Canoe Area Wilderness.
Forest Fire Effects on Air Quality in Ontario - Evaluation of Several Recent Examples	Dempsey, Frank	https://journals.ametsoc.org/view/journals/bams/94/7/bams-d-11-00202.1.xml	2013		Forests; Air quality	Several events were studied to examine the sources of smoke and pollutants that may affect air quality in Ontario as well as the transport mechanisms that result in effects on ground-level air quality. The selected events were strongly suspected of being influenced by forest fire smoke plumes and the evaluation of the events in this study confirmed (to a high degree of confidence) that smoke made a contribution to the measured pollutants. The main satellite-based remote-sensing product that correlated well with wildfire smoke plumes was carbon monoxide column amount.
Forest Insect Damage Event	Government of Ontario	https://geohub.lio.gov.on.ca/documents/308957e79fce445fa74997c4cf501437/about	1/11/2020	EN / FR	Forests	Shows areas where forest insect pests have damaged or killed trees by defoliation, foliage mining and wood boring.
Forest Resource Inventory	Ministry of Natural Resources and Forestry Science and Research Branch	Held by Ministry of Natural Resources	2007	EN	Forests	The extent of FRI coverage within the Far North spans the southern portion, with high resolution airborne imagery already flown, and in some areas interpreted (e.g., Cat Lake-Slate Falls and Constance Lake areas) (see Figure 27). Complementing this imagery are plots such as FRI Calibration Plots (a temporary snapshot in time), Permanent Forest Inventory Ground Plots and Permanent Forest Inventory Photo Plots that provide a benchmark for assessing and reporting resource conditions
Formation of mineral-associated organic matter in temperate soils is primarily controlled by mineral type and modified by land use and management intensity	Bramble, D. E.; Ulrich, S.; Schoning, I.; Mikutta, R.; Brandt, L.; Poll, C.; Kandeler, E.; Mikutta, C.; Konrad, A.; Siemens, J.; Yang, Y.; Polle, A.; Schall, P.; Ammer, C.; Kaiser, K.; Schrumpf, M.	https://doi.org/10.1111/gcb.17024 https://onlinelibrary.wiley.com/doi/10.1111/gcb.17024	11/20/2023	EN	Forests; Climate change	Formation of mineral-associated organic matter (MAOM) supports the accumulation and stabilization of carbon (C) in soil, and thus, is a key factor in the global C cycle. Little is known about the interplay of mineral type, land use and management intensity in MAOM formation, especially on subdecadal time scales. We exposed mineral containers with goethite or illite, the most abundant iron oxide and phyllosilicate clay in temperate soils, for 5 years in topsoils of 150 forest and 150 grassland sites in three regions across Germany. Results show that irrespective of land use and management intensity, more C accumulated on goethite than illite (on average 0.23 ± 0.10 and 0.06 ± 0.03 mg m ⁻² mineral surface respectively). Carbon accumulation across regions was consistently higher in coniferous forests than in deciduous forests and grasslands. Structural equation models further showed that thinning and harvesting reduced MAOM formation in forests. Formation of MAOM in grasslands was not affected by grazing. Fertilization had opposite effects on MAOM formation, with the positive effect being mediated by enhanced plant productivity and the negative effect by reduced plant species richness. This highlights the caveat of applying fertilizers as a strategy to increase soil C stocks in temperate grasslands. Overall, we demonstrate that the rate and amount of MAOM formation in soil is primarily driven by mineral type, and can be modulated by land use and management intensity even on subdecadal time scales. Our results suggest that temperate soils dominated by oxides have a higher capacity to accumulate and store C than those dominated by phyllosilicate clays, even under circumneutral pH conditions. Therefore, adopting land use and management practices that increase C inputs into oxide-rich soils that are under their capacity to store C may offer great potential to enhance near-term soil C sequestration.
Fort Hope Area High Density Regional Lake Sediment Geochemical Survey, Northwestern Ontario	Ontario Geological Survey	https://geochem.nrcan.gc.ca/cdags/content/svy/svy160059_e.htm	2001	EN	Water and river systems	In August 2000, a high-density lake sediment and water quality survey was carried out in the Fort Hope area, northwestern Ontario as part of Operation Treasure Hunt. A total of 3811 lake sites were visited and 3694 lake sediment samples were collected. The data are published in Ontario Geological Survey Open File Report OFR6071 and Miscellaneous Release-Data, MRD089.
Freshwater conservation planning in the far north of Ontario, Canada: identifying priority watersheds for the conservation of fish biodiversity in an intact boreal landscape	Southee, F.M.; Edwards, B.A.; Chetkiewicz, C.L.B.; O'Connor, C.M.	https://doi.org/10.1139/facets-2020-0015 https://www.sciencedirect.com/org/science/article/pii/S2371167121000491	2020	EN	Biodiversity; Water and river systems; Species at risk; Fish and fish habitat	Freshwater ecosystems show more biodiversity loss than terrestrial or marine systems. We present a systematic conservation planning analysis in the Arctic Ocean drainage basin in Ontario, Canada, to identify key watersheds for the conservation of 30 native freshwater fish, including four focal species: lake sturgeon, lake whitefish, brook trout, and walleye. We created species distribution models for 30 native fish species and accounted for anthropogenic impacts. We used the "prioritize" package in R to select watersheds that maximize species targets, minimize impacts, and meet area-based targets based on the Convention on Biological Diversity commitment to protect 17% of terrestrial and freshwater areas by 2020 and the proposed target to protect 30% by 2030. We found that, on average, 17.4% and 29.8% of predicted species distributions were represented for each of the 30 species in the 17% and 30% area-based solutions, respectively. The outcomes were more efficient when we prioritized for individual species, particularly brook trout, where 24% and 36% of its predicted distribution was represented in the 17% and 30% solutions, respectively. Future conservation planning should consider climate change, culturally significant species and areas, and the importance of First Nations as guardians and stewards of the land in northern Ontario.
Freshwater fish in Ontario's boreal: Status, conservation, and potential impacts of development	Browne, D.R	https://www.researchgate.net/publication/273684406_Freshwater_fish_in_Ontario%27s_boreal_Status_conservation_and_potential_impacts_of_development	2007	EN	Fish and fish habitat	This WCS Canada report presents information on the fish species of Northern Ontario's boreal region with a particular focus on those of high economic or cultural importance. The effects of various types of resource development activities on freshwater environments and fish are reviewed and recommendations are made for policy and research to enhance freshwater fish conservation and management in the region.
Fur Trade Canoe Routes of Canada/Then and Now	Morse, Eric W.	http://parkscanadahistory.com/publications/fur-trade-canoe-routes.pdf	1969	EN	Lower Albany River; Physical and cultural heritage; Upper Albany River	Overview of main waterways of the Canadian fur trade. Morse includes Albany River as a main waterway, south of the Study Area.
Future changes of temperature and heat waves in Ontario, Canada	Li, Z; Huang, G; Huang, W; Lin, Q; Liao, R; Fan, Y	10.1007/s00704-017-2123-8 https://doi.org/10.1007/s00704-017-2123-8	2018	EN	Climate change; Scenario development	Apparent changes in the temperature patterns in recent years brought many challenges to the province of Ontario, Canada. As the need for adapting to climate change challenges increases, the development of reliable climate projections becomes a crucial task. In this study, a regional climate modeling system, Providing Regional Climates for Impacts Studies (PRECIS), is used to simulate the temperature patterns in Ontario. Three PRECIS runs with a resolution of 25 km × 25 km are carried out to simulate the present (1961–1990) temperature variations. There is a good match between the simulated and observed data, which validates the performance of PRECIS in reproducing temperature changes in Ontario. Future changes of daily maximum, mean, and minimum temperatures during the period 2071–2100 are then projected under the IPCC SRES A2 and B2 emission scenarios using PRECIS. Spatial variations of annual mean temperature, mean diurnal range, and temperature seasonality are generated. Furthermore, heat waves defined based on the exceedance of local climatology and their temporal and spatial characteristics are analyzed. The results indicate that the highest temperature and the most intensive heat waves are most likely to occur at the Toronto-Windsor corridor in Southern Ontario. The Northern Ontario, in spite of the relatively low projected temperature, would be under the risk of long-lasting heat waves, and thus needs effective measures to enhance its climate resilience in the future. This study can assist the decision makers in better understanding the future temperature changes in Ontario and provide decision support for mitigating heat-related loss.
Future wildfire extent and frequency determined by the longest fire-conductive weather spell	Wang, X; Swystun, T; Flannigan, M. D.	10.1016/j.scitotenv.2022.154752 http://dx.doi.org/10.1016/j.scitotenv.2022.154752	2022	EN	Climate change	Great efforts have been made to understand the impacts of a changing climate on fire activity; however, a reliable approach with high prediction confidence has yet to be found. By establishing linkages between the longest duration of fire-conductive weather spell and fire activity parameters, this study projected annual area burned (AAB), annual number of fires (ANF), and annual maximum fire size (MFS) into the future. We found that even though the rates of change differ, the spatial pattern of changes for all three parameters are similar by Canadian ecozone. Areas with the lowest fire activity may see higher rates of change in comparison to high fire activity areas. By end of the century, the changes of AAB and MFS for the study area are projected to be about four and five times that of the baseline respectively, while ANF could almost double.
Gender, Diversity and Inclusion Statistics Hub	Government of Canada; Statistics Canada	https://www.statcan.gc.ca/hub-carrefour/gdis-sgdi/index-eng.htm	9/17/2018	EN / FR	Community safety; Family, youth, and children; Community health; Social and economic	The Hub enables data users to more easily find disaggregated and intersectional data, analytical products and insights. Statistics Canada has compiled data on each of the indicators of the Gender Results Framework as well as other key indicators related to gender. Dashboards are available for Education and skills development, Economic participation and prosperity, Leadership and democratic participation, Gender-based violence and access to justice, Poverty reduction, health and well-being and other Statistics Canada gender indicators, allowing users to view and interact with relevant data.
General Habitat Description for the Forest-dwelling Woodland Caribou	Ministry of the Environment, Conservation and Parks	https://www.ontario.ca/page/general-habitat-description-forest-dwelling-woodland-caribou	7/9/2021	EN / FR	Forests; Wildlife and wildlife habitat; Species at risk	A technical, science-based description of the area of habitat protected for the Forest-dwelling Woodland Caribou.

Getting it Right in Ontario's Far North: The Need for a Regional Strategic Environmental Assessment in the Ring of Fire	Chetkiewicz, Chery; Lintner, Anastasia M.	https://ecojustice.ca/wp-content/uploads/2022/12/Getting-it-Right-in-Ontarios-Far-North.pdf	2014	EN	Cumulative effects; Indigenous Peoples; Peatlands; Species at risk; Treaty rights	Ontario's Far North harbours world-class ecosystems, including the largest wetlands in North America. The Government of Ontario has made a commitment to protect over half of this region, but will face challenges in balancing this goal with developing world-class mineral deposits, particularly in the Ring of Fire. These developments would bring both benefits and risks to remote First Nations communities and the region, and the roads needed for the developments would bisect the largest intact boreal forest left in the world. Regional Strategic Environmental Assessment, or R-SEA, is a tool with extensive international practice that could provide solutions in Ontario's Far North. This working paper is a collaboration between WCS Canada and Ecojustice, and outlines how current laws result in poorly coordinated planning and introduces R-SEA and how it can be implemented in the Far North.
Ginoogaming First Nation Social Impact Assessment	Beringia Community Planning Inc.	https://iaac-aeic.gc.ca/050/documents/p80068/119998E.pdf	2015	EN	Housing and infrastructure; Food security; Economic development and livelihoods; Community health; Cultural vitality; Treaty rights; Social and economic; Wildlife and wildlife habitat; Fish and fish habitat; Indigenous Peoples	Ginoogaming First Nation was facing new resource development projects in its traditional territories, with the potential for significant impacts on the Nation and their land. A Social Impact Assessment was conducted with one of the goals focusing on the increase in community empowerment to advance community well-being, and identify specific concerns of the community and their thoughts around addressing them. One major concern of the community is the potential for increased drug and alcohol abuse. Greater mobility (workers traveling in and out of the region) could increase access to substances, and therefore lead to a further deterioration in health and well-being.
Global and Regional Trends and Drivers of Fire Under Climate Change	Jones, M.W.; Abatzoglou, J.T.; Veraverbeke, S; Andela, N; Lasslop, G; Forkel, M; Smith, A.J.P.; Burton, C; Betts, R.A.; van der Werf, G.R.; Sitch, S; Canadell, J.S.; Santin, C; Kolden, C; Doerr, S.H.; Le Quééré, C.	10.1029/2020RG000726 https://doi.org/10.1029/2020RG000726	2022	EN	Forests; Climate change	Recent wildfire outbreaks around the world have prompted concern that climate change is increasing fire incidence, threatening human livelihood and biodiversity, and perpetuating climate change. Here, we review current understanding of the impacts of climate change on fire weather (weather conditions conducive to the ignition and spread of wildfires) and the consequences for regional fire activity as mediated by a range of other bioclimatic factors (including vegetation biogeography, productivity and lightning) and human factors (including ignition, suppression, and land use). Through supplemental analyses, we present a stocktake of regional trends in fire weather and burned area (BA) during recent decades, and we examine how fire activity relates to its bioclimatic and human drivers. Fire weather controls the annual timing of fires in most world regions and also drives inter-annual variability in BA in the Mediterranean, the Pacific US and high latitude forests. Increases in the frequency and extremity of fire weather have been globally pervasive due to climate change during 1979–2019, meaning that landscapes are primed to burn more frequently. Correspondingly, increases in BA of 750% or higher have been seen in some extratropical forest ecoregions including in the Pacific US and high-latitude forests during 2001–2019, though interannual variability remains large in these regions. Nonetheless, other bioclimatic and human factors can override the relationship between BA and fire weather. For example, BA in savannahs relates more strongly to patterns of fuel production or to the fragmentation of naturally fire-prone landscapes by agriculture. Similarly, BA trends in tropical forests relate more strongly to deforestation rates and forest degradation than to changing fire weather. Overall, BA has reduced by 27% globally in the past two decades, due in large part to a decline in BA in African savannahs. According to climate models, the prevalence and extremity of fire weather has already emerged beyond its pre-industrial variability in the Mediterranean due to climate change, and emergence will become increasingly widespread at additional levels of warming. Moreover, several of the major wildfires experienced in recent years, including the Australian bushfires of 2019/2020, have occurred amidst fire weather conditions that were considerably more likely due to climate change. Current fire models incompletely reproduce the observed spatial patterns of BA based on their existing representations of the relationships between fire and its bioclimatic and human controls, and historical trends in BA also vary considerably across models. Advances in the observation of fire and understanding of its controlling factors are supporting the addition or optimization of a range of processes in models. Overall, climate change is exerting a pervasive upwards pressure on fire globally by increasing the frequency and intensity of fire weather, and this upwards pressure will escalate with each increment of global warming. Improvements to fire models and a better understanding of the interactions between climate, climate extremes, humans and fire are required to predict future fire activity and to mitigate against its consequences.
Global declines of caribou and reindeer	Vors, Liv Solveig; Boyce, Mark Stephen	10.1111/j.1365-2486.2009.01974.x https://onlinelibrary.wiley.com/doi/abs/10.1111/j.1365-2486.2009.01974.x	2009	EN	Climate change; Public; Species at risk; Wildlife and wildlife habitat	Caribou and reindeer herds are declining across their circumpolar range, coincident with increasing arctic temperatures and precipitation, and anthropogenic landscape change. Here, we examine the mechanisms by which climate warming and anthropogenic landscape change influence caribou and reindeer population dynamics, namely changes in phenology, spatiotemporal changes in species overlap, and increased frequency of extreme weather events, and demonstrate that many caribou and reindeer herds show demographic signals consistent with these changes. While many caribou and reindeer populations historically fluctuated, the current, synchronous population declines emphasize the species' vulnerability to global change. Loss of caribou and reindeer will have significant, negative socioeconomic consequences for northern indigenous cultures.
Golden Eagle (Species at risk webpage)	Committee on the Status of Species at Risk in Ontario	https://www.ontario.ca/page/golden-eagle	2022	EN / FR	Avifauna; Migratory birds; Public; Species at risk	Provide information on the status of the Golden eagle (e.g., endangered or threatened), general life history and a place to direct the general public or Proponents for further information regarding the species (e.g., Recovery Strategies, Government Response Statements, etc.)
Greenhouse Gas Reporting Program (GHGRP) - Facility Greenhouse Gas (GHG) Data	Environment and Climate Change Canada	https://open.canada.ca/data/en/dataset/a8ba14b7-7123-462a-bdbb-83b0ef629823	2023	EN / FR	Climate change; Air quality	The Greenhouse Gas Reporting Program (GHGRP) collects information on greenhouse gas (GHG) emissions annually from facilities across Canada. It is a mandatory program for those who meet the requirements. Facilities that emit 10 kilotonnes or more of GHGs, in carbon dioxide (CO ₂) equivalent (eq.) units, per year must report their emissions to Environment and Climate Change Canada. Emissions data are available by gas (in tonnes and tonnes of CO ₂ eq.) for each facility and each year of data collected (2004-Present). The GHGs included are: carbon dioxide (CO ₂), methane (CH ₄), nitrous oxide (N ₂ O), hydrofluorocarbons (HFC), perfluorocarbons (PFC) and sulphur hexafluoride (SF ₆).
Guidance for evaluating human health effects in impact assessment: air quality	Health Canada	https://publications.gc.ca/collections/collection_2024/sc-hc/H129-54-1-2023-eng.pdf	2023-12	EN / FR	Community health; Air quality	This document provides generic guidance on assessing potential human health risks of air quality in federal impact assessments (IAs) of proposed major resource and infrastructure projects in Canada (such as mines, dams, pipelines and other projects). It presents the principles, current practices and basic information Health Canada looks for when it reviews the impact statement or other documentation submitted by project proponents as part of the IA process.
Guidance for evaluating human health effects in impact assessment: country foods	Health Canada	https://publications.gc.ca/collections/collection_2024/sc-hc/H129-54-5-2023-eng.pdf	2023-12	EN / FR	Food security; Community health; Physical and cultural heritage; Cultural vitality; Current use	This document provides generic guidance on assessing potential human health risks associated with contaminants affecting country foods (also known as traditional foods), such as fruit, fish, seafood and game in federal impact assessments (IAs) of proposed major resource and infrastructure projects in Canada (such as mines, dams, pipelines and other projects). It presents the principles, current practices and basic information Health Canada looks for when it reviews the impact statement or other documentation submitted by project proponents as part of the IA process.
Guidance for evaluating human health effects in impact assessment: drinking and recreational water quality	Health Canada	https://publications.gc.ca/collections/collection_2024/sc-hc/H129-54-2-2023-eng.pdf	2023-12	EN / FR	Community health; Cultural vitality; Water and river systems	This document provides generic guidance on assessing potential human health risks of water quality in federal impact assessments (IAs) of proposed major resource and infrastructure projects in Canada (such as mines, dams, pipelines and other projects). It presents the principles, current practices and basic information Health Canada looks for when it reviews the impact statement or other documentation submitted by project proponents as part of the IA process.
Guidance for evaluating human health effects in impact assessment: human health risk assessment	Health Canada	https://publications.gc.ca/collections/collection_2024/sc-hc/H129-54-6-2023-eng.pdf	2023-12	EN / FR	Community health	This document provides generic guidance on the need for conducting a human health risk assessment (HHRA) in federal impact assessments (IAs) of proposed major resource and infrastructure projects in Canada (such as mines, dams, pipelines and other projects). It presents the principles, current practices and basic information Health Canada looks for when it reviews the impact statement or other documentation submitted by project proponents as part of the IA process.
Guidance for evaluating human health effects in impact assessment: noise	Health Canada	https://publications.gc.ca/collections/collection_2024/sc-hc/H129-54-3-2023-eng.pdf	2023	EN / FR	Community health	This document provides generic guidance on assessing potential human health risks related to levels and/or types of sound predicted in federal impact assessments (IAs) of proposed major resource and infrastructure projects in Canada (such as mines, dams, pipelines and other projects). It presents the principles, current practices and basic information Health Canada looks for when it reviews the impact statement or other documentation submitted by project proponents as part of the IA process.
Guidance for evaluating human health effects in impact assessment: radiological impacts	Health Canada	https://publications.gc.ca/collections/collection_2024/sc-hc/H129-54-4-2023-eng.pdf	2023	EN / FR	Community health	This document provides generic guidance on assessing potential human health risks of ionizing radiation in federal impact assessments (IAs) of proposed major resource and infrastructure projects in Canada (such as mines, dams, pipelines and other projects). It presents the principles, current practices and basic information Health Canada looks for when it reviews the impact statement or other documentation submitted by project proponents as part of the IA process.
Guidelines to avoid harm to migratory birds	Environment and Climate Change Canada	https://www.canada.ca/en/environment-climate-change/services/avoiding-harm-migratory-birds/reduce-risk-migratory-birds.html	7/26/2023	EN / FR	Migratory birds; Avifauna; Species at risk	Information on the risk your activities might pose to migratory birds, and guidelines to avoid causing harm to migratory birds, as well as to their nests when they are protected.

Hammond Reef Gold Project - Human Health and Ecological Risk Assessment Technical Support Document Version 1 - 3	Golder Associates Ltd.	https://www.ceaa-acee.gc.ca/050/evaluations/document/123029?culture=en-CA	2018	EN	Mining; Community health; Air quality	A human health and ecological risk assessment (HHERA) was conducted. No residual effects were identified for acute and chronic inhalation, multi-media and post-closure. Residual effects were identified for noise and particulate inhalation. The noise assessment identified residual effects of noise with the potential for increased risk of hypertension or sleep disturbance. It was recommended that best management practices be implemented to minimize activities that may generate noise (e.g., mine and materials handling, vehicle movement), in particular close to the property boundaries adjacent to identified receptor locations. It is also recommended that, to the extent possible, noise be minimized at night in these areas as well, to reduce the potential for sleep disturbance. The particulate assessment identified residual effects of increased risk of cardiopulmonary effects due to inhalation of PM10 at one area and increased cancer risk for trappers at two areas. The magnitude of effect for PM10 inhalation was considered to be low.
Hammond Reef Gold Project. ENVIRONMENTAL IMPACT STATEMENT / ENVIRONMENTAL ASSESSMENT REPORT	Golder Associates Ltd.	https://www.ceaa-acee.gc.ca/050/evaluations/document/123029?culture=en-CA	2018	EN	Mining; Cumulative effects; Community safety; Economic development and livelihoods; Community health; Cultural vitality; Treaty rights; Social and economic; Current use; Wildlife and wildlife habitat; Species at risk; Fish and fish habitat	
HARDROCK PROJECT Final Environmental Impact Statement / Environmental Assessment	Stantec Consulting Ltd.	https://iaac-aeic.gc.ca/050/evaluations/document/121124	2017	EN	Mining; Forests; Housing and infrastructure; Economic development and livelihoods; Community health; Physical and cultural heritage; Cultural vitality; Treaty rights; Social and economic; Current use; Water and river systems; Wildlife and wildlife habitat; Air quality; Hydrology; Avifauna; Fish and fish habitat; Indigenous Peoples; Infrastructure	This is the EIS/EA for an the Hardrock project - an open pit gold located in northwestern Ontario. Baseline information is included on vegetation communities (including wetlands) and wildlife (Chapter 2). Caribou are not included in this EIS, as caribou are not expected to occur in the Project Area. The effects of the project on vegetation/vegetation communities (including wetlands), and described in Chapter 12. Effects include the change in abundance of vegetation communities, change in function, connectivity and quality of vegetation communities, and change in abundance of plant species of interest. Effects are determined to be not significant.
HARDROCK PROJECT Final Environmental Impact Statement / Environmental Assessment Chapter 11.0: Assessment of Potential Environmental Effects on Fish and Fish Habitat	Stantec Consulting Ltd.	https://www.greenstonegoldmines.com/upload/documents/final-eis-ea-2020/11_fish-and-fish-habitat.pdf	2017	EN	Fish and fish habitat	An outline of existing condition for the Project Development Area, Local Study Area and Regional Study Area plus an assessment of the potential effects associated with the Hardrock Project.
Hardrock Project Final Environmental Impact Statement / Environmental Assessment; Chapter 14.0: Assessment of Potential Environmental Effects on Labour and Economy	Stantec Consulting Ltd.	https://www.greenstonegoldmines.com/upload/documents/final-eis-ea-2020/14_labour-and-economy.pdf	2017	EN	Mining; Food security; Economic development and livelihoods; Social and economic; Diverse economies and livelihoods; Current use	This chapter of the EIS Presents the existing economic conditions in the areas surrounding the Project site. These existing conditions include labour force characteristics such as employment by industry and occupation, income data and educational attainment. The potential positive and adverse effects of the project are also listed and examined. These effects include changes in labour (employment, job creation) and economy (project expenditure loss of project expenditure, loss of tourism revenue, reduced economic activities related to forestry, increase and decrease in municipal gov't revenues) .
Hardrock Project Final Environmental Impact Statement / Environmental Assessment; Chapter 15.0: Assessment of Potential Environmental Effects on Community Services and Infrastructure	Stantec Consulting Ltd.	https://www.greenstonegoldmines.com/upload/documents/final-eis-ea-2020/15_community-services-infrastructure.pdf	2017	EN	Mining; Cumulative effects; Community safety; Housing and infrastructure; Community health; Treaty rights; Social and economic; Infrastructure	This chapter of the EIS summarizes the baseline data on community services and infrastructure in the area. It also analyses the potential effects of the Hardrock mining project on community services and infrastructure in the LAA and RAA.
Hardrock Project Final Environmental Impact Statement/Environmental Assessment	Stantec Consulting Ltd.	https://www.greenstonegoldmines.com/upload/documents/final-eis-ea-2020/18_traditional_land_and_resource_use.pdf	2017	EN	Food security; Community health; Cultural vitality; Inter and intra generational values; Social and economic; Current use	Traditional land and resource use assessment for northern First Nation communities including Anishnabeg, Arola'd, Ginoogaming, Long Lake 58, Metis Nation of Ontario, Constance Lake First Nation, and Marten Falls. The mine project effects on traditional activities, sites and resources identified by the above First Nation communities.
Hardrock Project Final Environmental Impact Statement/Environmental Assessment. Chapter 19.0: Assessment of Potential Environmental Effects on Human and Ecological Health	Stantec Consulting Ltd.	https://www.greenstonegoldmines.com/upload/documents/final-eis-ea-2020/hp-mg003-ev-136-0004-19_1_chpt19_hardroc.pdf	2017	EN	Community health; Social and economic; Current use; Water and river systems; Wildlife and wildlife habitat; Indigenous Peoples	An assessment of potential environmental effects on human and ecological health was carried out. It was predicted that taking into account air quality and water quality mitigation, and management measures, the Project was likely to cause a negligible increase in human health risk. With the implementation of mitigation measures for air quality and surface water quality, the magnitude of the project was considered low. Where Future Case inhalation exposures are predicted to exceed the regulatory thresholds, the predicted exceedances are based on single events and do not represent continuous exposures that would represent potential concerns for human health or ecological risks.
Health Impacts of Air Pollution from Transportation, Industry and Residential Sources in Canada: Estimates of premature mortality and morbidity outcomes at national, provincial, territorial, and air zone levels	Health Canada	https://publications.gc.ca/collections/collection_2023/sc-hc/H144-112-2022-eng.pdf	2023	EN / FR	Community health; Air quality	This report presents a multi-sector and sector-specific health impact and economic benefits assessment for Canadian exposures to ambient air pollution. The assessment quantifies and compares sector-specific air quality impacts, health impacts, and socio-economic valuations associated with air pollutant releases from a comprehensive list of Canadian sectors representing transportation, industry, and residential source types
Health Impacts of Traffic Related Air Pollution in Canada	Health Canada	https://publications.gc.ca/collections/collection_2022/sc-hc/H144-91-2022-eng.pdf	2022	EN / FR	Community health; Air quality	On-road vehicles contribute to air pollution through fuel combustion and evaporative emissions as well as emissions from tire and brake wear. Canadians are regularly exposed to traffic-related air pollution (TRAP), most notably in high-traffic areas such as near highways and urban centres. TRAP consists of a complex and variable mixture of particulate and gaseous pollutants that contribute to smog, including fine particulate matter (PM2.5) and ozone (O3). The objective of this report is to present modelled estimates of population health impacts and socio-economic costs associated with exposure to TRAP in Canada for the year 2015, specifically the contribution from Canadian on-road vehicle emissions to PM2.5, NO2 and O3 ambient concentrations in Canada. The year 2015 was selected for modelling based on data availability and quality considerations. Results at the national, provincial and territorial, and census division level are presented and discussed. The report is intended to inform Canadian authorities on the air quality and health impacts associated with on-road vehicle activity.
Heat flux, water temperature and discharge from 15 northern Canadian rivers draining to Arctic Ocean and Hudson Bay	Yang, D; Shrestha, R; Lung, J; Tank, S; Park, H	https://doi.org/10.1016/j.gloplacha.2021.103577 https://www.sciencedirect.com/science/article/pii/S0921818121001624	2021	EN	Abitibi River; Attawapiskat River; Ekwan River; Hydrology; Kenogami River; Lower Albany River; Mattagami River; Missinabi River; Moose River; Upper Albany River; Water and river systems; Winisk River	This study examined heat flux from 15 Canadian northern rivers that drain to the Arctic Ocean and the Hudson/James Bay. Based on statistical analysis of available water temperature and discharge data, we determined patterns and characteristics of discharge, water temperature, and heat flux in relation to seasonal air temperature and precipitation. We found similar seasonal cycles of discharge and water temperature across the study region, i.e. most rivers experiencing maximum discharge in June/July and highest water temperatures in July/August. The mean flows during the open water season (May to Oct.) vary from west to east along the Arctic Coast (with higher yield from the Mackenzie and Peel rivers), while river flows are higher with warmer water temperatures in western and southern Hudson Bay. The summed heat flux for the studied rivers was about 10.0 × 1012 MJ along the Arctic Coast and 2.0x1012MJ around the Hudson Bay. Among the 9 rivers flowing directly into the Arctic Ocean, the Mackenzie River with the highest flow and warmest water temperature delivered the highest heat flux, i.e. average 9.5 × 1012 MJ over the open water season during 1960–2015. These observed patterns in discharge, water temperature and heat flux were generally consistent with CHANGE model simulations for most rivers in northern Canada. The outcomes of our study provide critical knowledge of river thermal condition and heat transport to the northern seas, which will be useful for large-scale climate and ocean model development and validation, and climate/hydrology change investigations in the broader northern regions.

Hierarchical habitat selection by woodland caribou: its relationship to limiting factors	Rettie, W. James; Messier, François	10.1111/j.1600-0587.2000.tb00303.x	https://onlinelibrary.wiley.com/doi/abs/10.1111/j.1600-0587.2000.tb00303.x	2000	EN	Forests; Public; Species at risk; Wildlife and wildlife habitat	Habitat selection is a hierarchical process that may yield various patterns depending on the scales of investigation. We employed satellite radio-telemetry to examine patterns of habitat selection by female woodland caribou in central Saskatchewan at both coarse (seasonal range) and fine (daily area) scales. At each scale, we converted spatial data describing compositions of available and used habitat to standardised resource selection indices and examined them with multivariate analyses of variance. Seasonal ranges generally showed preferential inclusion of peatlands and black spruce dominated stands relative to recently disturbed stands and early seral stage forests. In all populations, caribou preferred peatlands and black spruce forests to all other habitat types at the daily area scale, in general, these patterns may reveal the effective avoidance of wolves, the primary factor limiting caribou throughout the boreal forest. In three populations where seasonal ranges showed the selective inclusion of either young jack pine stands or clearcuts along with peatlands and black spruce forests, we found a relative avoidance of the clearcuts and young jack pine stands at the daily area scale. As all caribou populations in the area are thought to be relics of a once more continuous distribution, the seasonal range selection by animals in disturbed areas may better describe historic rather than current habitat selection. We found inter-annual variation in selection at the coarser spatial scale in one population, and inter-seasonal variation in selection at the finer spatial scale in three populations, indicating that the relative grains of the spatial and temporal scales coincide. We were better able to explain the seasonal variations in finer scale selection by considering available forage, a factor less likely than predation to limit woodland caribou populations. The data agree with the theory that the spatial and temporal hierarchy of habitat selection reflects the hierarchy of factors potentially limiting individual fitness.
High Conservation Value Assessment for the Kenogami Forest	Ne-Daa-Kii-Me-Naan-Inc. (Nedaak)		https://www.nedaak.ca/upload/documents/high-conservation-value-assessment.pdf	2021	EN	Forests; Wildlife and wildlife habitat; Kenogami River	An assessment of High Conservation Values for the Kenogami Forest. The First Nation communities it covers includes Aroland, Long Lake #58, and Ginoogaming.
High goose populations: causes, impacts and implication	Abraham, K.F.; Jefferies, R.L.		https://www.agv.ca/wp-content/uploads/2017/11/arcticecosystemsiperil.pdf	1997	EN	Migratory birds; Public	In some Arctic areas, over-abundance of several populations of Arctic-nesting geese in North America is causing extensive damage to habitats used by these geese and other wildlife. Mid-continent white goose populations are expanding at an average rate of 5%/year. Most of the major mid-continent white goose nesting colonies are being impacted and the damage is expanding annually. The prime causes of these population increases are human-induced changes to the agricultural landscape and changes in refuge provision during wintering and staging periods that lead to high winter survival and recruitment. The birds have effectively been released from winter carrying capacity restraints that sustained populations at lower levels before agriculture changed the North American landscape. This report includes an outline for an evaluation strategy which should be further developed and implemented as soon as possible. It is important that the numbers of mid-continent white geese be reduced, as soon as possible, to a level that can be sustained by their Arctic habitats.
Honouring the truth, reconciling for the future: summary of the final report of the Truth and Reconciliation Commission of Canada	Truth and Reconciliation Commission of Canada		https://caid.ca/TRCFinExeSum2015.pdf	2015	EN / FR	Community safety; Family, youth, and children; Housing and infrastructure; Education; Physical and cultural heritage; Cultural vitality; Language maintenance; Indigenous Peoples	
How big is the footprint? Quantifying offsite effects of mines on boreal plant communities	Yin, Xiangbo; Martineau, Christine; Fenton, Nicole J.	10.1016/j.gecco.2023.e02372	https://www.sciencedirect.com/science/article/pii/S2351989423000070	1/1/2023	EN	Biodiversity; Forests; Mining	Threats from mining to the biodiversity and ecological services of boreal forests are increasing as demand for minerals increases globally. However, much less is known about how offsite effects of mines affect understory communities as they occur outside the immediate location of mining and are often overlooked during ecological evaluations. We conducted an extensive field survey along 1-km transects surrounding six mine sites of different mining stages (operating vs non-operating), that crossed four ecosystem types (deciduous, coniferous, mixed forests and open canopy) in Canada's boreal forest. The offsite effects of mines on the understory were quantified using vascular plants (woody and herbaceous), bryophytes and lichens. Mine offsite effects impacted understory diversity and composition. Understory richness and cover was more reduced near operating than non-operating mines. Mining stage mainly significantly altered understory diversity and community structure in deciduous and mixed forests while understory communities were more resistant to the offsite effects in coniferous forest (P > 0.05). The footprint was quantified using the influenced distance and the strongest effects were generally within 0.2 km from mines. Given the predicted changes in boreal forest ecosystems with encroachment of deciduous species into coniferous forests and the increased sensitivity of mixed and deciduous forests, the area affected by offsite effects of mines could grow in the future. We suggest that offsite effects should be included in ecological evaluations.
Hudson plains ecozone: status and trends assessment. Canadian biodiversity: ecosystem status and trends 2010	Abraham, K.F.; McKinnon, L.M.; Jumeau, Z; Tully, S.M.; Walton, L.R.; Stewart, H.M.		https://biodivcanada.chm-cbd.net/ecosystem-status-trends-2010/hudson-plains-summary	2011	EN	Peatlands; Forests; Biodiversity; Water and river systems; Wildlife and wildlife habitat; Species at risk; Fish and fish habitat	Canadian Biodiversity: Ecosystem Status and Trends 2010 is the first assessment of Canada's biodiversity from an ecosystem perspective. It presents 22 key findings derived from technical background reports. It presents 22 key findings that emerged from synthesis and analysis of background technical reports prepared on the status and trends for many cross-cutting national themes. Together, the full complement of these products constitutes the 2010 Ecosystem Status and Trends Report (ESTR). This report is the technical report for the Hudson Plains Ecozone, which includes portions of northern Manitoba, Ontario, and Québec, as well as some islands in James Bay that are jurisdictionally part of Nunavut. A range of authors and reviewers contributed to the report from government, academia, non-governmental, and consulting sectors, with Ontario assuming the lead role in compilation under the guidance of an inter-jurisdictional steering committee and the ESTR Secretariat.
Hudsonian Godwit (Species at risk webpage)	Committee on the Status of Species at Risk in Ontario		https://www.ontario.ca/page/hudsonian-godwit	2020	EN / FR	Avifauna; Migratory birds; Public; Species at risk	Provide information on the status of the Hudsonian Godwit (e.g., endangered or threatened), general life history and a place to direct the general public or Proponents for further information regarding the species (e.g., Recovery Strategies, Government Response Statements, etc.)
Hudson's Bay Company Archives - HBC Fur Trade Post Map	Archives of Manitoba		https://www.gov.mb.ca/chc/archives/hbca/post_maps/ontario.html	n.d.	EN	Attawapiskat River; Physical and cultural heritage; Public; Winisk River	Online mapping of the fur trade posts in northern Ontario.
Hudson's Bay Company Archives Resources	Archives of Manitoba		https://www.gov.mb.ca/chc/archives/hbca/search_hbca.html	2024	EN	Physical and cultural heritage	A searchable database of Hudson's Bay Company documents, including fur trade post maps, name indexes, employee records, inventories, etc.
Human disturbance effects and cumulative habitat loss in endangered migratory caribou	Plante, S; Dussault, C; Richard, J. H.; Côté, S. D.	10.1016/j.biocon.2018.05.022	https://www.sciencedirect.com/science/article/pii/S0006320718300442	2018	EN	Cumulative effects; Species at risk	As human development intensifies in northern ecosystems, negative impacts of anthropogenic disturbances on wildlife could increase. Many caribou and reindeer populations are declining across the northern hemisphere, and human disturbances have been suggested as a potential cause for these declines. We evaluated the effects of human disturbances in the summer and winter ranges of two migratory caribou herds in northern Québec and Labrador, Canada. We captured and collared 510 caribou between 2009 and 2015. We first assessed caribou avoidance of human disturbances at a large spatial scale by comparing the density of mines, mining exploration sites, power lines, roads and human settlements within seasonal ranges to their density within available ranges. We estimated the area avoided by caribou (ZOI; zone of influence) around disturbances located within seasonal ranges and evaluated the resulting cumulative habitat loss. We also evaluated the barrier effect of roads and their influence on caribou movement rates. The density of many disturbance types was lower within caribou seasonal ranges than within available ranges, suggesting they avoided disturbances over a large spatial scale. Within seasonal ranges, caribou avoided all disturbance types except power lines. ZOIs were highly variable among disturbance types and years, ranging from no avoidance to 23 km. Cumulative habitat loss could reach as much as 30% of seasonal ranges and 38% of high-quality caribou habitat. We demonstrate that human disturbances have broad negative effects on caribou behavior, but whether this could translate into population decline remains to be investigated.

Hydrological and Geochemical Changes in Disturbed Subarctic Patterned Peatlands Induced by Mine Dewatering	Balliston, Nicole; Price, Jonathan S.; Sutton, Owen F.	10.2139/ssrn.4524666	https://papers.ssrn.com/abstract=4524666	7/28/2023	EN	Mining; Peatlands; Geology; Hydrology	Patterned bog and fen peatlands of the Hudson Bay Lowlands, which form one of the largest continuous peatland complexes in the world, are globally significant stores of carbon and important water conveyance and storage features in the landscape. However, expansion of resource exploration and extraction combined with warmer temperatures associated with climate change may result in reduced water availability to these peatland complexes, potentially disrupting peatland hydrological connectivity and hydrogeochemical cycling. A case study on the effects of reduced water availability on peatland hydrological and geochemical function was conducted near the De Beers Victor Diamond Mine, located 90 km west of Attawapiskat. Active dewatering occurred here over a 12-year period (2007-2019) during which a 1.5 km transect was monitored within the mine impacted radius. Hydrological (streamflow and groundwater levels) and chemical (porewater and surface water samples) parameters were collected at the impacted transect and two nearby unimpacted reference sites. Results demonstrated that impacted peatlands had depleted water storage and spent an average of 50% less time hydrologically connected than unimpacted peatlands. By the end of the study period, increasingly depleted water storage within the dewatering radius resulted in disproportionately lower flowrates in two tributaries downgradient of the mine-impacted peatlands when compared with the reference sites. Moreover, diminished water storage allowed solute-depleted precipitation to reach greater depths within the peat profile, while stronger downwards gradients suppressed upwards flow into fens, limiting the amount of solute-enriched water reaching the surface. The recovery of fen solute concentrations will be a prolonged process (i.e., decades to centuries) due to the slow rate of upwards diffusion, which may result in the transition of these systems towards ombrotrophic bogs. Further studies should focus on the susceptibility of these impacted systems to further reductions in water availability due to climate change.
Hydrological effects of resource-access road crossings on boreal forests peatlands.	Saraswati, S; Petrone, R.M; Rahman, M.M; McDermid, G.J; Xu, B.; Strack, M.	10.1016/j.jhydrol.2020.124748	https://www.sciencedirect.com/science/article/abs/pii/S0022169420302080	2019	EN	Peatlands; Forests; Hydrology; Infrastructure	Resource-access road crossings are expected to alter peatland hydrological properties by obstructing surface and sub-surface water flows. We conducted a multi-year study at two boreal peatlands – a forested bog and a shrubby rich fen near Peace River, Alberta – to study the impacts of resource access roads on the hydrology of adjacent peatland. Field measurements (bi-weekly depth to water table and hydraulic head, one-time hydraulic conductivity) during the growing seasons (May-August) of 2016 and 2017 were taken from sampling plots representing: 1) sides of the road (upstream and downstream); 2) distance from the road (obstruction); and 3) distance from culverts. Compared to the growing season average precipitation for the region of 1.87mm d ⁻¹ , the study period had very wet conditions in 2016 (3.77mm d ⁻¹) and dry conditions in 2017 (1.17mm d ⁻¹). In contrast to our assumptions, resource access road disturbed the surface and sub-surface water flow at the bog, but the effect was minimal at the fen as the road orientation was nearly parallel to the flow direction at the latter. At the bog, the shallowest depth to water table position was observed at upstream areas closer to the road, when culverts were located >207m distance from transects. In contrast, when culverts were present <27m from the transects, variation in hydrological conditions between upstream and downstream areas were greatly reduced. Our work shows road effects on peatland hydrology could be minimized by aligning roads parallel to the water flow direction when possible. If water flow is perpendicular to the road, adequate spacing and installation of culverts could help to reduce flow obstruction.
Hydrological functions of a mine-impacted and natural peatland-dominated watershed, James Bay Lowland	Leclair, Melissa; Whittington, Pete; Price, Jonathan	10.1016/j.ejrh.2015.10.006	https://www.sciencedirect.com/science/article/pii/S2214581815001111	9/1/2015	EN	Mining; Peatlands; Hydrology	<p>Study region: This study was conducted in Northern Ontario, Canada, in the middle of the Hudson-James Bay, Lowland: one of the world's largest wetland complexes.</p> <p>Study focus Northern latitudes are expected to be the most impacted by climate change in the next century and adding to this stressor are increased mineral exploration activities, such as the De Beers Victor Mine, a large open-pit diamond mine. Because of the extremely low relief and presence of marine sediments, horizontal runoff and vertical seepages losses are minimal. As a consequence of this aquifer dewatering must occur to keep the open-pit mine dry. What is unknown is how the aquifer dewatering would impact the water balance of a peatland-dominated watershed. This study examines 3 years of aquifer dewatering from 2009 to 2011.</p> <p>New hydrological insights Deep seepage (groundwater recharge) varied with marine sediment thickness and represented a significant loss to the local system. Large downward fluxes were also measured in fen systems that are typically local discharge zones. Evaporation rates were also found to be lower in the bogs and fens and where impacted by lower water tables. When evaluating the water balance, with only 14.5% of the watershed impacted by the mine, the hydrological function of the entire watershed is more driven by seasonal climate variations than mine dewatering.</p>
Hydrometric (Stream) Gauges	Ministry of Northern Development Mines, Natural Resources and Forestry; Regional Operations Division		Held by Ministry of Northern Development Mines, Natural Resources and Forestry	2010	EN	Hydrology; Not public; Water and river systems	To gain an improved understanding of water levels and flows by installing hydrometric (stream) gauges in the Far North. Twelve hydrometric gauges were installed for a total of 31 gauges across the Far North now included in the National Network of Reference Sites. The 12 new gauges were strategically located based on a review identifying current and emerging interests, including First Nation water supply and flood vulnerability, climate change, and assessment of potential impacts.
Hydrometric gauges and water budgets	Ministry of Northern Development Mines, Natural Resources and Forestry		Held by Ministry of Northern Development Mines, Natural Resources and Forestry	2013	EN	Hydrology; Not public; Water and river systems	To gain an understanding of hydrological baseline conditions prior to development, and to assess potential impacts on water budgets. Hydrometric gauges were installed in the Ring of Fire area between 2013 and 2015 to capture baseline conditions of local streams. Instrumentation for precipitation and evapotranspiration has also been installed. These gauges complement other baseline efforts such as water quality and groundwater sampling by the MECP and Water Survey of Canada gauges. Installation of eight science-based stream gauges (between 2013 and 2015) near the Ring of Fire. These gauges are not part of the National Network of Reference Sites. Instrumentation for precipitation and evapotranspiration was also installed to characterize water budgets. These gauges complement other baseline efforts such as water quality and groundwater sampling by the MECP and Water Survey of Canada gauges.
Identifying a suite of surrogate freshwater fish species: a case study of conservation prioritization in Ontario's Far North, Canada.	McDermid, J; Browne, D; Chetkiewicz, C.-L; Chu, C	10.1002/aqc.2557	https://onlinelibrary.wiley.com/doi/abs/10.1002/aqc.2557	2015	EN	Fish and fish habitat	<ol style="list-style-type: none"> 1. Freshwater ecosystems are among the most threatened ecosystems on the planet, yet freshwater fish species are frequently overlooked in conservation planning initiatives. 2. Ontario's Far North (OFN) in Canada is at present one of the largest relatively intact landscapes in North America with 11% of the total area covered by freshwater ecosystems, not including wetlands. 3. Resource development is being planned for OFN but due to the paucity of data on fish species and the freshwater ecosystems they inhabit, the freshwaterscape is largely being overlooked. 4. Given the importance of freshwater resources in OFN, existing information on fish species in OFN was compiled and assessed using the Landscape Species Approach (LSA) on this freshwaterscape. The LSA is a species-based conservation planning tool developed for terrestrial conservation that is constructed around the identification of focal species for a given landscape. 5. An analysis of 14 large-bodied candidate freshwater species, including their area requirements, habitat use, ecological function, socio-economic function and vulnerability to threats was used to identify three freshwaterscape species: lake sturgeon, lake trout, and walleye. 6. The identification of these species and their ecological requirements suggests a starting place for research, management, and conservation of freshwater resources in OFN before large-scale landscape changes.
Identifying indirect habitat loss and avoidance of human infrastructure by northern mountain woodland caribou	Polfus, J.L; Hebblewhite, M; Heinemeyer, K.	10.1016/j.biocon.2011.07.023	https://www.sciencedirect.com/science/article/pii/S0006320711002862	2011	EN	Forests; Wildlife and wildlife habitat; Species at risk; Infrastructure	Understanding the impact of indirect habitat loss resulting from avoidance of human infrastructure is an important conservation priority. We evaluated resource selection for 10 global positioning system collared northern mountain woodland caribou (Rangifer tarandus caribou) in British Columbia, Canada, with seasonal resource selection functions (RSF) developed at the second-order (landscape) and third-order (within home range) scales. To estimate how much habitat was lost due to avoidance, we estimated the zone of influence (ZOI) around multiple developments and modeled realized and potential habitat. Potential habitat was approximated by removing the ZOI from RSF models. By calculating the spatial difference between potential and realized habitat we estimated the amount of indirect habitat loss. Caribou displayed hierarchical avoidance of development, with the greatest avoidance occurring at the second-order. During both seasons caribou avoided high-use roads by 2 km and low-use roads by 1 km. In winter, caribou avoided town by 9 km compared to 3 km in summer. However, in summer caribou avoided mines by 2 km and cabins and camps by 1.5 km, while in winter when human activity was low, avoidance of these features was minor. As a result of avoidance of the cumulative ZOI, approximately 8% and 2% of high quality habitat was lost in the study area in winter and summer, respectively. Our study provides an approach to identify the extent and quality of habitat influenced by indirect avoidance. Conservation efforts should prioritize protecting areas of high quality habitat degraded by avoidance in the vicinity of human development.

<p>Impact of Noise Exposure on Risk of Developing Stress-Related Health Effects Related to the Cardiovascular System: A Systematic Review and Meta-Analysis</p>	<p>Sivakumaran, Kapeena; Ritonja, Jennifer A.; Waseem, Haya; AlShenaibar, Leena; Morgan, Elissa; Ahmadi, Salman A.; Denning, Allison; Michaud, David S.; Morgan, Rebecca L.</p>	<p>10.4103/nah.nah_83_21</p>	<p>http://www.ncbi.nlm.nih.gov/pubmed/36124520</p>	<p>2022</p>	<p>EN</p>	<p>Community health</p>	<p>BACKGROUND: : Exposure to acute noise can cause an increase in biological stress reactions, which provides biological plausibility for a potential association between sustained noise exposure and stress-related health effects. However, the certainty in the evidence for an association between exposures to noise on short- and long-term biomarkers of stress has not been widely explored. The objective of this review was to evaluate the strength of evidence between noise exposure and changes in the biological parameters known to contribute to the development of stress-related adverse cardiovascular responses. MATERIALS AND METHODS: This systematic review comprises English language comparative studies available in PubMed, Cochrane Central, EMBASE, and CINAHL databases from January 1, 1980 to December 29, 2021. Where possible, random-effects meta-analyses were used to examine the effect of noise exposure from various sources on stress-related cardiovascular biomarkers. The risk of bias of individual studies was assessed using the risk of bias of nonrandomized studies of exposures instrument. The certainty of the body of evidence for each outcome was assessed using the Grading of Recommendations Assessment, Development, and Evaluation approach. RESULTS: : The search identified 133 primary studies reporting on blood pressure, hypertension, heart rate, cardiac arrhythmia, vascular resistance, and cardiac output. Meta-analyses of blood pressure, hypertension, and heart rate suggested there may be signals of increased risk in response to a higher noise threshold or incrementally higher levels of noise. Across all outcomes, the certainty of the evidence was very low due to concerns with the risk of bias, inconsistency across exposure sources, populations, and studies and imprecision in the estimates of effects. CONCLUSIONS: : This review identifies that exposure to higher levels of noise may increase the risk of some short- and long-term cardiovascular events; however, the certainty of the evidence was very low. This likely represents the inability to compare across the totality of the evidence for each outcome, underscoring the value of continued research in this area. Findings from this review may be used to inform policies of noise reduction or mitigation interventions.</p>
<p>Impact of Noise Exposure on Risk of Developing Stress-Related Metabolic Effects: A Systematic Review and Meta-Analysis</p>	<p>Sivakumaran, Kapeena; Ritonja, Jennifer A.; Waseem, Haya; AlShenaibar, Leena; Morgan, Elissa; Ahmadi, Salman A.; Denning, Allison; Michaud, David; Morgan, Rebecca L.</p>	<p>10.4103/nah.nah_21_22</p>	<p>http://www.ncbi.nlm.nih.gov/pubmed/36537446</p>	<p>2022</p>	<p>EN</p>	<p>Community health</p>	<p>BACKGROUND: Exposure to noise can increase biological stress reactions, which may increase adverse health effects, including metabolic disorders; however, the certainty in the association between exposure to noise and metabolic outcomes has not been widely explored. The objective of this review is to evaluate the evidence between noise exposures and metabolic effects. MATERIALS AND METHODS: A systematic review of English and comparative studies available in PubMed, Cochrane Central, EMBASE, and CINAHL databases between January 1, 1980 and December 29, 2021 was performed. Risk of Bias of Nonrandomized Studies of Exposures was used to assess risk of bias of individual studies and certainty of the body of evidence for each outcome was assessed using the Grading of Recommendations Assessment, Development and Evaluation (GRADE) approach. RESULTS: Fifty-six primary studies reporting on cortisol, cholesterol levels, waist circumference, glucose levels, and adrenaline and/or noradrenaline were identified. Although meta-analyses suggested that there may be an increase in waist circumference and adrenaline with increased noise exposure, the certainty in the evidence is very low. Overall, the certainty in the evidence of an effect of increased noise on all the outcomes were low to very low due to concerns with risk of bias, inconsistency across exposure sources, populations, and studies, and imprecision in the estimates of effects. CONCLUSIONS: The certainty of the evidence of increased noise on metabolic effects was low to very low, which likely reflects the inability to compare across the totality of the evidence for each outcome. The findings from this review may be used to inform policies involving noise reduction and mitigation strategies, and to direct further research in areas that currently have limited evidence available.</p>
<p>Impact of Noise Exposure on Risk of Developing Stress-Related Obstetric Health Effects: A Systematic Review and Meta-Analysis</p>	<p>Sivakumaran, Kapeena; Ritonja, Jennifer A.; Waseem, Haya; AlShenaibar, Leena; Morgan, Elissa; Ahmadi, Salman A.; Denning, Allison; Michaud, David; Morgan, Rebecca L.</p>	<p>10.4103/nah.nah_22_22</p>	<p>http://www.ncbi.nlm.nih.gov/pubmed/36124522</p>	<p>2022</p>	<p>EN</p>	<p>Community health</p>	<p>BACKGROUND: Exposure to noise can increase biological stress reactions and that could increase the risk of stress-related prenatal effects, including adverse obstetric outcomes; however, the association between exposure to noise and adverse obstetric outcomes has not been extensively explored. The objective of this review was to evaluate the evidence between noise exposures and adverse obstetric outcomes, specifically preeclampsia, gestational diabetes, and gestational hypertension. MATERIALS AND METHODS: A systematic review of English language, comparative studies available in PubMed, Cochrane Central, EMBASE, and CINAHL databases between January 1, 1980 and December 29, 2021 was performed. Risk of bias for individual studies was assessed using the Risk of Bias Instrument for Nonrandomized Studies of Exposures, and the Grading of Recommendations Assessment, Development, and Evaluation (GRADE) approach was used to assess the certainty of the body of evidence for each outcome. RESULTS: Six studies reporting on preeclampsia, gestational diabetes, and gestational hypertension were identified. Although some studies suggested there may be signals of increased responses to increased noise exposure for preeclampsia and gestational hypertension, the certainty in the evidence of an effect of increased noise on all the outcomes was very low due to concerns with risk of bias, inconsistency across studies, and imprecision in the effect estimates. CONCLUSIONS: While the certainty of the evidence for noise exposure and adverse obstetric outcomes was very low, the findings from this review may be useful for directing further research in this area, as there is currently limited evidence available. These findings may also be useful for informing guidelines and policies involving noise exposure situations or environments.</p>
<p>Impacts of climate change on the seasonal distribution of migratory caribou</p>	<p>Sharma, Sapna; Couturier, Serge; Côté, Steeve D.</p>	<p>10.1111/j.1365-2486.2009.01945.x</p>	<p>https://onlinelibrary.wiley.com/doi/abs/10.1111/j.1365-2486.2009.01945.x</p>	<p>2009</p>	<p>EN</p>	<p>Climate change; Public; Scenario development; Species at risk; Wildlife and wildlife habitat</p>	<p>Arctic ecosystems are especially vulnerable to global climate change as temperature and precipitation regimes are altered. An ecologically and socially highly important northern terrestrial species that may be impacted by climate change is the caribou, Rangifer tarandus. We predicted the current and potential future occurrence of two migratory herds of caribou (Rivière George herd (RG) and Rivière-aux-Feuilles (RAF) herd] under a Canadian General Circulation Model climate change scenario, across all seasons in the Québec-Labrador peninsula, using climatic and habitat predictor variables. Argos satellite-tracking collars have been deployed on 213 caribou between 1988 and 2003 with locations recorded every 4–5 days. In addition, we assembled a database of climate (temperature, precipitation, snowfall, timing and length of growing season) and habitat data obtained from the SPOT VEGETATION satellite sensor. Logistic regression models indicated that both climatic and physical habitat variables were significant predictors of current migratory caribou occurrence. Migratory caribou appeared to prefer regions with higher snowfall and lichen availability in the fall and winter. In the summer, caribou preferred cooler areas likely corresponding to a lower prevalence of insects, and they avoided disturbed and recently burnt areas. Climate change projections using climate data predicted an increased range for the RAF herd and decreased range for the RG herd during 2040–2069, limiting the herds to northeastern regions of the Québec-Labrador peninsula. Direct and indirect consequences of climate change on these migratory caribou herds possibly include alteration in habitat use, migration patterns, foraging behaviour, and demography, in addition to social and economic stress to arctic and subarctic native human populations.</p>
<p>Impacts of forest fires on ambient near-real-time PM2.5 in Ontario, Canada: Meteorological analyses and source apportionment of the July 2011–2013 episodes</p>	<p>Sofowote, Uwayemi; Dempsey, Frank</p>	<p>10.5094/APR.2015.001</p>	<p>https://www.researchgate.net/publication/279290231_Impact_s_of_forest_fires_on_ambient_near-real-time_PM25_in_Ontario_Canada_Meteorological_analyses_and_source_apportionment_of_the_July_2011-2013_episodes/link/594aeb04458515225a831722/download?_tp=eyJlb250Z2h0ljp7ImZpcnNOUGFnZSI6InB1YmxxpY2F0aW91IiwicGFnZSI6InB1YmxxpY2F0aW91In19</p>	<p>2015</p>	<p>EN</p>	<p>Forests; Air quality</p>	<p>The complexity of analyzing and predicting smoke plumes that originate from forest fire events and impact populated regions of southern Ontario motivates the innovative application of analytical techniques including trajectory-based receptor modeling for spatial source apportionment of the observed near-real-time particulate matter (PM) impacts. PM2.5 was selected as an indicator of a pollutant emitted by fires that could be transported over long distances (when entrained into the transport layer above the planetary boundary layer (PBL), and subject to sink and transformation processes) and be monitored using the existing air quality monitoring network. The source term modeling technique of simplified Quantitative Transport Bias Analysis (sQTBA) was applied to several summertime forest fire events to identify the locations of sources affecting air quality in Ontario during these events. Complementary techniques that helped to understand the movement of smoke plumes included satellite remote sensing of carbon monoxide and aerosols. All of these techniques, along with meteorological analysis, jointly provide a means of identifying the forest fire events that resulted in noticeably higher pollutant levels in Ontario. Specifically, three forest fire events in July of 2011, 2012 and 2013 were analyzed, and source regions of near-real-time PM2.5 concentrations were revealed to be both within Ontario and across northern Canada from Quebec to Yukon. The sQTBA was found to successfully identify the relative importance of various source regions contributing plumes from forest fires and non-wildfire related sources that caused higher pollutant levels than were measured in Ontario. The use of near-real-time PM2.5 data in this study facilitates the identification of the exact periods of the exact periods of impacts across multiple receptor sites, thus improving the overall quality of the analyses. This work shows how trajectory-based receptor models can be integrated with meteorological analyses for thorough source apportionment of wildfire-related pollution events.</p>
<p>Implementing a Regional, Indigenous-Led and Sustainability Informed Impact Assessment in Ontario's Ring of Fire</p>	<p>Scott, D; Atlin, C; Van Wagner, E; Siebenmorgan, P; Gibson, R.</p>		<p>https://www.osgoode.yorku.ca/wp-content/uploads/2014/08/SCOTT.Final-Synthesis-report.pdf</p>	<p>2020</p>	<p>EN</p>	<p>Peatlands; Forests; Attawapiskat River; Education; Food security; Cultural vitality; Treaty rights; Language maintenance; Traditional processes for deliberation; Current use; Sustainability; Lower Albany River; Moose River; Upper Albany River; Winisk River; Fish and fish habitat; Indigenous Peoples</p>	<p>The research team synthesized knowledge across a range of areas, including Indigenous-led Impact Assessment (IA), regional and strategic approaches to IA, and the use of gender-based analysis plus in IA, and applied it to the example of Ontario's Ring of Fire.</p>

Implications of projected climate change on winter road systems in Ontario's Far North, Canada	Hori, Y.; Gough, W.A.; Jien, J.Y.; Tsuji, L. J. S.; Cheng, V.Y.S.	10.1007/s10584-018-2178-2	https://doi.org/10.1007/s10584-018-2178-2	2018	EN	Climate change; Community health; Economic development and livelihoods; Scenario development	Understanding climate change impacts on winter road systems in Ontario's Far North is critical due to the high dependence on such seasonal corridors by local residences, particularly among remote First Nations communities. In recent years, a warmer climate has resulted in a shorter winter road season and an increase in unreliable road conditions, thus limiting access among remote communities. This study focused on examining the future freezing degree day (FDD) accumulations during the preconditioning period of the winter roads at five locations using the multi-model ensembles of general circulation models (GCMs) and regional climate models (RCMs), under the representative concentration pathway (RCP) scenarios. The Statistical DownScaling Model Decision Centric Version 5 (SDSM-DC) was applied to validate the baseline climate. The results from the CMIP5 showed that by mid-century, the trends of FDDs under RCP4.5 for Moosonee and Kapuskasing were projected to decrease below the lowest threshold with the mean FDDs at 376 and 363, respectively. Under RCP8.5, the mean FDDs for Lansdowne House and Red Lake were projected to be below the lowest threshold, at 356 and 305, respectively, by the end of the century. Results of the FDD threshold measure indicated that climate conditions would possibly be unfavorable during the winter road construction period by mid-century for Moosonee and Kapuskasing and for Lansdowne House and Red Lake by the end of the century. For Big Trout Lake, on the other hand, climate conditions are expected to remain favorable for the winter road construction through the end of 2100.
In Rush for Key Metals, Canada Ushers Miners to Its Fragile North	Struzik, E.		https://e360.yale.edu/features/canada-critical-minerals-mining	2023	EN	Mining; Peatlands; Cumulative effects; Community health; Treaty rights; Water and river systems; Wildlife and wildlife habitat; Hydrology; Avifauna; Species at risk; Indigenous Peoples	The article reports that the Canadian government is offering incentives to mining companies to excavate critical minerals for electric vehicles and solar panels. Critics warn that carbon-rich peatlands, rivers and other wild areas will be polluted or lost all together with massive cleanup projects likely to ensue.
Including Indigenous Perspectives in Policy-Making Processes: Natural Resource Development in Northern Ontario	Burke, Joseph		https://laurentian.scholaris.ca/server/api/core/bitstreams/7796e785-438b-428e-bab0-13691028c150/content	2020		Cultural vitality; Treaty rights; Traditional processes for deliberation; Current use; Indigenous Peoples	This research seeks to understand the experience of the Atikameksheng Anishnawbek with the Ontario Government, specifically with consultation on legislation pertaining to natural resource development (NRD). It also seeks to build an understanding of whether or not the experiences of Atikameksheng, an Anishnawbek Nation whose territory includes the Sudbury Basin, are applicable to NRD policy-making contexts surrounding Indigenous communities in Treaty 9 near the Ring of Fire. The Ring of Fire is located in remote Cree and Ojibway territories in the Northwest of Ontario. Economic and environmental interests there have resulted in new legislation for natural resource development and land-use management and these remote First Nations are having to interact with the resource development sector for the first time. Following an Indigenous research methodology based on Anishnawbek relationship building principles, qualitative data was collected via semi-structured interviews. Participants came from three groups: Atikameksheng Anishnawbek employees and community members, Ontario Government employees, and/or a mining company. There were five participants in total. Key informant interviews with research participants established that there is a clear gap in terms of consultation for legislative policy making. It is commonly misunderstood that consultation is continually occurring within the NRD sector as it is only happening formally for specific projects, but not for the development of legislation that mandates consultation. The results of this research suggest that the demands of regulatory and consultation processes established by the Crown do not align with the expectations of First Nations. These demands often also outweigh the required resources available for First Nations to effectively participate in this engagement.
Indigenous-Led Nature-Based Solutions Align Net-Zero Emissions and Biodiversity Targets in Canada	Alejo, C.; Reed, G.; Matthews, H. D.	10.1029/2025E006427	https://onlinelibrary.wiley.com/doi/abs/10.1029/2025E006427	2025	EN	Biodiversity; Climate change; Cultural vitality; Indigenous Peoples; Inter and intra generational values; Sustainability	Indigenous-led Nature-based Solutions ("Indigenous-led Nbs"), such as Indigenous Protected Conserved Areas and Indigenous Guardians programs, may represent a unique opportunity to advance climate and biodiversity targets grounded in Indigenous self-determination. Previous studies have comprehensively explored the scope and potential environmental outcomes of Indigenous-led Nbs. Here, we build on this literature to assess how government support for Indigenous-led Nbs influences climate and biodiversity outcomes. Specifically, we estimate the contribution of Indigenous-led Nbs funded by the federal Government of Canada in conserving carbon stocks and biodiversity across terrestrial ecosystems. Using geospatial analysis and quasi-experimental methods, our results indicate that Indigenous-led Nbs are as effective as existing Protected Areas in terms of climate change mitigation and biodiversity conservation. Moreover, our results demonstrate that government funding for Indigenous-led Nbs is associated with moderate yet significant avoided land use emissions relative to Protected Areas. Based on topic-modeling applied to Indigenous-led Nbs descriptions, climate and biodiversity outcomes emerge from holistic approaches to governance, intergenerational knowledge exchange, and climate-biodiversity action. Thus, government funding to Indigenous-led Nbs may align biodiversity and climate outcomes with some aspects of Indigenous self-determination. The long-term alignment of these outcomes will require extended and sustained funding as well as full recognition of the rights of Indigenous Peoples.
Inland Water Bodies Map of Canada and Neighbouring Regions at 250-m Spatial Resolution	Government of Canada; Natural Resources Canada		https://open.canada.ca/data/en/dataset/236680e0-0014-4edc-904b-2e1b94d061ff	5/1/2024	EN / FR	Water and river systems	This dataset comprises a map of inland water bodies in Canada and neighboring regions, as described by Ghayourmanesh et al. (2024). The data are mapped using the Lambert Conformal Conic (LCC) geographic projection with a spatial resolution of 250 meters. The LCC projection is frequently used as a standard projection at the Canada Centre for Remote Sensing (CCRS) (Trishchenko et al., 2016, Trishchenko, 2019). Each pixel value represents a code describing either the probability of inland water presence or land/ocean(sea) mask
Integrated Range Assessment for Woodland Caribou and their Habitat in the Far North of Ontario	Ministry of Natural Resources, Forestry Species at Risk Branch		https://files.ontario.ca/environment-and-energy/species-at-risk/Far-North-Ranges-EN.pdf	2014	EN	Forests; Wildlife and wildlife habitat; Species at risk	This document provides estimated caribou counts in each range from aerial surveys. Provides an assessment of habitat conditions, population trends and impacts on caribou.
Integrated Range Assessment for Woodland Caribou and their Habitat Kesagami Range 2010	Ministry of Natural Resources and Forestry		https://files.ontario.ca/environment-and-energy/species-at-risk/Kesagami-Range-EN.pdf	2014	EN	Forests; Wildlife and wildlife habitat; Species at risk	Range assessment examining population, habitat, and other demographics to help guide management and policy decisions
Integrated Range Assessment for Woodland Caribou and their Habitat. Nipigon Range 2010.	Ministry of Natural Resources and Forestry		https://files.ontario.ca/environment-and-energy/species-at-risk/Nipigon-Range-EN.pdf	2014	EN	Forests; Wildlife and wildlife habitat; Species at risk	Range assessment examining population, habitat, and other demographics to help guide management and policy decisions
Integrated Range Assessment for Woodland Caribou and their Habitat. Pagwachuan Range 2011.	Ministry of Natural Resources and Forestry		https://files.ontario.ca/environment-and-energy/species-at-risk/Pagwachuan-Range-EN.pdf	2014-12	EN	Forests; Wildlife and wildlife habitat; Species at risk	Range assessment examining population, habitat, and other demographics to help guide management and policy decisions
Integrative use of spatial, genetic, and demographic analyses for investigating genetic connectivity between migratory, montane, and sedentary caribou herds	Boulet, Marylène; Couturier, Serge; Côté, Steeve D.; Otto, Robert D.; Bernatchez, Louis	10.1111/j.1365-294X.2007.03476.x	https://onlinelibrary.wiley.com/doi/10.1111/j.1365-294X.2007.03476.x	2007-10	EN	Wildlife and wildlife habitat; Species at risk; Public	Genetic differentiation is generally assumed to be low in highly mobile species, but this simplistic view may obscure the complex conditions and mechanisms allowing genetic exchanges between specific populations. Here, we combined data from satellite-tracked migratory caribou (Rangifer tarandus), microsatellite markers, and demographic simulations to investigate gene flow mechanisms between seven caribou herds of eastern Canada. Our study included one montane, two migratory, and four sedentary herds. Satellite-tracking data indicated possibilities of high gene flow between migratory herds: overlap of their rutting ranges averaged 10% across years and 9.4% of females switched calving sites at least once in their lifetime. Some migratory individuals moved into the range of the sedentary herds, suggesting possibilities of gene flow between these herds. Genetic differentiation between herds was weak but significant (FST=0.015): migratory and montane herds were not significantly distinct (FST all <or= 0.005), whereas sedentary herds were more differentiated (FST=0.018-0.048). Geographical distances among sedentary herds limited gene flow. Historical estimates of gene flow were higher from migratory herds into sedentary herds (4Nm all >9) than vice-versa (4Nm all <5), which suggests migratory herds had a demographic impact on sedentary herds. Demographic simulations showed that an effective immigration rate of 0.0005 was sufficient to obtain the empirical FST of 0.015, while a null immigration rate increased the simulated FST to >0.6. In conclusion, the weak genetic differentiation between herds cannot be obtained without some genetic exchanges among herds, as demonstrated by genetic and spatial data.

Interdecadal variability of streamflow in the Hudson Bay Lowlands watersheds driven by atmospheric circulation	Champagne, O; Arain, M.A.; Wang, S; Leduc, M	10.1016/j.ejrh.2021.100868	https://www.sciencedirect.com/science/article/pii/S2214581821000975	2021	EN	Ekwan River; Hydrology; Kenogami River; Lower Albany River; Upper Albany River; Water and river systems; Winisk River	<p>Study region Hudson Bay Lowlands watersheds, Ontario, Canada.</p> <p>Study Focus The rivers in the Hudson Bay Lowlands are a major source of freshwater entering the Arctic Ocean and they also cause major floods. In recent decades, this region has been affected by major changes in hydroclimatic processes attributed to climate change and natural climate variability. In this study, we used ERA5 reanalysis data, hydrometric observations, and the hydrological model MESH, to investigate the impact of atmospheric circulation on the inter-decadal variability of streamflow between 1979 and 2018 in the Hudson Bay Lowlands. The natural climate variability was assessed using a weather regimes approach based on the discretization of daily geopotential height anomalies (Z500) from ERA5 reanalysis, as well as large scale oceanic and atmospheric variability modes.</p> <p>New hydrological insights The results showed an anomalous convergence of atmospheric moisture flux between 1995–2008 that enhanced precipitation and increased streamflow in the western part of the region. This moisture convergence was likely driven by the combination of (i) low pressure anomalies in the East Coast of North America and (ii) low pressure anomalies in western regions of Canada, associated with the cold phase of the Pacific decadal oscillation (PDO). Since 2009, streamflow remains high, likely due to more groundwater discharge associated with the degradation of permafrost.</p>
Interim Guidance: Health Impact Assessment of Designated Projects under the Impact Assessment Act	Health Canada		https://www.canada.ca/en/health-canada/services/publications/healthy-living/interim-guidance-health-impact-assessment.html	3/5/2025	EN / FR	Community health	This interim guidance document has been prepared to support the use of established health impact assessment (HIA) methods for the assessment of health effects. HIA is a systematic, objective, and specialized process that can be used to assess the potentially positive and adverse effects of a designated project on well-being and health. It also highlights ways to maximize positive effects and minimize adverse effects on health. HIA covers not only the overall health effects of projects but also how health effects may differ across subpopulations, with a particular focus on equity and those groups of people who are considered to be vulnerable based on socioeconomic status and other factors that reflect social disadvantage.
Investigation of Long-Term Climate and Streamflow Patterns in Ontario	Azarkhish, A; Rudra, R; Daggupati, P; Dhiman, J; Dickinson, T; Goel, P	10.4236/ajcc.2021.104024	https://www.scirp.org/journal/paperinformation.aspx?paperid=113952	2021	EN	Climate change	To develop mitigation and adaptation strategies for undesired consequences of climate change, it is important to understand the changing hydrological and climatological trends in the past few decades. Although the changing climate is a cause of concern for the entire planet, its effects can vary significantly on a regional scale. Canada has experienced a rapid rise in the annual mean surface air temperature in the past decades. The current study aims to investigate trends in monthly mean precipitation, rainfall, snowfall, maximum and minimum temperature, as well as baseflow, surface runoff, and total streamflow values for the province of Ontario, Canada. To the best of the author's knowledge, a similar study involving rural and urban watersheds, that quantifies the impact of changing climate on temperature and other hydrological processes over a period ranging from 1968 to 2017, has not yet been conducted for Ontario. Man-Kendall trend test was used to analyze trends in the above mentioned climatic and hydrometric parameters for rural and urban watersheds situated in the northern and southern parts of Ontario. The results of this study indicate that the mean monthly minimum temperatures for rural watersheds situated in southern Ontario have increased significantly for the winter and summer months, which may have caused an increase in snowmelt and consequently the streamflow for the winter months in the region. Unlike the watersheds in southern Ontario, the northern watersheds witnessed relatively fewer instances of significant changes in mean monthly temperatures, and in some cases, declining rates have been noted. Similarly, only a few watersheds in the north saw a substantial drop in baseflow over the summer months. For nearly all the months, the average monthly minimum and maximum temperatures were found to increase for urban watersheds. The streamflow, baseflow, and surface runoff increased, likely due to rapid urbanization, resulting in a lower infiltration rate. These results will contribute towards the decision-making processes and development of alternate water management policies within the province, taking into account the regional variations in climate change's impact on the hydrology of Ontario's watersheds.
James and Hudson Bays Molting Black Scoter Survey	Canadian Wildlife Service		https://seaduckky.org/james-and-hudson-bays-molting-black-scoter-survey/	4/16/2024	EN	Wildlife and wildlife habitat	James and Hudson Bays Molting Black Scoter Survey.
MFN Elders' Guiding Principles	Northern Road Link		https://northernroadlink.ca/a-joint-principles/	n.d.	EN	Economic development and livelihoods; Community health; Cultural vitality; Social and economic; Traditional processes for deliberation; Indigenous Peoples; Infrastructure	Marten Falls First Nation Elders' Guiding Principles and the Webequie First Nation Three-Tier Approach.
King Rail and Least Bittern government response statement	Ministry of the Environment, Conservation and Parks		https://www.ontario.ca/page/king-rail-and-least-bittern-government-response-statement	3/9/2023	EN / FR	Wildlife and wildlife habitat; Migratory birds; Avifauna; Species at risk	Ontario's policy direction for the protection and recovery of King Rail and Least Bittern
Lake geochemistry of Ontario	Ontario Geological Survey		https://www.geologyontario.mndm.gov.on.ca/mndmfiles/pub/data/records/LakeGeochemON.html	2020	EN	Water and river systems	Geochemical data of lake sediment samples taken within the Fort Hope–Miminiska greenstone belt; generally the western half. Includes geochemical datasets, interpretation and evaluation for mineral potential. Contains geochemical data, simplified lake water chemistry and interpretation of results. Open File Report OFR6071 and MRD 089.
Land Cover of Canada - Cartographic Product Collection	Government of Canada; Natural Resources Canada		https://open.canada.ca/data/en/dataset/11990a35-912e-4002-b197-d57dd88836d7	11/1/2019	EN / FR	Land cover	Collection of Land Cover products for Canada as produced by Natural Resources Canada using Landsat satellite imagery. This collection of cartographic products offers classified Land Cover of Canada at a 30 metre scale, updated on a 5 year basis.
Land Surface Evapotranspiration for Canada's Landmass Observation	Government of Canada; Natural Resources Canada; Canada Centre for Mapping and Earth Observation		https://open.canada.ca/data/en/dataset/0005301b-624e-4000-8dad-a1a1ac6b46c2	9/23/2013	EN / FR	Land cover	The datasets contain land surface evapotranspiration (ET, in mm of H2O) for Canada's landmass at a spatial resolution of 5-km and temporal intervals of a month and a year over a 24-year period of 2000–2023. The ET was produced by the Land Surface Model EALCO (Ecological Assimilation of Land and Climate Observations) developed at Natural Resources Canada. The EALCO model was run at a 30-minute time step. The monthly (or annual) ET in the datasets is the sum of the 30-minute ET values in a month (or a year). Dew and frost formations simulated by EALCO are included in the ET as negative values, so the ET represents the net water flux between land surface and the atmosphere. Details of the datasets and the EALCO ET modelling algorithms can be found in Wang (2007, Simulation of Evapotranspiration and Its Response to Plant Water and CO2 Transfer Dynamics, J. Hydrometeorology, 9, 426–443, doi: 10.1175/2007JHM918.1) and Wang et al. (2013, Spatial and seasonal variations in evapotranspiration over Canada's landmass. Hydrol. Earth Syst. Sci., 17, 3561–3575, doi:10.5194/hess-17-3561-2013).
Land use planning policy in the Far North Region of Ontario: Conservation targets, politics of scale, and the role of civil society organizations in Aboriginal-state relations	Burlando, Catie		https://mspace.lib.umanitoba.ca/server/api/core/bitstreams/27c46743-300e-4692-99b7-7d6a0c404d7b/content	2012	EN	Treaty rights; Social and economic; Indigenous Peoples; Infrastructure	This thesis analyzes the roots of contentious politics for land use planning in the Far North Region of Ontario. It includes 1) the evolution of land use planning policy development between 1975 and 2010 in the region; 2) the role of strategies of civil society organization in influencing planning policy development; and 3) the impacts that different planning approaches have for enabling Indigenous decision-making authority in their territories.
Large multi-decade beaver ponding changes in the subarctic Hudson Bay Lowlands, Canada observed using satellite remote sensing	Fraser, Robert H; Olthof, Ian; Berezanski, Dean	10.1088/1748-9326/ad36d6	https://dx.doi.org/10.1088/1748-9326/ad36d6	2024-04	EN	Wildlife and wildlife habitat	Beavers strongly impact hydrology and ecosystems through their widespread dam building that creates ponds and wetlands. Monitoring the relative abundance of beavers and their waterbodies is needed to assess these effects and factors influencing population levels. However, the ability to do this over vast, remote regions is limited with conventional aerial or field-based surveying. To address this challenge, we developed a satellite remote sensing method to track beaver ponding changes over multiple decades and applied it to a 5127 km ² region of the coastal Hudson Bay Lowlands in Manitoba, Canada. Annual, sub-pixel surface water mapping using 30 m resolution Landsat satellite data, combined with a spatial database of beaver dams, permitted the mapping of 37 year (1985–2021) beaver ponding dynamics. We identified 1714 beaver dams and 1085 beaver pond complexes covering 31 km ² , indicating that beavers have an important influence on stream hydrology in this high subarctic landscape. The total area of ponding decreased by 53% from 1986–1989 and by 80% by 1995, and then gradually recovered to initial levels by 2015. The early, steep drop in beaver ponding corresponded to a 13% decline in regional surface water area, while a similar wetness decline during 2015–2018 resulted in little change in beaver ponding. We suggest that strong beaver ponding dynamics were likely caused by the interaction between streamflow levels and beaver populations living near their northern range limit and cold tolerance. The pond mapping method can be applied to other regions if the long-term distribution of beaver dams is known, and ponds are large enough to be identified using a Landsat sub-pixel approach.

Lasting regional gains from non-renewable resource extraction: The role of sustainability-based cumulative effects assessment and regional planning for mining development in Canada	Atlin, C; Gibson, R.	10.1016/j.exis.2017.01.005	https://www.sciencedirect.com/science/article/pii/S2214790X16301721	2017	EN	Cumulative effects; Infrastructure; Mining; Sustainability	A review of the cumulative effects related to mining including the current status of assessment regimes, deficiencies and suggestions where best practice opportunities exist. The major mining legacy factors can be summarized in interconnected categories including depletion of a non-renewable resource, boom/bust effects, residual adverse effects on or risked to the land, waters and wildlife, inappropriate residual infrastructure, and effects on local, especially Indigenous communities. The paper concludes that the mining developments in the Ring of Fire will generate significant cumulative effects. The region's future prospects would be better served by steps to establish tiered regional and project planning and assessments, to plan for positive legacies and to orient approaches for sustainable futures.
Laying the Groundwork for a Community Risk Assessment of the Ring of Fire and Related Infrastructure	Spitzig, A		https://yorkspace.library.yorku.ca/xmlui/bitstream/handle/10315/36373/MESMP03056.pdf?sequence=1	2019	EN	Mining; Community health; Climate change; Infrastructure	Spitzig provides a history of the Ring of Fire region, situating the development's current status within political, historical, and ecological realities. Focus is placed on the role that Indigenous communities could fill in the Environmental Assessment process. [Complementary paper: https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3690540]
Learning From One Another: Labour Markets in Northern Ontario	The Conference Board of Canada; Future Skills Centre		https://fsc-ccf.ca/wp-content/uploads/2025/04/labour-markets-in-northern-ontario-2025.pdf	3/20/2025	EN / FR	Economic development and livelihoods; Social and economic	This primer provides an overview of Northern Ontario's labour market conditions. It is part of a multi-year collaborative research project which explores labour markets in Nunavut, Northern Ontario, and Yukon.
Learning from Place: A Return to Traditional Mushkegowuk Ways of Knowing	Restoule, Jean-Paul, Gruner, Shelia, Metatawabin, Edmund	199.212.18.130	https://www.jstor.org/stable/canajeducrevucan.36.2.68	2013		Physical and cultural heritage; Cultural vitality; Language maintenance; Inter and intra generational values; Social and economic; Traditional processes for deliberation	This paper details a research project dedicated to honouring Mushkegowuk Cree concepts of land, environment and life in Fort Albany First Nation. Community youth interviewed local Elders to produce an audio documentary about the relations of the people to their traditional territory. These interactions evolved into a 10-day river trip with youth, adult and elder participants traveling together on their traditional waters and lands learning about the meaning of paquataskamik, the Cree word used for traditional territory, all of the environment, nature, and everything it contains. Bringing generations of community members together on the land led to reclamation of culture and indigenous knowledge and built greater community resistance to external forms of economic exploitation and development.
Least Bittern (Species at Risk Webpage)	Ministry of the Environment, Conservation and Parks		https://www.ontario.ca/page/least-bittern	12/21/2022	EN / FR	Migratory birds; Avifauna; Species at risk	Provide information on the status of the Least Bittern (e.g., endangered or threatened), general life history and a place to direct the general public or Proponents for further information regarding the species (e.g., Recovery Strategies, Government Response Statements, etc.)
Life history characteristics of lake whitefish (<i>Coregonus clupeaformis</i>), cisco (<i>Coregonus artedii</i>), and northern pike (<i>Esox lucius</i>) in rivers of the Hudson Bay Lowlands	DeJong, R.A		https://libuwspaceprd02.uwaterloo.ca/handle/10012/11891	2017	EN	Fish and fish habitat	Many northern fishes display plasticity in life history and trophic ecology that can influence productivity of fisheries and bioaccumulation of contaminants, such as mercury. Cisco (<i>Coregonus artedii</i>), Lake Whitefish (<i>Coregonus clupeaformis</i>), and Northern Pike (<i>Esox lucius</i>) are important subsistence food fishes to Aboriginal communities on the west coast of Hudson Bay, and our understanding of the life history of these fishes is incomplete. In this study, I investigated life history and trophic ecology of Cisco, Lake Whitefish, and Northern Pike from three rivers of the Hudson Bay Lowlands. Fish of each species were classified as either non-migratory or migratory using otolith microchemistry profiles, and results indicated clear use of marine habitats by Cisco and Lake Whitefish.
Literature Review of Current Fugitive Dust Control Practices within the Mining Industry	Golder Associates Ltd.		https://iaac-aeic.gc.ca/050/documents/p54755/143421E.pdf	2010	EN	Mining; Air quality	Golder Associates Ltd. was retained to develop a Best Management Practice (BMP) Guidance Document for use in the mining industry. The report provides a literature review of the current recommended BMPs related to activities within the mining industry and can be used as a reference when developing a BMP Plan.
Little Brown Myotis (Species at Risk Webpage)	Ministry of the Environment, Conservation and Parks		https://www.ontario.ca/page/little-brown-myotis	8/12/2021	EN / FR	Wildlife and wildlife habitat; Species at risk	Provide information on the status of the Little Brown Myotis (e.g., endangered or threatened), general life history and a place to direct the general public or Proponents for further information regarding the species (e.g., Recovery Strategies, Government Response Statements, etc.)
Little Brown Myotis, Northern Myotis and Tri-colored Bat government response statement	Ministry of the Environment, Conservation and Parks		https://files.ontario.ca/mecp-1/mecp-bats-grs-en-2020-09-04.pdf	2020	EN / FR	Wildlife and wildlife habitat; Species at risk	Ontario's policy direction for the protection and recovery of Little Brown Myotis, Northern Myotis and Tri-colored Bat.
Little Current River Provincial Park Interim Management Statement	Ministry of the Environment, Conservation and Parks		https://www.ontario.ca/page/little-current-river-provincial-park-management-statement	1991	EN	Mining; Forests; Physical and cultural heritage; Current use; Geology	This document provides policy direction for the protection, development and management of Little Current River Provincial Park and its resources.
Little Gulls (<i>Hydrocoloeus minutus</i>) in the Hudson Bay Lowlands, Northern Ontario, Canada 1973–2021	Friis, Christian; Weseloh, D. V. Chip; Abraham, Kenneth F.	10.1675/063.047.0202	https://bioone.org/journals/waterbirds/volume-47/issue-2/063.047.0202/Little-Gulls-Hydrocoloeus-minutus-in-the-Hudson-Bay-Lowlands-Northern/10.1675/063.047.0202.full	2024-10	EN	Wildlife and wildlife habitat; Migratory birds; Avifauna	Limited information exists on Little Gulls (<i>Hydrocoloeus minutus</i>) in the Hudson Bay Lowlands, their presumed primary North American breeding site. A 48-year checklist dataset from 1973–2021 in the Ontario portion of the Lowlands combined with a 10-year intensive observation dataset from July to September 2009–2019 in southwestern James Bay, Ontario, reveal key insights. Checklist records consisted primarily of migrants and included 473 Little Gulls (annual mean = 14.8, range = 0–91), with peak numbers (122 individuals) in the third week of May. Intensive observations documented 267 Little Gulls (range = 3–54/year). In the intensive study, adults were first recorded in the third week of July, while second-year birds and juveniles appeared in the first week of August, when all age groups peaked in abundance. The last sightings were juveniles and occurred in the first week of September. This paper advances understanding of Little Gull ecology and migration in North America, emphasizing the necessity for future research. Future studies that employ advanced tracking technology will reveal breeding locations, migration routes, roosting sites, and non-breeding locations, which are vital for the conservation of this enigmatic North American gull species.
Long-distance migratory shorebirds travel faster towards their breeding grounds, but fly faster post-breeding	Duijns, Sjoerd; Anderson, Alexandra M.; Aubry, Yves; Dey, Amanda; Flemming, Scott A.; Francis, Charles M.; Friis, Christian; Gratto-Trevor, Cheri; Hamilton, Diana J.; Holberton, Rebecca; Koch, Stephanie; McKellar, Ann E.; Mizrahi, David; Morrissey, Christy A.; Neima, Sarah G.; Newstead, David; Niles, Larry; Nol, Erica; Paquet, Julie; Rausch, Jennie; Tudor, Lindsay; Turcotte, Yves; Smith, Paul A.	10.1038/s41598-019-45862-0	https://www.nature.com/articles/s41598-019-45862-0	7/1/2019	EN	Wildlife and wildlife habitat; Migratory birds; Avifauna	Long-distance migrants are assumed to be more time-limited during the pre-breeding season compared to the post-breeding season. Although breeding-related time constraints may be absent post-breeding, additional factors such as predation risk could lead to time constraints that were previously underestimated. By using an automated radio telemetry system, we compared pre- and post-breeding movements of long-distance migrant shorebirds on a continent-wide scale. From 2014 to 2016, we deployed radio transmitters on 1,937 individuals of 4 shorebird species at 13 sites distributed across North America. Following theoretical predictions, all species migrated faster during the pre-breeding season, compared to the post-breeding season. These differences in migration speed between seasons were attributable primarily to longer stopover durations in the post-breeding season. In contrast, and counter to our expectations, all species had higher airspeeds during the post-breeding season, even after accounting for seasonal differences in wind. Arriving at the breeding grounds in good body condition is beneficial for survival and reproductive success and this energetic constraint might explain why airspeeds are not maximised in the pre-breeding season. We show that the higher airspeeds in the post-breeding season precede a wave of avian predators, which could suggest that migrant shorebirds show predation-minimizing behaviour during the post-breeding season. Our results reaffirm the important role of time constraints during northward migration and suggest that both energy and predation-risk constrain migratory behaviour during the post-breeding season.
Long-term continental changes in wing length, but not bill length, of a long-distance migratory shorebird	Lank, David B.; Xu, Cailin; Harrington, Brian A.; Morrison, Richard I. Guy; Gratto-Trevor, Cheri L.; Hicklin, Peter W.; Sandercock, Brett K.; Smith, Paul Allen; Kwon, Eunbi; Rausch, Jenjje; Pirie Dominix, Lisa D.; Hamilton, Diana J.; Paquet, Julie; Bliss, Sydney E.; Neima, Sarah G.; Friis, Christian; Flemming, Scott A.; Anderson, Alexandra M.; Ydenberg, Ronald C.	10.1002/ece3.2898	https://onlinelibrary.wiley.com/doi/abs/10.1002/ece3.2898	2017	EN	Wildlife and wildlife habitat; Migratory birds; Avifauna	We compiled a >50-year record of morphometrics for semipalmated sandpipers (<i>Calidris pusilla</i>), a shorebird species with a Nearctic breeding distribution and intercontinental migration to South America. Our data included >57,000 individuals captured 1972–2015 at five breeding locations and three major stopover sites, plus 139 museum specimens collected in earlier decades. Wing length increased by ca. 1.5 mm (>1%) prior to 1980, followed by a decrease of 3.85 mm (nearly 4%) over the subsequent 35 years. This can account for previously reported changes in metrics at a migratory stopover site from 1985 to 2006. Wing length decreased at a rate of 1,098 darwins, or 0.176 haldanes, within the ranges of other field studies of phenotypic change. Bill length, in contrast, showed no consistent change over the full period of our study. Decreased body size as a universal response of animal populations to climate warming, and several other potential mechanisms, are unable to account for the increasing and decreasing wing length pattern observed. We propose that the post-WWII near-extirpation of falcon populations and their post-1973 recovery driven by the widespread use and subsequent limitation on DDT in North America selected initially for greater flight efficiency and latterly for greater agility. This predation danger hypothesis accounts for many features of the morphometric data and deserves further investigation in this and other species.
Long-term distribution responses of a migratory caribou herd to human disturbance	Johnson, C. J.; Russell, D. E.	https://doi.org/10.1016/j.biocon.2014.06.007	https://www.sciencedirect.com/science/article/pii/S0006320714002341	2014	EN	Wildlife and wildlife habitat; Species at risk; Infrastructure	Caribou and reindeer (<i>Rangifer</i> spp.) are known to respond negatively to human activities. Disturbance stimuli can result in short-term behavioural responses or the abandonment of portions of seasonal range. There is relatively little understanding, however, of the ability of caribou to adapt or habituate to long-term human-caused disturbance.

Long-Term Range Recession and the Persistence of Caribou in the Taiga	Schaefer, James A.	https://www.jstor.org/stable/3588967	2003	EN	Forests; Public; Species at risk; Wildlife and wildlife habitat	Spatial patterns can help in understanding the decline and future prospects of threatened species, but the dynamics of range retraction have not been applied to these fundamental questions. I analyzed long-term changes in occupancy by taiga-dwelling caribou (Rangifer tarandus caribou) to estimate their rate of disappearance and time to extirpation in Ontario, Canada. Patterns of range recession, 1880-1990, indicated that half of historic woodland caribou range has been lost, a rate of disappearance of \$34,800/km ² per decade, and a northward range recession of 34 km per decade. The mean metapopulation density, the abundance of discrete winter groups, was one group per \$1,900/km ² , suggesting an average loss of 18 caribou wintering areas per decade during this period. There was a strong coincidence between the recent southern limits of caribou occupancy and the northern front of forest harvesting, implying an anthropogenic agent of decline. The estimated time to extirpation of forest-dwelling caribou in Ontario, inferred from the sustained rate of disappearance, was 91 years (95% confidence interval: 57-149 years). The persistence of woodland caribou may depend on spatial separation from human incursion.	
Lower Albany Watershed Region - Content Collection	Natural Resources Canada; Impact Assessment Agency of Canada	https://osdp-psdo.canada.ca/dp/en/search/metadata/NRCAN-ROF-1-2C82DC9C-FB7D-4B75-ACE6-E69F57B0EB45/metadata/NRCAN-ROF-1-5F183851-3814-4352-85B8-D292DC2CA1/metadata/NRCAN-ROF-1-8E6A891E-6170-44B8-85E7-820D57179B1E	10/1/2023	EN / FR	Fish and fish habitat; Lower Albany River; Upper Albany River; Water and river systems	The Lower Albany Watershed Region is one of the five secondary watersheds in Northern Ontario surrounding the Ring of Fire, including: Winisk, Attawapiskat, Upper Albany, and Ekwan. In addition to the datasets found in this collection for this specific watershed region, further datasets may be found in the topic-based content collections for Northern Ontario that are Canada-wide. Consider searching the following content collections for information that covers a larger area and may include this watershed region: Air, Climate, Water, Economy and Industry, Land, and Biodiversity.	
Magino Gold Project Draft Environmental Assessment Report	Canadian Environmental Assessment Agency	https://www.acee.gc.ca/050/evaluations/document/125785?culture=en-CA&#_Toc056	2018	EN / FR	Mining; Cumulative effects; Cultural vitality; Treaty rights; Social and economic; Current use; Water and river systems; Wildlife and wildlife habitat; Migratory birds; Climate change; Air quality; Hydrology; Species at risk; Fish and fish habitat; Indigenous Peoples; Infrastructure	Prodigy Gold Incorporated (the proponent) is proposing the construction, operation, decommissioning and abandonment of the Magino Gold Mine Project (the Project), which includes an open-pit gold mine and metal mill located 14 kilometres south-east of Dubreuilville, Ontario. The mine and metal mill would have an ore production capacity of 45 200 tonnes per day and an ore input capacity of 35 000 tonnes per day, respectively, and would operate for approximately 12 to 15 years.	
Management Plan for the Black Tern (Chlidonias niger) in Ontario	Burke, Peter S	http://www.ontario.ca/page/black-tern-management-plan	2012	EN / FR	Avifauna; Migratory birds; Public; Species at risk	This document advises the ministry on ways to ensure healthy numbers of Black Tern, a species of special concern, return to Ontario.	
Management Plan for the Horned Grebe (Podiceps auritus) in Ontario	Kirk, D.A.	https://www.ontario.ca/page/horned-grebe-management-plan	2014	EN / FR	Avifauna; Migratory birds; Public; Species at risk	This document advises the ministry on ways to ensure healthy numbers of Horned Grebe, a species of special concern, return to Ontario.	
Map of long-term drinking water advisories on public systems on reserves	Indigenous Services Canada	https://www.sac-isc.gc.ca/eng/1620925418298/1620925434679	6/16/2025	EN / FR	Community health; Water and river systems	Explore the map for details on lifted and active long-term drinking water advisories and related projects. This map and table includes data on long-term drinking water advisories (LTDWAs) on public water and wastewater systems on reserve that are financially supported by Indigenous Services Canada.	
Indexes of Maps (in map format)	Ministry of Energy and Mines; Ontario Geological Survey	https://www.geologyontario.mndm.gov.on.ca/mines/logs/indexes/maps_e.html	2026	EN / FR	Geology	The maps indexed here represent more than 100 years of geologic mapping by the Mines and Minerals Division, the Ontario Geological Survey (OGS) and its predecessor organizations.	
Mapping surface water dynamics (1985–2021) in the Hudson Bay Lowlands, Canada using sub-pixel Landsat analysis	Othof, Ian; Fraser, Robert H.	https://www.sciencedirect.com/science/article/pii/S0034425723004467	10.1016/j.rse.2023.113895	1/1/2024	EN	Peatlands; Water and river systems	The fate of the carbon stored in frozen peatlands in Canada's Hudson Bay Lowlands (HBL) depends strongly on water, with wetter conditions favoring long-term storage. Dynamic surface water products generated from historical Landsat data exist to inform surface water trends in the HBL based on binary classifications of land vs water at 30 m spatial resolution. However, the HBL contains many water features smaller than 30 m, including streams and patterned fens that require a sub-pixel mapping approach to fully capture their dynamics. In this paper, we leverage an existing binary dynamic surface water product to generate a spatially and temporally comprehensive Landsat sub-pixel surface water time-series over the HBL. We first generate Landsat Red, NIR and SWIR composites from 1985 to 2021 and evaluate data-driven machine learning and physical models to derive sub-30 m water fractions across the entire mapping domain. Data-driven models were calibrated on 30 m water fractions obtained from 16 of 17 WorldView scene water fraction maps and assessed on the 17th held-out scene in a jackknife validation. Data-driven models were also calibrated by relating scaled Landsat reflectance to water fractions obtained from binary water masks at corresponding scales from 90 to 270 m. Physical models involved simple linear unmixing using a new approach that samples land endmembers in the vicinity of each pixel to represent land reflectance, and a global water endmember sampled beneath permanent water in each image. The assumption of linear scaling was verified at sub-30 m to 270 m resolution for NIR, SWIR and NDVI, which were all highly correlated with water fraction and had no significant differences among water fraction – spectral feature relationships across the full range of scales. Each of 11 different methods and input spectral features were evaluated against WorldView water fractions and ranked based on nine criteria. We found that machine learning using all spectral features including local NIR land endmembers performed best among data-driven approaches, and linear unmixing of the NIR band using local land endmembers performed best among physical. Both best-performing methods were applied to the entire time-series and surface water area trends were calculated and compared with trends obtained from binary water masks. All three methods agree on the direction of surface water change towards wetting, with sub-pixel inter-annual variation agreeing with stream discharge noted in other studies.
Marathon Palladium Project - Human Health Risk Assessment Update	Ecometrix Incorporated; Tang, J; Fraser, B	https://iaac-aeic.gc.ca/050/documents/p54755/138705E.pdf	4/16/2021	EN	Food security; Community health; Current use; Water and river systems; Air quality	The human health risk assessment (HHRA) looked at the potential effects on human health in the context of air quality, water quality, country foods, noise and electromagnetic fields. Predicted concentrations of constituents of potential concern (CoPCs) and environmental stressors were evaluated to identify issues requiring further assessment from a human health perspective.	
Marathon Palladium Project Environmental Impact Statement Addendum	Stantec Consulting Ltd; Northern Bioscience; Knight Piésold Consulting; Ecometrix	https://iaac-aeic.gc.ca/050/documents/p54755/139004E.pdf	2021	EN	Mining; Food security; Treaty rights; Current use; Indigenous Peoples	Indigenous considerations in the EIS to address the effects of changes to the environment and the potential effects on Indigenous peoples resulting from such changes to health, physical and cultural heritage, the current use of lands and resources for traditional purposes, and any structure, site or thing that is of historical, archaeological, paleontological or architecture significance. First Nation communities consulted: Long Lake #58, Ginoogaming, and Animiigoo Zaag'igan Anishinaabek.	
Marten Falls Community Access Road Project – Agency responses to comments received until December 19, 2019	Impact Assessment Agency of Canada	https://iaac-aeic.gc.ca/050/documents/p80184/133508E.pdf	2019	EN	Indigenous Peoples; Infrastructure; Physical and cultural heritage; Upper Albany River	Agency responses to comments received until December 2019, regarding the Marten Falls Community Access Road Project. Animiigoo Zaag'igan Anishinaabek, Attawapiskat, Fort Albany, Aroland, Neskantaga, and Marten Falls First Nations commented on the impacts to cultural heritage and archeological resources, such as burial sites and locations used for the purpose of teaching. In particular, the Muketei River was mentioned as an important cultural site.	
Marten Falls First Nation Community Access Road Groundwater and Geochemistry Program Field Notice	AECOM Canada Ltd.	http://www.martenfallsaccessroad.ca/wp-content/uploads/2021/10/2021-Groundwater-and-Geochemistry-Field-Notice.pdf	2021	EN	Water and river systems; Geology; Hydrology; Infrastructure	This is a notice of project for the field work associated with the Impact Assessment for the Marten Falls First Nation's proposed Community Access Road. 26 sites along two routes will be used as drilling locations. Likely only the northern most 4-6 sites will be close enough to be relevant for the Ring of Fire project.	
Marten Falls First Nation Industrial Supply Road Hydrogeology Baseline Study	KBM Resources Group	N/A	2019	EN	Geology; Hydrology; Infrastructure	A hydrogeological study was completed by KBM Resources Group for the MFFN Industrial Supply Road in 2019. The study was a desktop analysis focusing on understanding of the existing physical settings including physiography, geology, groundwater and groundwater users in the vicinity of the Project. A very brief description of the hydrogeological conditions was provided in the report. No field work and associated data collection including groundwater level monitoring, groundwater quality sampling and hydraulic conductivity testing was carried out.	
Matawa First Nations, Community and Life Experiences, Volume 2 (North)	Jacasum, John Paul	http://occc.ca/library/MATAWA%20%20Com.%20and%20Life%20Exp.%20VOL%202.pdf	2007	EN	Family, youth, and children; Physical and cultural heritage; Cultural vitality; Language maintenance; Social and economic; Indigenous Peoples	The purpose of this book is to highlight the past and present life experiences of elders and youth in the Matawa communities.	
McFaulds Lake ("Ring of Fire") area lake sediment and water geochemistry, Northern Ontario	Ministry of Mines; Handley, L.A.; Dyer, R.D.	https://www.geologyontario.mines.gov.on.ca/persistent-linking?publication=MRD373	2018	EN	Water and river systems		
Noront Resources LTD. Eagle's Nest Project Terms of Reference	Knight Piésold Ltd.	https://iaac-aeic.gc.ca/050/documents/p90033/164018E.pdf	10/5/2012	EN	Air quality; Geology; Hydrology; Indigenous Peoples; Infrastructure; Mining; Physical and cultural heritage; Social and economic; Sustainability; Water and river systems	Terms of Reference (ToR) for the Noront Eagle's Nest Project environmental assessment, in compliance with provincial laws, regulations and guidelines applicable to the development of mining projects in Ontario.	

Mercury bioaccumulation in lacustrine fish populations along a climatic gradient in northern Ontario, Canada	Sumner, A.W; Johnston, T.A.; Lessard, G.L.; Burnfire, B.A.; Gunn, J.M.	10.1007/s10021-019-00464-9	https://link.springer.com/article/10.1007/s10021-019-00464-9	2019	EN	Fish and fish habitat	Climate change is predicted to alter many processes in boreal aquatic ecosystems, including mercury (Hg) bioaccumulation in fish. We investigated current patterns in fish Hg across a climatic gradient in northern Ontario, Canada, to assess the possible influence of further climate change. Cohabiting populations of walleye (a piscivore) and white sucker (a benthivore) were sampled from lakes spanning over 9.0° of latitude (45° 24' N-54° 20' N). Latitudinal trends were evident in climatic conditions, as well as several other ecosystem characteristics over this range. Muscle total Hg concentration ([THg]) was modelled with respect to climatic variables as well as other physical, chemical, and biological variables, and all models were ranked by Akaike information criterion. Neither long-term mean temperature nor precipitation was a strong predictor of current muscle [THg] in either species across this region. Instead, drainage basin characteristics (for example, mean slope) and lake water chemistry (for example, [DOC], [SO4]) were the strongest predictors, followed by fish biological traits (for example, muscle $\delta^{13}C$). Walleye [THg] was more strongly related to water chemistry, and white sucker [THg] was more strongly related to drainage basin physical characteristics. For both species, muscle [THg] showed unimodal relationships with several predictors (for example, latitude, [SO4], [DOC]), peaking in their mid-ranges. Fish [THg] is not strongly associated with current climatic conditions across northern Ontario but may be influenced by climate change in future through indirect effects on water chemistry and food web structure.
Mercury in Subsistence and Sport Fish	Ministry of Natural Resources and Forestry: Science and Research Branch		Held by Ministry of Natural Resources and Forestry: Science and Research Branch	2018	EN	Fish and fish habitat; Food security; Not public	This multi-collaborator project provided new and updated information on mercury concentrations, and other aspects of food quality (metals, fatty acids), for a variety of fish species across the Far North in order to update and expand fish consumption guidelines for the region. A total of 11 rivers and 42 lakes were sampled, and tissues were obtained from partner organizations for an additional 13 lakes.
Migration Distance and Body Condition Influence Shorebird Migration Strategies and Stopover Decisions During Southbound Migration	Anderson, Alexandra M.; Duijns, Sjoerd; Smith, Paul A.; Friis, Christian; Nol, Erica	10.3389/fevo.2019.00251	https://www.frontiersin.org/journals/ecology-and-evolution/articles/10.3389/fevo.2019.00251/full	7/9/2019	EN	Wildlife and wildlife habitat; Migratory birds; Avifauna	Technological constraints have limited our ability to compare and determine the proximate and ultimate drivers of migratory behaviour in small-bodied birds. Small VHF transmitters (9,000 km; pectoral sandpiper, <i>Calidris melanotos</i> , and white-rumped sandpiper, <i>Calidris fuscicollis</i>) would be more likely to migrate with characteristics of a time-minimizing migration strategy compared to species migrating intermediate distances (5,000-7,500 km; semipalmated sandpiper, <i>Calidris pusilla</i> ; and lesser yellowlegs, <i>Tringa flavipes</i>) or shorter distances (~5,000 km; least sandpiper, <i>Calidris minutilla</i> ; semipalmated plover, <i>Charadrius semipalmatus</i>), which would migrate with more characteristics of an energy-minimizing strategy. Our results indicate that migration and stopover behaviours for adults matched this prediction; longer distance migrants had longer stopover lengths, departed with higher relative fuel loads, flew with faster ground and airspeeds, and had a lower probability of stopover in North America after departing the subarctic. The predicted relationship between migration distance and migratory strategy was not as clear for juveniles. Despite our prediction that longer distance migrants would be less wind selective at departure and fly into headwinds en route, all species and age classes departed and migrated with supportive winds. Birds with higher estimated fuel loads at departure were less likely to stop in North America after departing the subarctic, indicating that some birds attempted non-stop flights from the subarctic to the Caribbean or South America. Additionally, within species, adults with higher relative fuel loads at departure had a higher detection probability after departing the subarctic, which we interpret as evidence of higher survival compared to juveniles. This study shows that migratory behaviour of shorebirds has predictable patterns based on migration distance that are moderated by body condition of individuals, with potential implications for fitness.
Mineral Occurrences - Mining Lands Administration System	Ministry of Northern Development, Mines, Natural Resources and Forestry		https://ws.iioservices.lrc.gov.on.ca/arcgis1071a/rest/services/MLAS/mlas/MapServer/20	1/25/2022	EN	Mining; Geology	
Mining Claims	Ministry of Northern Development Mines, Natural Resources and Forestry		https://www.geologyontario.mndm.gov.on.ca/ogsearch.html	3/31/2022	EN	Mining	Mining claims with date time enable.
Mining exploration causing permanent damage in Ring of Fire, Wildlands League says	CBC News		https://www.cbc.ca/news/canada/thunder-bay/mining-exploration-causing-permanent-damage-in-ring-of-fire-wildlands-league-says-1.3129705	2015	EN	Mining; Community safety; Food security; Community health; Physical and cultural heritage; Treaty rights; Current use; Water and river systems; Hydrology	Wildlands League challenges the idea that early mining operations in the Ring of Fire are benign. They provide photo evidence that exploration activities have resulted in significant landscape disruption and argue that continuing the Project will cause more damage. They express fear that wildlife such as Caribou and wolverine risk being permanently driven away by mining operations in the area.
Mining in Northwestern Ontario: Opportunities and Challenges	Bahram, D; Garofalo, S; Gradojevic, N; Lento, C; Peterson, K; Small Business Consulting Service		http://www.noma.on.ca/upload/documents/lu-miningstudy_report.pdf	2012	EN	Mining; Economic development and livelihoods; Community health; Social and economic; Diverse economies and livelihoods; Water and river systems; Wildlife and wildlife habitat; Species at risk	Examines economic impact of further development of mining sector in NW Ontario, and the current and future challenges facing mining. It uses the following 9 projects as a case study: 1. Bending Lake Iron Group Limited – Bending Lake Iron Property; 2. Cliffs Natural Resources Inc. – Black Thor; 3. Goldcorp Inc. – Bruce Channel Deposit and Cochenour Project Gold Projects; 4. Osisko Mining Corporation – Hammond Reef; 5. Noront Resources Ltd. – Eagle's Nest; 6. Rainy River Resources Ltd. – Rainy River Gold Project; 7. Rubicon Minerals Corporation – Phoenix Gold Project; 8. Stillwater Mining Company – Marathon copper-PGE Deposit; 9. Treasury Metals Inc. – Goliath Gold Project. The benefits of the projects include significant employment growth and increased tax revenue. The challenges facing the dev't of mining are a tight labour market in the area, an aging workforce, a highly mobile labour force, inadequate infrastructure (transport/energy/communication), and a lack of adequate electrical power.
Mining in Ontario: A deeper look	Ontario Nature		https://ontariature.org/wp-content/uploads/2017/10/mining-in-ontario-web.pdf	2017	EN	Mining; Peatlands; Forests; Economic development and livelihoods; Cultural vitality; Social and economic; Diverse economies and livelihoods; Current use; Water and river systems; Wildlife and wildlife habitat; Hydrology; Species at risk	This report provides an overview of the mining process and related environmental and social impacts to support dialogue on land use decisions in northern Ontario. It also summarizes resources available to help communities engage in the planning processes associated with mineral exploration and mine development. The report describes the hazards tailings, acid rock discharge, milling, and metals present to human health and the environment.
Mining in Ontario: The latest trends and Industry Outlook	Ontario Mining Association		https://www.oma.on.ca/media/d2j1c0/oma-economic-report.pdf	2012	EN	Mining; Economic development and livelihoods; Social and economic	This report examines the mining industry in Ontario and its contribution to the Ontario economy as a whole. Mining in Northwestern Ontario is also examined as that is the hub of mining in Ontario. The Ring of Fire is defined as a region of interest and is examined.
Mining in subarctic Canada: Airborne PM2.5 metal concentrations in two remote First Nations communities	Liberda, Eric N.; Tsuji, L. J. S.; Pettier, R.E.	10.1016/j.chemosphere.2015.07.058	https://www.sciencedirect.com/science/article/pii/S00456531500778X	2015	EN	Mining; Community health; Air quality; Indigenous Peoples	Airborne particulate matter arising from upwind mining activities is a concern for First Nations communities in the western James Bay region of Ontario, Canada. Aerosol chemical components were collected in 2011 from two communities in northern Ontario. The chemical and mass concentration data of particulate matter collected during this study shows a significant difference in PM2.5 in Attawapiskat compared to Fort Albany. Elemental profiles indicate enhanced levels of some tracers thought to arise from mining activities, such as, K, Ni, and crustal materials. Both communities are remote and isolated from urban and industrial pollution sources, however, Attawapiskat First Nation has significantly enhanced levels of particulate matter, and it is likely that some of this arises from upwind mining activities.
Mining legacy across a wetland landscape: high mercury in Upper Peninsula (Michigan) rivers, lakes, and fish	Kerfoot, W. Charles; Urban, Noel R.; McDonald, Cory P.; Zhang, Huaxing; Rossmann, Ronald; Perlinger, Judith A.; Khan, Tanvir; Hendricks, Ashley; Priyadarshini, Mugdha; Bolstad, Morgan	10.1016/j.chemosphere.2015.07.058	https://pubs.rsc.org/en/content/articlelanding/2018/em/c7em00521k	2018	EN	Mining; Water and river systems; Hydrology; Fish and fish habitat	Airborne particulate matter arising from upwind mining activities is a concern for First Nations communities in the western James Bay region of Ontario, Canada. Aerosol chemical components were collected in 2011 from two communities in northern Ontario. The chemical and mass concentration data of particulate matter collected during this study shows a significant difference in PM2.5 in Attawapiskat compared to Fort Albany. Elemental profiles indicate enhanced levels of some tracers thought to arise from mining activities, such as, K, Ni, and crustal materials. Both communities are remote and isolated from urban and industrial pollution sources, however, Attawapiskat First Nation has significantly enhanced levels of particulate matter, and it is likely that some of this arises from upwind mining activities.
Mining Ontario's Ring of Fire could help build green energy — but also damage vital peatlands	Renner, S.		https://www.cbc.ca/news/science/what-on-earth-ring-of-fire-peatlands-1.6388489	3/18/2022	EN	Mining; Peatlands; Economic development and livelihoods; Climate change	Article discusses potential consequences of Ring of Fire development
Mining Readiness Strategy	MNP LLP		https://gothunderbay.ca/wp-content/uploads/2021/02/CEDC-re-brand_Jan_2021_Thunder-Bay-CEDC_Mining-Readiness-Strategy_Dec_15_2020_Final_1.pdf	2021	EN	Mining; Economic development and livelihoods; Social and economic; Diverse economies and livelihoods	This report describes the current state of the exploration and mining industry in Ontario and Northwestern Ontario, examines the economic impact estimates of the 6 operating mines and 15 exploration projects.
Moderate resolution time series data management and analysis: automated large area mosaicking and quality control	Natural Resources Canada	10.4095/296204	https://osdp-psdo.canada.ca/dp/en/search/metadata/NRCAN-GEOSCAN-1-296204	4/1/2015	EN	Land cover	An overview of the new framework, the Moderate Resolution Time Series Data Management and Analysis System (TSDMAS) for generating value-added data product based on TM, ETM+ and OLI sensors on board the Landsat 5, 7 and 8 missions. Specific focus is on the generation of a circa2010 Top of Atmosphere Reflectance Coverage of Canada, at 30 m spatial resolution. Product generation, quality control, and characteristics of the underlying dataset are described.

Molt Migrant Canada Geese in Northern Ontario and Western James Bay	Abraham, K.F.; Leafloor, J.O.; Rusch, D.H.	10.2307/3802654	https://www.jstor.org/stable/3802654	1999	EN	Wildlife and wildlife habitat; Migratory birds; Avifauna	We undertook migration monitoring surveys and analysis of long-term banding data to determine if there was a significant premolt movement of Canada geese (<i>Branta canadensis</i>) from restored and reintroduced populations in southern Canada and midcontinent United States into northern Ontario and western James Bay. We examined migration chronology, origins, and demographic characteristics of molt migration of Canada geese in northern Ontario and on Akimiski Island, Northwest Territories. From 1985 to 1989, a conspicuous northward migration of large Canada geese was documented throughout northern Ontario from mid-May to the end of June, well after the April migration of the subarctic nesting subspecies of Canada geese (<i>B. c. interior</i>); most nesting interior Canada geese in the Hudson Bay and James Bay lowlands were incubating eggs at this time. Summer-banded Canada geese originating from populations in 26 states and 6 Canadian provinces were captured in coastal areas of James Bay and Hudson Bay between the borders of Quebec and Manitoba. Morphometric discrimination indicated the presence of molting giant Canada geese (<i>B. c. maxima</i>). Most foreign, summer-banded birds were yearlings (53%) and 2-year-olds (17%), but birds up to 15 years old were captured. Approximately 58% of 2-15-year-old females had brood patches, which indicated a nesting attempt in the year of recapture. We suggest that increasing populations of giant Canada geese and declining habitat availability on northern brood-rearing areas will result in increasing levels of competition between populations of Canada geese. Presence of molt migrants on northern breeding areas will also complicate management of some Arctic and subarctic nesting populations of Canada geese.
Monthly fraction of absorbed photosynthetically active radiation absorbed of Canada from Medium Resolution Satellite Imagery	Government of Canada; Natural Resources Canada		https://app.geo.ca/result/en/monthly-fraction-of-vegetation-cover-of-canada-from-medium-resolution-satellite-imagery?id=d708877c-56b8-4255-99e3-3c4abc54597d&lang=en	7/26/2023	EN / FR	Land cover	Fraction of absorbed photosynthetically active radiation (fAPAR) quantified the absorbed by green foliage. fAPAR has been identified by the Global Climate Observing System as an essential climate variable required for ecosystem, weather and climate modelling and monitoring. This product consists of a national scale coverage (Canada) of monthly maps of fAPAR during a growing season (May-June-July-August-September) at 20m resolution.
Monthly Fraction of Vegetation Cover of Canada from Medium Resolution Satellite Imagery	Government of Canada; Natural Resources Canada		https://app.geo.ca/result/en/monthly-fraction-of-vegetation-cover-of-canada-from-medium-resolution-satellite-imagery?id=d7b177e0-274a-4be9-b69a-2030faf83c78&lang=en	7/26/2023	EN / FR	Land cover	FCOVER corresponds to the amount of the ground surface that is covered by vegetation, including the understory, when viewed vertically (from nadir). FCOVER is an indicator of the spatial extent of vegetation independent of land cover class. It is a dimensionless quantity that varies from 0 to 1, and as an intrinsic property of the canopy, is not dependent on satellite observation conditions. This product consists of a national scale coverage (Canada) of monthly maps of FCOVER indicator during a growing season (May-June-July-August-September) at 20m resolution.
Monthly Leaf Area Index of Canada from Medium Resolution Satellite Imagery	Government of Canada; Natural Resources Canada		https://app.geo.ca/result/en/monthly-leaf-area-index-of-canada-from-medium-resolution-satellite-imagery?id=cf29bdb2-bdbb-48c3-b09f-118600801836&lang=en	7/26/2023	EN / FR	Land cover	Leaf area index (LAI) quantified the density of vegetation irrespective of land cover. LAI quantifies the total foliage surface area per ground surface area. LAI has been identified by the Global Climate Observing System as an essential climate variable required for ecosystem, weather and climate modelling and monitoring. This product consists of a national scale coverage (Canada) of monthly maps of the maximum LAI during a growing season (May-June-July-August-September) at 20m.
Monthly Vegetation Essential Climate Variable Maps for the Hudson Bay Lowland using the LEAF-Toolbox Implementation of the SL2P Algorithm	Hong, G.; Fernandes, R. A.; Sun, L.; Djami, N.		https://ostrnrcan-dostmcan.canada.ca/handle/1845/284349	3/5/2025	EN	Forests; Climate change	Leaf area index (LAI), fraction of canopy cover (fCOVER), and fraction of absorbed photosynthetically active radiation (fAPAR) are essential climate variables and widely used in monitoring, understanding, and modeling activities related to land surfaces. Landscape Evolution and Forecasting (LEAF) which includes the Simplified Level 2 Product Prototype Processor (SL2P) algorithm provides an efficient way to produce biophysical parameters in a regional level using Sentinel 2 or Landsat 8. This study applies LEAF to produce monthly LAI, fCOVER and fAPAR for supporting permafrost modeling in Hudson Bay Lowland. The limited field samples were used to assess the thematic performance of those products.
Moose River fish community assessment: The influence of tide and tributaries on a large, coastal river	Lennox, P.A; Vincent, J.; Kruzick, K.; Gillespie, M.		https://www.cabidigitallibrary.org/doi/full/10.5555/20193434117	2018	EN	Food security; Moose River; Fish and fish habitat	Relative to southern rivers, rivers in the Far North of Ontario are monitored infrequently even though these fisheries are crucial to the food security of local First Nations communities. Among those rivers is the Moose River, which supports the Moose Cree First Nation and receives fishing pressure from recreational anglers due to its proximity to other communities. The Moose River is also uniquely influenced by substantial tidal effects from James Bay. An analysis of fisheries monitoring data collected in 2017 is provided as is an assessment of the influence of this unique habitat on various species considered to be important components of the Moose Cree First Nation's sustenance fishery, as well as the river's sport fishery.
Movement and Genomic Methods Reveal Mechanisms Promoting Connectivity in a Declining Shorebird: The Lesser Yellowlegs	Christie, Katherine; Wilson, Robert E.; Johnson, James A.; Friis, Christian; Harwood, Christopher M.; McDuffie, Laura A.; Nol, Erica; Sonsthagen, Sarah A.	10.3390/d15050595	https://www.mdpi.com/1424-2818/15/5/595	2023-05	EN	Wildlife and wildlife habitat; Migratory birds; Avifauna	Integrating tracking technology and molecular approaches provides a comprehensive picture of contemporary and evolutionary mechanisms promoting connectivity. We used mitochondrial DNA and double digest restriction-site associated DNA (ddRAD) sequencing combined with satellite telemetry to investigate the connectivity of geographically disparate breeding populations of a declining boreal shorebird, the lesser yellowlegs (<i>Tringa flavipes</i>). We were able to track 33 individuals on their round-trip migrations to Central and South America and back to the boreal wetlands of North America. Nearly all (93%) adults captured on the breeding grounds returned to within 5 km of the original capture site, with a median dispersal distance of 629 m. While our telemetry data revealed limited breeding dispersal in adults, genetic data uncovered significant interconnectedness across the species' range. Very little genetic structure was estimated at ddRAD autosomal ($\Phi_{ST} = 0.001$), Z-linked ($\Phi_{ST} = 0.001$), and mtDNA loci ($\Phi_{ST} = 0.020$), and maximum likelihood-based clustering methods placed all individuals in a single cluster regardless of capture location, indicating the species is panmictic. Our data indicate that large-scale juvenile dispersal is the main mechanism maintaining connectivity in this species, resulting in the absence of genomic structure.
Multidimensional Small Baseline Subset (MSBAS) Software for Constrained and Unconstrained Deformation Analysis of Partially Coherent DInSAR and Speckle Offset Data	V. Samsonov, Sergey	10.1080/07038992.2024.2424753	https://doi.org/10.1080/07038992.2024.2424753	12/31/2024	EN	Land cover	Differential Interferometric Synthetic Aperture Radar (DInSAR) and speckle offset data are used to measure ground deformation. Computing deformation time series from these data can be challenging due to varying radar line-of-sight acquisition geometry, rapid coherence loss, and the large datasets involved requiring computationally intensive processing. The Multidimensional Small Baseline Subset (MSBAS) Software is designed to compute deformation time series from these data, and its parallelized version is optimized to handle large datasets from modern SAR satellites. The software can produce 1D, 2D, and 3D Surface-Parallel and Aspect-Parallel Flow constrained and 3D unconstrained or 4D deformation time series. It runs on workstations and clusters utilizing OpenMP and MPI/OpenMP. This study presents novel results demonstrating MSBAS capabilities, such as landslides in Northwest Territories, Argentina, and Colombia, as well as tectonic deformation and subsidence in Turkey and Yemen. A 4D deformation time series of glacier flow and surge at the Malaspina Glacier in Alaska is showcased. Equations for solving multidimensional problems are included along with processing parameters and supplemental data used to create constraints. The manuscript serves as a comprehensive manual for the MSBAS Software Version 10. The source code is available.
mus co shee: Indigenous Plant Foods and Horticultural Imperialism in the Canadian Sub-Arctic	Sotoway, Beverly	10.3138/cbmh.32.2.253	https://www.utpjournals.press/doi/pdf/10.3138/cbmh.32.2.253	2015	EN	Food security; Community health; Physical and cultural heritage; Cultural vitality; Inter and intra generational values; Indigenous Peoples	The 17th-century arrival of the Hudson's Bay Company in Rupert's Land disrupted Mushkegowuk (Cree) hunter-gather society by replacing the collection of Indigenous plant foods with a British planted-food model. Within a hundred years of British contact, new foodways relied upon hunting and gardening, bringing a loss in heritage plant food knowledge. Mushkegowuk living in the sub-arctic today have minimal knowledge of edible Indigenous plants. Dependence on limited local gardening or imported foods has affected diet, nutrition, and cultural systems. In addition to exploring plant food gathering and gardening history in the Hudson Bay Lowlands, this paper demonstrates how re-discovering lost foodway knowledge can contribute to the health and well-being of those living in the far north.
Muskelwhite Mine - Ontario	Natural Resources Canada		https://natural-resources.canada.ca/maps-tools-publications/publications/muskelwhite-mine-ontario?_gl=1*17ajl8p*_ga*MTg5MDk3MDJwMC4xNzE5NTk5NzQy*_ga_C2N57Y7DX5*_c2E3NzMoMTUzMzlkZm5jGcxHQxNz_czNDE3NiEzjGo2MCRsMCRoMA..	2015	EN / FR	Mining; Economic development and livelihoods; Cultural vitality; Social and economic; Diverse economies and livelihoods	Muskelwhite was one of the first mines in Ontario to enter into a comprehensive agreement with local First Nations communities, called the Muskelwhite Agreement. In September 2001, the Muskelwhite mine, the First Nation communities of North Caribou Lake, Cat Lake, Kingfisher Lake and Wunnumin Lake, the Shogomama First Nations Council, and the Windigo First Nations Council renewed the Muskelwhite Agreement originally signed in 1996. The agreement sets targets for First Nations employment, opportunities for business development and environmental protection.
National bio-economic analyses of timber supplies, forest management, caribou and cumulative effects – trade-offs, cost effectiveness, risks and opportunities. Note 13	McKenney, D. W.; Pedlar, J. H.; Venier, L. A.		https://ostrnrcan-dostmcan.canada.ca/handle/1845/244247	2022	EN	Forests; Cumulative effects; Wildlife and wildlife habitat; Species at risk	This project will help inform stakeholders about economic costs, benefits and trade-offs surrounding industrial forest activities and caribou habitat. The project aims to inform national level policy and strategic decision-making. The team will develop new national-scale datasets that include socio-economic considerations and climate change impacts. The computer-based modeling framework used in this project will simulate both human and natural forest landscape processes through time and explore the impact of potential management actions. This work should help minimize the trade-offs between economic development and habitat protection, as well as help focus attention on knowledge and research needs.
National Inventory of Orphaned and Abandoned Mines	Natural Resources Canada		https://maps-cartes.services.geo.ca/server_serueur/rest/services/NRCan/online/MapServer/0	2012	EN / FR	Mining	This database aggregates basic information on orphaned and abandoned mine sites from participating Canadian jurisdictions, including their name, location, jurisdiction, and the commodity that was mined. It was originally created in 2012 through the National Orphaned/Abandoned Mines Initiative and has undergone several updates since that time. Data on sites in each jurisdiction is owned and maintained by that jurisdiction. The database includes links to the corresponding records in that jurisdiction. While the database includes common information about all sites, there may be discrepancies in the types of data provided about sites in different jurisdictions and data from some jurisdictions may be updated more frequently than others.

National Inventory Report 1990 - 2021: Greenhouse Gas Sources and Sinks in Canada	Environment and Climate Change Canada		https://www.canada.ca/en/environment-climate-change/services/climate-change/greenhouse-gas-emissions/inventory.html	2023	EN / FR	Climate change	Canada's official national greenhouse gas inventory submission to the United Nations Framework Convention on Climate Change. It includes an inventory of human-induced emission by source, and removals by sink, of all greenhouse gases not controlled by the Montreal Protocol.
National Pollutant Release Inventory	Environment and Climate Change Canada		https://open.canada.ca/data/en/dataset/40e01423-7728-429c-ac9d-2954385ccdfb	11/28/2024	EN / FR	Air quality; Public	The National Pollutant Release Inventory (NPRI) is Canada's public inventory of pollutant releases (to air, water and land), disposals and transfers for recycling. Each file contains data from 1993 to the latest reporting year. These CSV format datasets are in normalized or 'list' format and are optimized for pivot table analyses.
National Protected and Conserved Areas Network	Environment and Climate Change Canada		https://www.canada.ca/en/environment-climate-change/services/national-wildlife-areas/map.html	5/19/2021	EN / FR	Wildlife and wildlife habitat; Migratory birds	This is a map of Canada showing the approximate location of National Wildlife Areas (NWA), Migratory Bird Sanctuaries (MBS), and Other Conserved Areas (OCA) by Environment and Climate Change Canada (ECCC), indicated by different colors. Smaller areas are represented by points, larger areas are represented by area boundaries.
Natural Resource Management and Indigenous Food Systems in Northern Ontario	LeBlanc, Joseph William		https://knowledgecommons.lakeheadu.ca/bitstream/handle/2453/589/LeBlancJ2014d-1b.pdf?sequence=1&isAllowed=y	2009	EN	Cultural vitality; Current use; Food security; Forests; Indigenous Peoples; Social and economic; Sustainability; Treaty rights	This research explores assumptions associated with Crown forest management in Ontario based on the purposes of the Crown Forest Sustainability Act, with specific objectives linking participant action research with independent thesis-action research. Community-based research priorities are reflected in each chapter within the context of Indigenous food systems and natural resource management in Northern Ontario.
Natural Resources Information: Land Cover and Disturbance	Ministry of Natural Resources and Forestry Science and Research Branch		Held by the Ministry of Natural Resources and Forestry	2010	EN	Land cover	A land cover and disturbance database has been completed for the entire Far North. Additional areas beyond the Far North were also completed to allow entire watersheds to be characterized. The land cover database is 2010. The database consists of 27 classes of land cover, including vegetation type (e.g., forests, wetlands) and other cover types (e.g., water). Changes in vegetation from disturbance—both historical (e.g., pre-1990) and more recent—were captured in a provincial database offering an effective means of showing changes in land cover over time.
New Gold Rainy River Project	AMEC		https://www.ceaa-acee.gc.ca/050/evaluations/document/97716?culture=en-CA	2014	EN	Air quality; Avifauna; Climate change; Community health; Current use; Economic development and livelihoods; Fish and fish habitat; Geology; Housing and infrastructure; Hydrology; Indigenous Peoples; Infrastructure; Mining; Peattands; Physical and cultural heritage; Public; Social and economic; Species at risk; Treaty rights; Water and river systems; Wildlife and wildlife habitat	The EIS for the Rainy River Project acknowledges that human health can potentially be affected by the following: air and sound emissions, residual elements in treated effluents discharged to surface waters or groundwater where excess concentrations are present, impacted drinking water, the consumption (or use) of animals or plants that have been negatively impacted, possible spill of controlled materials and traffic accidents resulting in direct physical injury. With the exception of air quality, it was concluded that the human health concerns identified above were deemed unlikely.
New study to look at how mining activity, sound pollution affect Yukon wolverines	Pitkington, Caitrin		https://www.cbc.ca/news/canada/north/wolverine-study-dawson-1.6990749	10/11/2023	EN	Mining; Wildlife and wildlife habitat; Species at risk	This study has not yet been published. The study seeks to understand how industrial activities have changed the historical habitat ranges of Wolverines.
Natural Heritage Information Centre database	Ministry of Natural Resources and Forestry Science and Research Branch		https://www.ontario.ca/page/natural-heritage-information-centre	4/18/2023	EN / FR	Wildlife and wildlife habitat; Species at risk	Database summarizing natural heritage observations from across the province including provincially tracked observations, provincially tracked occurrences, species monitored subject tracking points (collaring information), and species search areas for Species at Risk
NI 43-101 Technical Report Feasibility Study: Mcfaulds Lake Property, Eagle's Nest Project, James Bay Lowlands Ontario, Canada	Burgess, H; Gowans, R; Jacobs, C; Murahwi, C; Damjanovic, B.		https://minedocs.com/23/Eagle%E2%80%99s_Nest_FS_09042012.pdf	2012	EN	Mining; Physical and cultural heritage; Geology; Infrastructure	The study focuses mainly on geology, extraction, and infrastructure, but does include environmental studies, permitting, and social and community impact. Within that section, it mentions the two archaeological assessments completed by Woodland and that no archaeological resources were found.
North American Brant: Effects of changes in habitat and climate on population dynamics	Ward, David H.; Reed, Austin; Sedinger, James S.; Black, Jeffrey M.; Derksen, Dirk V.; Castelli, Paul M.	10.1111/j.1365-2486.2005.00942.x	https://onlinelibrary.wiley.com/doi/10.1111/j.1365-2486.2005.00942.x	2005	EN	Wildlife and wildlife habitat; Migratory birds; Climate change; Public	We describe the importance of key habitats used by four nesting populations of nearctic brant (Branta bernicla) and discuss the potential relationship between changes in these habitats and population dynamics of brant. Nearctic brant, in contrast to most geese, rely on marine habitats and native intertidal plants during the non-breeding season, particularly the seagrass, Zostera, and the macroalgae, Ulva. Atlantic and Eastern High Arctic brant have experienced the greatest degradation of their winter habitats (northeastern United States and Ireland, respectively) and have also shown the most plasticity in feeding behavior. Black and Western High Arctic brant of the Pacific Flyway are the most dependent on Zostera, and are undergoing a shift in winter distribution that is likely related to climate change and its associated effects on Zostera dynamics. Variation in breeding propensity of Black Brant associated with winter location and climate strongly suggests that food abundance on the wintering grounds...
North American Breeding Bird Survey status and trend estimates to inform a wide range of conservation needs, using a flexible Bayesian hierarchical generalized additive model	Smith, Adam C; Edwards, Brandon P M	10.1093/ornithapp/duaa065	https://doi.org/10.1093/ornithapp/duaa065	2/1/2021	EN	Migratory birds; Public	The status and trend estimates derived from the North American Breeding Bird Survey (BBS) are critical sources of information for bird conservation. However, the estimates are partly dependent on the statistical model used. Therefore, multiple models are useful because not all of the varied uses of these estimates (e.g., inferences about long-term change, annual fluctuations, population cycles, and recovery of once-declining populations) are supported equally well by a single statistical model. Here we describe Bayesian hierarchical generalized additive models (GAMs) for the BBS, which share information on the pattern of population change across a species' range. We demonstrate the models and their benefits using data from a selection of species, and we run full cross-validation of the GAMs against 2 other models to compare the predictive fit. The GAMs have a better predictive fit than the standard model for all species studied here and comparable predictive fit to an alternative first difference model. In addition, one version of the GAM described here (GAMYE) estimates a population trajectory that can be decomposed into a smooth component and the annual fluctuations around that smooth component. This decomposition allows trend estimates based only on the smooth component, which are more stable between years and are therefore particularly useful for trend-based status assessments, such as those by the International Union for the Conservation of Nature. It also allows for the easy customization of the model to incorporate covariates that influence the smooth component separately from those that influence annual fluctuations (e.g., climate cycles vs. annual precipitation). For these reasons and more, this GAMYE model is a particularly useful model for the BBS-based status and trend estimates. • The status and trend estimates derived from the North American Breeding Bird Survey are critical sources of information for bird conservation, but they are partly dependent on the statistical model used. • We describe a model to estimate population status and trends from the North American Breeding Bird Survey data, using a Bayesian hierarchical generalized additive mixed model that allows for flexible population trajectories and shares information on population change across a species' range. • The model generates estimates that are broadly useful for a wide range of common conservation applications, such as International Union for the Conservation of Nature status assessments based on trends or changes in the rates of decline for species of concern, and the estimates have better or similar predictive accuracy to other models.
Northern caribou population trends in Canada	Gunn, A; Russell, D.; Earner, J.		https://epe.lac-bac.gc.ca/100/201/301/weekly_checklist/2012/internet/w12-17-U-E.html/collections/collection_2012/ec/En14-43-10-2011-eng.pdf	2011	EN / FR	Wildlife and wildlife habitat; Species at risk	This report builds on research and monitoring conducted and synthesized by participants in the CircumArctic Rangifer Monitoring and Assessment (CARMA) Network. The objective of this report is to summarize information on trends in numbers, distribution, and habitat of northern caribou.
Northern Myotis (Species at Risk Webpage)	Ministry of the Environment, Conservation and Parks		https://www.ontario.ca/page/northern-mytotis	8/12/2021	EN / FR	Wildlife and wildlife habitat; Species at risk	Provide information on the status of the Northern Myotis (e.g., endangered or threatened), general life history and a place to direct the general public or Proponents for further information regarding the species (e.g., Recovery Strategies, Government Response Statements, etc.)
Northern Ontario Engineering Geology Terrain Study Percy Lake Area	Haynes, F.E.		https://www.geologyontario.mines.gov.on.ca/publication/M5123	1981	EN	Geology	Inventory of regional terrain conditions and Northern Ontario Engineering Geology Terrain Study Mapping - Landforms, Materials, Topography, Drainage
Northern Ontario Engineering Geology Terrain Study Armstrong Area	McQuay, D.F.		https://www.geologyontario.mines.gov.on.ca/publication/M5119	1981	EN	Geology	Inventory of regional terrain conditions and Northern Ontario Engineering Geology Terrain Study Mapping - Landforms, Materials, Topography, Drainage
Northern Ontario Engineering Geology Terrain Study Calstock Area	McQuay, D.F.		https://www.geologyontario.mines.gov.on.ca/publication/NOEGTS030	1980	EN	Geology	Inventory of regional terrain conditions and Northern Ontario Engineering Geology Terrain Study Mapping - Landforms, Materials, Topography, Drainage
Northern Ontario Engineering Geology Terrain Study Gull River Area	Mollard, D.G; Mollard, J.D.		https://www.geologyontario.mines.gov.on.ca/publication/NOEGTS025	1983	EN	Geology	Inventory of regional terrain conditions and Northern Ontario Engineering Geology Terrain Study Mapping - Landforms, Materials, Topography, Drainage
Northern Ontario Engineering Geology Terrain Study Hornepayne Area	Gartner, J.F; McQuay, D.F.		https://www.geologyontario.mines.gov.on.ca/publication/M5085	1980	EN	Geology	Inventory of regional terrain conditions and Northern Ontario Engineering Geology Terrain Study Mapping - Landforms, Materials, Topography, Drainage

Northern Ontario Engineering Geology Terrain Study Jellicoe Area	Gartner, J.F.	https://prd-0420-geoontario-0000-blob-cge0eud7azhyfsf7.201.azurefd.net/trc-geology-documents/publication/NOEGTS027/NOEGTS027.pdf	1979	EN	Geology	Inventory of regional terrain conditions and Northern Ontario Engineering Geology Terrain Study Mapping - Landforms, Materials, Topography, Drainage
Northern Ontario Engineering Geology Terrain Study Kabinakagami Lake Area	Gartner, J.F; McQuay, D.F.	https://www.geologyontario.mines.gov.on.ca/publication/M5095	1980	EN	Geology	Inventory of regional terrain conditions and Northern Ontario Engineering Geology Terrain Study Mapping - Landforms, Materials, Topography, Drainage
Northern Ontario Engineering Geology Terrain Study Longlac Area	Gartner, J.F.	https://www.geologyontario.mines.gov.on.ca/publication/NOEGTS028	1979	EN	Geology	Inventory of regional terrain conditions and Northern Ontario Engineering Geology Terrain Study Mapping - Landforms, Materials, Topography, Drainage
Northern Ontario Engineering Geology Terrain Study Metionga Lake Area	Mollard, D.G; Mollard, J.D.	https://prd-0420-geoontario-0000-blob-cge0eud7azhyfsf7.201.azurefd.net/trc-geology-documents/publication/NOEGTS024/NOEGTS024.pdf	1980	EN	Geology	Inventory of regional terrain conditions and Northern Ontario Engineering Geology Terrain Study Mapping - Landforms, Materials, Topography, Drainage
Northern Ontario Engineering Geology Terrain Study Mojikit Lake Area	Cooper, A.J.	https://www.geologyontario.mines.gov.on.ca/publication/NOEGTS008	1983	EN	Geology	Inventory of regional terrain conditions and Northern Ontario Engineering Geology Terrain Study Mapping - Landforms, Materials, Topography, Drainage
Northern Ontario Engineering Geology Terrain Study Nakina Area	Cooper, A.J.	https://www.geologyontario.mines.gov.on.ca/publication/M5126	1981	EN	Geology	Inventory of regional terrain conditions and Northern Ontario Engineering Geology Terrain Study Mapping - Landforms, Materials, Topography, Drainage
Northern Ontario Engineering Geology Terrain Study Obakamiga Lake Area	Gartner, J.F; McQuay, D.F.	https://prd-0420-geoontario-0000-blob-cge0eud7azhyfsf7.201.azurefd.net/trc-geology-documents/publication/M5084/M5084.pdf	1980	EN	Geology	Inventory of regional terrain conditions and Northern Ontario Engineering Geology Terrain Study Mapping - Landforms, Materials, Topography, Drainage
Northern Ontario Engineering Geology Terrain Study Ogoki Lake Area	Cooper, A.J.	https://www.geologyontario.mines.gov.on.ca/publication/M5122	1981	EN	Geology	Inventory of regional terrain conditions and Northern Ontario Engineering Geology Terrain Study Mapping - Landforms, Materials, Topography, Drainage
Northern Ontario Engineering Geology Terrain Study Onaman Lake Area	Cooper, A.J.	https://www.geologyontario.mines.gov.on.ca/publication/NOEGTS018	1983	EN	Geology	Inventory of regional terrain conditions and Northern Ontario Engineering Geology Terrain Study Mapping - Landforms, Materials, Topography, Drainage
Northern Ontario Engineering Geology Terrain Study Pakashkan Lakes Area	Mollard, D.G; Mollard, J.D.	https://www.geologyontario.mines.gov.on.ca/publication/NOEGTS040	1980	EN	Geology	Inventory of regional terrain conditions and Northern Ontario Engineering Geology Terrain Study Mapping - Landforms, Materials, Topography, Drainage
Northern Ontario Engineering Geology Terrain Study Roslyn Lake Area	Gartner, J.F.	https://www.geologyontario.mines.gov.on.ca/publication/NOEGTS043	1979	EN	Geology	Inventory of regional terrain conditions and Northern Ontario Engineering Geology Terrain Study Mapping - Landforms, Materials, Topography, Drainage
Northern Ontario Engineering Geology Terrain Study Taradale Area	Gartner, J.F; McQuay, D.F.	https://prd-0420-geoontario-0000-blob-cge0eud7azhyfsf7.201.azurefd.net/trc-geology-documents/publication/NOEGTS029/NOEGTS029.pdf	1980	EN	Geology	Inventory of regional terrain conditions and Northern Ontario Engineering Geology Terrain Study Mapping - Landforms, Materials, Topography, Drainage
Northern Ontario Engineering Geology Terrain Study Whitewater Lake Area	Cooper, A.J.	https://www.geologyontario.mines.gov.on.ca/publication/NOEGTS007	1983	EN	Geology	Inventory of regional terrain conditions and Northern Ontario Engineering Geology Terrain Study Mapping - Landforms, Materials, Topography, Drainage
Northern Ontario Watershed Report	WWF Canada	http://awsassets.wwf.ca/downloads/northernontario_draft_assessment_22042016.pdf	2016	EN	Attawapiskat River; Water and river systems; Ekwan River; Winisk River; Fish and fish habitat	A freshwater health assessment was conducted by analyzing water quality and quantity to provide overall river health scoring for major watercourses within the Northern Ontario Basin. Long-term mean monthly flow and mean annual flow trends for the Winisk, Ekwan, and Attawapiskat rivers were used to provide an overall hydrology river health scoring. Water quality from Provincial sampling programs within and downstream of the Ring of Fire in Ekwan and Attawapiskat were used to provide an overall water quality river health scoring. Hydrology within the Ring of Fire was considered to have a very good or good ranking, while water quality was determined to have insufficient data to provide a comprehensive score.
Northern pike (Esox lucius) growth and mortality in a northern Ontario rivers compared with that in lakes: Influence of flow	Griffiths, R.W; Newlands, N.K.; Noakes, D.L.G.; Beamish, F.W.H.	https://onlineibrary.wiley.com/doi/abs/10.1111/j.1600-0633.2004.00049.x	2004	EN	Fish and fish habitat	The growth and mortality characteristics of northern pike (Esox lucius) in a northern Ontario river was measured and an examination of the influence of flow on these characteristics by comparing measurements with those estimated for a lake at the same latitude based on published studies was conducted. Pike ranged in total length from 229 to 784mm, in mass from 70 to 4250g, and in age from 1 to 10?years. The population showed a preponderance of 2-5-year olds, with few fish surviving beyond 7?years of age. Growth, in terms of length increase, was similar to that reported for circumpolar populations. Mean total length at 5?years of age was 577mm, growth rate of young adults was 62.57mm?year?1, growth was isometric, longevity was 10?years of age, and the adult annual mortality rate was 49%. Growth and mortality characteristics of this riverine population were similar to those estimated for a lacustrine population at the same latitude. Flow thus had little measurable effect on the growth or mortality of pike possibly because of the overwhelming effect of other abiotic variables such as temperature, length of growing season and productivity. Consequently, growth characteristics of lacustrine populations can be used to assess the health and condition of riverine populations.
Northern Road Link Detailed Project Description	SNC-Lavalin; Marten Falls First Nation; Webequie First Nation	https://www.aeic-iaac.gc.ca/050/documents/p84331/147653E.pdf	5/1/2023	EN	Air quality; Climate change; Community health; Economic development and livelihoods; Fish and fish habitat; Forests; Geology; Hydrology; Indigenous Peoples; Infrastructure; Physical and cultural heritage; Social and economic; Species at risk; Traditional processes for deliberation; Treaty rights; Water and river systems; Wildlife and wildlife habitat	Detailed Project description for the Northern Road Link Project. Groundwater and surface water identified as Valued Components, preliminary baseline conditions described.
Northern Road Link Field Studies	Northern Road Link	https://northernroadlink.ca/field/	2023	EN	Avifauna; Fish and fish habitat; Forests; Geology; Hydrology; Indigenous Peoples; Water and river systems; Wildlife and wildlife habitat	Scientific field studies will be taking place along the proposed alternative corridors to understand the existing conditions of the environment including terrain, groundwater, surface water, fish, birds, wildlife, and vegetation. The studies will be conducted during multiple seasons over several years The information we collect through these studies will be strengthened by the Indigenous Knowledge (IK) that will be shared with us by Webequie and Marten Falls First Nations and the neighbouring Indigenous Communities through the IK Program.
Northern Road Link Project proposed Terms of Reference	SNC-Lavalin	https://northernroadlink.ca/wp-content/uploads/2023/02/NRL-TOR_Sections1-12.pdf	2022	EN	Treaty rights; Fish and fish habitat; Indigenous Peoples; Infrastructure	Proposed Terms of Reference for the Northern Road Link that was prepared by SNC-Lavalin on behalf of the Marten Falls First Nation and Webequie First Nation. Provides framework for the Projects EA. Section 7.3.1 provides information on Fish and Fish Habitat
Notable Records from the Manitoba Breeding Bird Atlas 2010 Season	Artuso, Christian; Taylor, Peter; Smet, Ken De; Raitt, David	https://bluejayjournal.ca/index.php/bluejay/article/view/6043	9/1/2010	EN	Migratory birds	
Nothing to See Here: Failures of self-monitoring and reporting of mercury at the De Beers Victor diamond mine in Canada	Hesselink, T.	https://www.researchgate.net/publication/292845344_Nothing_to_See_Here_Failures_of_self-monitoring_and_reporting_of_mercury_at_the_De_Beers_Victor_diamond_mine_in_Canada	2015	EN	Water and river systems; Hydrology; Fish and fish habitat	This is a Summary Report of key findings from an 18 month investigation of the Mercury Reporting Program established in 2008 for the De Beers Victor diamond mine in Ontario, Canada. These failures include failing to report downstream mercury results and discharge effluent quality results to the Ministry of the Environment as specifically required by the mine's dewatering discharge permit. These revelations, and others from this 18-month investigation undertaken by CPAWS Wildlands League, tell us two important things about the Victor Mine, as De Beers contemplates further expansion. First, the mine activities are triggering adverse impacts on the environment, by stimulating mercury conversion to methylmercury. Methylmercury is a more dangerous threat to aquatic life as it biomagnifies up the food chain into the top predator fish. Fish in the river downstream of the mine have had a history of consumption warnings for people eating them even before the mine was built. Second, the program for monitoring the mine's mercury impacts - described as the best ever by officials in the Ministry who wrote them into the permit - is not working. The company's required reporting and analysis is riddled with many gaps, and the Ministry has missed or ignored them. This also means that all related permit extensions and expansion plans are being considered by the Ministry without the benefit of a complete picture of impacts from the mine. We conclude that entrusting this self-monitoring to the company is inadequate to protect the environment in which the mine operates. These observations also raise questions about the government's commitment to safeguard the pristine northern half of the province and the people who live there. If it can't get monitoring right with this one project, how can it take care of an entire pristine watershed with dozens of new mines on the horizon?

Occupancy patterns of large mammals in the Far North of Ontario under imperfect detection and spatial autocorrelation	Poley, Lucy G.; Pond, Bruce A.; Schaefer, James A.; Brown, Glen S.; Ray, Justina C.; Johnson, Devin S.	https://www.jstor.org/stable/24034981	2014	EN	Wildlife and wildlife habitat; Species at risk	Aim An understanding of the factors that influence species distributions in heterogeneous landscapes is important when making decisions regarding conservation. Moreover, occupancy probabilities based on detection data can reveal important species-habitat relationships. Accounting for the spatial autocorrelation of detection data increases the statistical validity of occupancy models, but is not often considered. Using novel occupancy modelling that explicitly incorporates detectability and spatial autocorrelation, we assessed the influence of habitat on occupancy patterns of woodland caribou (<i>Rangifer tarandus caribou</i>), moose (<i>Alces alces</i>) and wolves (<i>Canis lupus</i>) across a broad biogeographical extent where fire is the dominant agent of disturbance. Location Northern Ontario, Canada. Methods We aerially surveyed 3851 sampling units, each covering 100 km ² , for woodland caribou, moose and wolves in February–March in 2009, 2010 and 2011, and visited 1663 units more than once to estimate detectability. We used restricted spatial regression to model occupancy probabilities of each species with respect to habitat factors in two ecozones, accounting for both imperfect detection and lack of independence of sampling units. Results Covariates influencing species detection varied among ecozones and species. Caribou occupancy was positively related to bogs and negatively related to disturbed areas, while moose occupancy showed opposite responses to these covariates. Wolf occupancy was related to high prey occupancy. Explicitly accounting for spatial autocorrelation in detection data reduced the chance of type I error in occupancy estimates compared with non-spatial models. Main conclusions Habitat relationships and occupancy patterns support the hypothesis that caribou remain spatially segregated from moose to reduce predation risk. The broad scale of analysis indicated changes in species-habitat relationships, suggesting that limiting factors vary across biogeographical gradients. The spatial pattern in caribou occupancy allowed us to identify important areas used by caribou across the region, including the ecotone between fire-driven boreal forests and peatland complexes. The evidence for significant relationships between caribou and land cover, predators and alternate prey underscores the need for careful planning of development and infrastructure in the area.
Ogoki River Life Science Inventory	Ministry of the Environment, Conservation and Parks	Held by Ministry of the Environment, Conservation and Parks	2008	EN	Not public	This report details research related to geological, biological, cultural and social sciences and assist with the management of the area. The study involves surveying the entire waterway via canoe and all animal sightings, birds heard, nest locations and rare plants observed are recorded. Vegetation plots are completed along route to be used as baseline data for future study. Portages and campsites along route are inspected, rated and recorded as well as any other significant geological features such as cliffs. Recreational highlights for canoeists or boaters would also be recorded such as waterfalls, rapids (Class type) and other aesthetic features. This information is logged digitally in a GPS unit, filed in a digital format and then a formal life science/Recreation/Cultural report is produced along with visual maps.
Ogoki River Provincial Park Management Statement	Ministry of the Environment, Conservation and Parks	https://www.ontario.ca/page/ogoki-river-provincial-park-management-statement	2003	EN	Forests; Physical and cultural heritage; Current use; Water and river systems; Wildlife and wildlife habitat; Geology; Fish and fish habitat; Indigenous Peoples	This document provides policy direction for the protection, development and management of Ogoki River Provincial Park and its resources.
Olive-sided flycatcher (Species at Risk Webpage)	Ministry of the Environment, Conservation and Parks	https://www.ontario.ca/page/olive-sided-flycatcher	4/19/2022	EN	Migratory birds; Avifauna; Species at risk	Provide information on the status of the Olive-sided flycatcher (e.g., endangered or threatened), general life history and a place to direct the general public or Proponents for further information regarding the species (e.g., Recovery Strategies, Government Response Statements, etc.)
Online Exhibit: The James Bay Treaty (Treaty no. 9)	Archives of Ontario	http://www.archives.gov.on.ca/en/explore/online/jamesbaytreaty/after_the_treaty_signing.aspx	n.d.	EN / FR	Cultural vitality; Treaty rights; Indigenous Peoples	Online exhibit that provides an overview for the lasting effects of the James Bay Treaty on Indigenous communities in the territory.
Ontario Breeding Bird Atlas	Ontario Birds	https://www.birdsontario.org/	1981	EN / FR	Wildlife and wildlife habitat; Migratory birds; Avifauna	The goal of the Atlas is to map the distribution and relative abundance of Ontario's approximately 300 species of breeding birds – from as far south as Middle Island in Lake Erie, to Hudson Bay in the north. The data collected over five years provides essential information for researchers, scientists, government officials and conservation professionals. It will guide environmental policies and conservation strategies for years to come.
Ontario Watershed Information Tool (OWIT)	Ministry of Natural Resources and Forestry	https://www.lloapplications.lrc.gov.on.ca/OFAT/index.html?viewer=OFAT.OFAT&locale=en-ca	2010	EN / FR	Water and river systems; Hydrology	OWIT creates watersheds and calculates watershed characteristics. These outputs can be used by a variety of users and applied to many water-related applications. The map shows topographic information, such as lakes, rivers, contours, roads, trails, wooded areas, wetlands and provincial parks, as well as municipal and township boundaries. You can zoom in and out, find places, view imagery, and create, download and print your own map for an area of interest.
Ontario GeoHub	Ministry of Northern Development Mines, Natural Resources and Forestry	https://geohub.lio.gov.on.ca/	2024	EN / FR	Peatlands; Forests; Water and river systems; Land cover	GEO provides access to the geospatial data, tools and services you need to make decisions about: natural resource management, environmental monitoring, infrastructure planning, agriculture, flood planning.
Ontario Hydro Network (OHN) - Waterbody	Ontario Ministry of Natural Resources and Forestry	https://geohub.lio.gov.on.ca/datasets/mnrf:ontario-hydro-network-ohn-waterbody/about	8/9/2010	EN / FR	Water and river systems	Shows the location of waterbodies in Ontario as part of the Ontario Hydro Network (OHN). Water bodies are polygon features (natural and constructed) that describe various realizations of surface water at a medium scale.
Ontario Integrated Hydrology (OIH) data	Ministry of Northern Development Mines, Natural Resources and Forestry	https://geohub.lio.gov.on.ca/maps/mnrf:ontario-integrated-hydrology-oih-data/about	2019	EN / FR	Water and river systems; Hydrology	A collection of related elevation and mapped water features used to generate watersheds and support provincial-scale hydrology applications.
Ontario Ring of Fire Surface Water Susceptibility Analysis	Gross, Adlar; Sirokvash, Antolij	https://yorkspace.library.yorku.ca/items/b60bfbe1-ce47-40c9-b7a5-c27333c78ba0	2015	EN	Hydrology; Water and river systems	Since the discovery in the early 2000s of North America's first commercial chromite deposit in Northern Ontario, dubbed the Ontario Ring of Fire (RoF), extensive mining development plans have been in progress. Chromite is used in the production of steel and is extracted using open pit mines that can leech toxic material and generate hazardous mining dust that contaminate soil and water. The proposed mining development is predicted to generate 32 million tons of waste rock in its 30 year lifespan, thus presenting a significant threat to the surrounding environment consisting of undeveloped boreal forest interspersed with swamps, marshes, fens and valuable peat land. This project seeks to determine the surface water susceptibility of the RoF region using GIS techniques developed by the University of Minnesota-Duluth Laboratory for Spatial analysis in the Geosciences, based on fact that areas that are more prone to runoff are capable of carrying suspended sediments, resulting in contamination of waterbodies. The analysis was conducted using four factors that contribute to overland flow: slope, distance to water, land cover and soil properties. The final combination of these factors showed that the region has low surface water susceptibility mainly due to the low slope percentage of the area and the majority of the landcover being open water, swamp, marsh and fen. The results indicate that contamination will not be rapidly transported away from the region through water bodies. Therefore, the areas immediately surrounding the mine may be at higher risk, as contamination will not be transported away and infiltrate the groundwater, contaminate aquatic life or be deposited in soils.
Ontario Species at Risk Evaluation Report for Canada Warbler Paruline du Canada (<i>Cardellina canadensis</i>)	Committee on the Status of Species at Risk in Ontario	https://cosaragency.ca/wp-content/uploads/2022/04/COSSARO_report-for-Canada-Warbler-Final.pdf	2021	EN	Avifauna; Migratory birds; Public; Species at risk	The Canada Warbler (<i>Cardellina canadensis</i>) is a small, brightly coloured songbird 12 to 15 cm in length. As with many songbirds, males are typically more brightly coloured than the females and immatures. Males have a bluish-grey tail and upper parts contrasting with a yellow throat and breast. In both males and females, black stripes form a collar on the breast, although this collar is less defined in the females. The bill is thin and there are yellow "spectacles" round the eyes. The adult plumages are similar throughout the year. The colour of the plumage, especially the collar on the breast, and the song of the Canada Warbler differentiate it from most other species of warblers that breed in Canada. This small songbird has 80% of its breeding range in Canada and winters in the northern Andes Mountains. Long-term declines of the Canadian population began to slow down in 2003 and numbers have steadily increased since 2012, with an overall growth of 46% over the past decade. However, significant threats persist, most notably clearing of forests in South America for livestock farming and other agriculture. The threat status reflects the substantial improvement in population trend, but concern remains that the species is at risk of becoming Threatened again if threats are not managed effectively.

<p>Ontario Species at Risk Evaluation Report for Caribou (Rangifer tarandus) Eastern Migratory Population</p>	<p>Committee on the Status of Species at Risk in Ontario</p>	<p>https://cossaroagency.ca/wp-content/uploads/2018/06/Accessible_COSSARO_Evaluation_Migratory_Caribou_FINAL_31JAN2018.pdf</p>	<p>2017</p>	<p>EN</p>	<p>Public; Species at risk; Wildlife and wildlife habitat</p>	<p>Several Caribou (Rangifer tarandus) ecotypes occur across Canada, two of which occur in Ontario - the Boreal Population (forest-dwelling) and the Eastern Migratory (EM) Population (forest-tundra). Eastern Migratory Caribou move to coastal habitat in spring and summer, returning to more forested and more southerly habitat in fall and winter. The location of wintering areas (January-March) has changed little over the past half-century, although summer distribution has shifted markedly eastward. Summer Caribou numbers in the Penn Island/Fort Severn area have decreased dramatically in recent decades, and numbers have correspondingly increased markedly further eastward near Cape Henrietta Maria. Major threats to this Designatable Unit that are also applicable to this subpopulation include disturbance from industrial disturbance and development, particularly mining and associated road networks. ATV use in the western and central portions of the Hudson Bay Lowlands, at least in part for hunting, has increased substantially. Aboriginal harvest is ongoing, and appeared to be gradually increasing at least until 2011. Climate change appears to be a long-term threat that may cause changes to tundra vegetation that reduces lichen availability. Threats have not ceased in the Ontario portion of the subpopulation. Trend data for the Southern Hudson Bay subpopulation in Ontario are difficult to obtain, due to insufficient recent monitoring and variable monitoring measures, although there are indications of decline. However there is no evidence to suggest that the population decline is as severe as that for subpopulations to the east in Québec. The Southern Hudson Bay subpopulation of Eastern Migratory Caribou is designated as Special Concern in Ontario because of apparent but unquantified declines, ongoing and increasing threats, and dramatic declines elsewhere in eastern Canada.</p>	
<p>Ontario Species at Risk Evaluation Report for Caribou, Boreal population (Rangifer tarandus)</p>	<p>Committee on the Status of Species at Risk in Ontario (COSSARO)</p>	<p>http://cossaroagency.ca/wp-content/uploads/2017/06/Accessible_COSSARO-evaluation-Caribou-Boreal.pdf</p>	<p>2015</p>	<p>EN</p>	<p>Wildlife and wildlife habitat; Species at risk</p>	<p>Two Caribou (Rangifer tarandus) ecotypes occur in Ontario - the forest-dwelling or boreal population, and the forest-tundra or migratory population. In Ontario the "Woodland Caribou, forest-dwelling boreal population, Rangifer tarandus caribou" is currently listed as Threatened. Caribou typically occur in low densities, ranging widely over mature, conifer-dominated forests. Caribou were once the main cervid species in Ontario, occurring across northern Ontario and as far south as northern Minnesota, the north shore and islands of Lake Superior and even Manitoulin Island and the Nipissing area. The Boreal population of Caribou in Ontario has been declining for well over a century, and this northward retraction of distribution has been strongly correlated with human settlement and development. Considerable effort has been directed towards caribou recovery since its designation as Threatened, including development of a recovery strategy and subsequent conservation plan, expanded research and broad monitoring and satellite telemetry studies. This work has greatly increased the information available on which to assess and support recovery of caribou. The 14 Caribou ranges that have been identified in Ontario are useful references for management, monitoring and recovery efforts. There are believed to be fewer than 5000 mature individuals in the Boreal population of Caribou in Ontario. Integrated range assessments have revealed that the average annual population trend (λ) was less than 1.0 for all assessed ranges, suggesting that Caribou subpopulations in Ontario are in short-term decline.</p>	
<p>Ontario Species at Risk Evaluation Report for Lesser Yellowlegs Petit Chevalier Tringa flavipes</p>	<p>Committee on the Status of Species at Risk in Ontario</p>	<p>https://cossaroagency.ca/wp-content/uploads/2022/04/COSSARO_LesserYellowlegs_Dec2021.pdf</p>	<p>2021</p>	<p>EN</p>	<p>Avifauna; Migratory birds; Public; Species at risk</p>	<p>Lesser yellowlegs (Tringa flavipes) is a small shorebird that possesses a long neck, greyish plumage, and long, bright yellow legs. Although Lesser Yellowlegs is morphologically similar to Greater Yellowlegs, it is recognized as a distinct species based on phylogenetic studies. The breeding range of Lesser Yellowlegs occurs in Alaska and Northern Canada, stretching from the Yukon to western Labrador. Within Ontario, Lesser Yellowlegs breed primarily within the Taiga Shield and Hudson Plains Bird Conservation Region (BCR7). Lesser Yellowlegs populations are estimated to have declined 3.26% annually over the last three generations in the Canadian extent of BCR7 and 2.4% annually over the last three generations across their breeding range in Canada. The Lesser Yellowlegs is also considered to be declining globally. As a long-distance migrant, Lesser Yellowlegs faces numerous threats including sport and subsistence hunting during migration and on wintering grounds in the Caribbean and South America. Conversion of wetlands to agricultural land in wintering areas may have a significant impact on Lesser Yellowlegs populations over the next three generations. Lesser Yellowlegs is classified as Threatened in Ontario based on meeting IUCN criteria A2bcd+4bcd. Ontario populations are inferred to have declined 28.8-32.8% over the last three generations (12 years, 2007-2019) based on Breeding Bird Survey (BBS) trends. A population decline of 20-60% is projected to occur over the next three generations. The classification of Lesser Yellowlegs as Threatened in Ontario is consistent with COSEWIC (2020). This status of this species is consistent with the definition of Threatened under the Endangered Species Act, 2007.</p>	
<p>Ontario Species at Risk Evaluation Report for Red-necked Phalarope (Phalaropus lobatus)</p>	<p>Committee on the Status of Species at Risk in Ontario</p>	<p>https://cossaroagency.ca/wp-content/uploads/2017/06/Accessible_COSSARO-evaluation-Red-necked-Phalarope.pdf</p>	<p>2015</p>	<p>EN</p>	<p>Avifauna; Migratory birds; Public; Species at risk</p>	<p>Red-necked Phalaropes (Phalaropus lobatus) are small shorebirds that breed in Arctic and Sub-Arctic coastal areas. They prefer breeding areas dominated by graminoid or emergent aquatic vegetation and tend to avoid sparsely vegetated or shrubby habitats. In Ontario, they breed along the coast of Hudson Bay and James Bay. Population declines for this species in migratory and breeding areas outside Ontario are reported, but not well understood. Population data and trends are not available for Ontario. Climate change may be a threat to the species, but specific negative effects on habitat and prey are poorly understood and may be countered by warmer temperatures that improve juvenile survival. Habitat degradation resulting from foraging activity by rapidly increasing Lesser Snow Geese populations in Ontario was reported in areas overlapping with the Red-necked Phalarope's range in the province. More information is required to determine the extent of habitat degradation and what effect it has had on breeding populations of Red-necked Phalaropes in Ontario. Overall, much more information on population size, extent, trends, threats, and habitat quality is required; however, documented habitat loss from Lesser Snow Geese foraging activity and observed declines associated with similar habitat degradation outside the province make this a Special Concern species in Ontario</p>	
<p>Ontario Watershed Boundaries</p>	<p>Government of Ontario</p>	<p>https://open.canada.ca/data/en/dataset/347106a6-0b01-405b-a7b4-e1717e14035f</p>	<p>6/19/2020</p>	<p>EN / FR</p>	<p>Water and river systems</p>	<p>This collection represents the authoritative watershed boundaries for Ontario. The data is based on a framework similar to the Atlas of Canada Fundamental Drainage Areas and the United States Watershed Boundary Dataset, however it adopts a more stringent scientific approach to watershed delineation. The Ontario Watershed Boundaries (OWB) collection includes five data classes: * OWB main: all levels from primary to quaternary and 5th and 6th levels in select areas * OWB primary: all primary watersheds or major drainage areas in the Canadian classification * OWB secondary: all secondary watersheds or sub drainage areas * OWB tertiary: all tertiary watersheds or sub sub drainage areas * OWB quaternary: all quaternary watersheds or 6-digit drainage areas. The OWB data replaces the following data classes: Provincial Watersheds, Historical</p>	
<p>Ontario's Critical Minerals Strategy: Unlocking potential to drive economic recovery and prosperity</p>	<p>Government of Ontario</p>	<p>https://www.ontario.ca/page/ontarios-critical-minerals-strategy-2022-2027-unlocking-potential-drive-economic-recovery-prosperity</p>	<p>2022</p>	<p>EN / FR</p>	<p>Mining; Economic development and livelihoods; Social and economic; Infrastructure</p>	<p>Ontario's Critical Minerals Strategy is a comprehensive, five-year roadmap that will secure the province's position as a reliable global supplier of responsibly sourced critical minerals. The strategy is in concert with other transformative government initiatives, such as Driving Prosperity: The Future of Ontario's Automotive Sector and A Made-in-Ontario Environment Plan. Taken together, these initiatives will ensure that Ontario can grow advanced manufacturing supply chains, including those related to electric vehicle production, and create sustainable economic development opportunities</p>	
<p>Otoskwin-Attawapiskat River Provincial Park Management Plan</p>	<p>Ministry of the Environment, Conservation and Parks</p>	<p>https://www.ontario.ca/page/otoskwin-attawapiskat-river-provincial-park-management-plan</p>	<p>2019</p>	<p>EN / FR</p>	<p>Attawapiskat River; Water and river systems; Fish and fish habitat</p>	<p>This document provides policy direction for the protection, development and management of Otoskwin-Attawapiskat River Provincial Park and its resources.</p>	
<p>Out of site, out of mind: Changes in feather moss phyllosphere microbiota in mine offsite boreal landscapes</p>	<p>Yin, Xiangbo; Martineau, Christine; Samad, Abdul; Fenton, Nicole J.</p>	<p>10.3389/fmicb.2023.1148157</p>	<p>https://www.frontiersin.org/journals/microbiology/articles/10.3389/fmicb.2023.1148157/full</p>	<p>4/5/2023</p>	<p>EN</p>	<p>Forests; Mining; Peatlands</p>	<p>Plant-microbe interactions play a crucial role in maintaining biodiversity and ecological services in boreal forest biomes. Mining for minerals, and especially the emission of heavy metal-enriched dust from mine sites, is a potential threat to biodiversity in offsite landscapes. Understanding the impacts of mining on surrounding phyllosphere microbiota is especially lacking. To investigate this, we characterized bacterial and fungal communities in the phyllosphere of feather moss Pleurozium schreberi (Brid). Mitt in boreal landscapes near six gold mine sites at different stages of the mine lifecycle. We found that (1) both mining stage and ecosystem type are drivers of the phyllosphere microbial community structure in mine offsite landscapes; (2) Bacterial alpha diversity is more sensitive than fungal alpha diversity to mining stage, while beta diversity of both groups is impacted; (3) mixed and deciduous forests have a higher alpha diversity and a distinct microbial community structure when compared to coniferous and open canopy ecosystems; (4) the strongest effects are detectable within 0.2 km from operating mines. These results confirmed the presence of offsite effects of mine sites on the phyllosphere microbiota in boreal forests, as well as identified mining stage and ecosystem type as drivers of these effects. Furthermore, the footprint was quantified at 0.2 km, providing a reference distance within which mining companies and policy makers should pay more attention during ecological assessment and for the development of mitigation strategies. Further studies are needed to assess how these offsite effects of mines affect the functioning of boreal ecosystems.</p>

Overcoming the challenges of flow forecasting in a data poor region	Kouwen, Nicholas; Langmuir, Amber; Ramanathan, Lakshminarayanan; Gallant, Gordan	10.1080/07011784.2023.2170283	https://doi.org/10.1080/07011784.2023.2170283	2023	EN	Community safety; Hydrology; Water and river systems	In Ontario, the Ministry of Natural Resources and Forestry (MNRF) is responsible for the provincial flood forecasting and warning (PFFW) program. The goal of Ontario's PFFW program is to reduce the risk of loss of life, injury, and property damage due to flooding. The Surface Water Monitoring Centre (SWMC) fulfills MNRF's provincial mandate for public safety by providing daily provincial scale Hazard Identification and Risk Assessment (HIRA) for flooding for the province at a provincial scale. The SWMC uses a variety of tools to complete the HIRA, however, there are currently no operational flood forecasting capabilities available within the suite of monitoring tools used by the province. Ontario's Special Advisor on Flooding Report and the Ontario Flooding Strategy highlights flood forecasting as a part of overall flood management. As a follow up, a pilot study using WATFLOOD® was undertaken in the Severn River in Northern Ontario to explore the use and implications of operational forecasting capabilities in a data poor region. There are currently no year-round meteorological stations in this watershed. WATFLOOD is well suited for application in remote and data poor regions as the hydrological parameters are not watershed based and can be calibrated with data from watersheds in a similar physiographic/climatic domain – e.g. the Hudson Bay Lowlands. This paper will show: that hydrological and routing parameters from a more densely instrumented region can be applied to a data poor region; that WATFLOOD can be used to provide an acceptable flow forecast and calibration in a data-poor region; and Numerical weather model data, rather than conventional gauge data can be used to successfully calibrate a hydrological model in a data poor region.
Partridge Lake Land Use Plan, Giiwedaa, Animbiigoo Zaagi'igan Anishinaabek - Comprehensive Community Plan	Animbiigoo Zaagi'igan Anishinaabek		https://www.cip-icu.ca/wp-content/uploads/2023/11/2013-26-Giiwedaa-Partridge-Lake-Land-Use-Plan.pdf	2012	EN	Housing and infrastructure; Community health; Current use; Sustainability; Indigenous Peoples	Land use plan for Partridge Lake. The plan describes how we Animbiigoo Zaagi'igan Anishinaabek will use the land, what they will build, and where they will build. This includes land use designations, planning areas, environmental protection areas, and road and trail guidelines.
Pathways of effects - Fish and fish habitat	Government of Canada, Fisheries and Oceans Canada		https://www.dfo-mpo.gc.ca/pnw-ppe/pathways-sequences/index-eng.html	10/4/2024	EN / FR	Fish and fish habitat	Pathways of effects (PoE) diagrams are used to describe how projects in or near water can affect fish and fish habitat. Each diagram illustrates the chain of events that takes place in the aquatic environment when a work, undertaking or activity takes place.
Patterns and trends of Northern Hemisphere snow mass from 1980 to 2018	Pulliainen, J.; Luojus, K.; Derksen, C.; Mudryk, L.; Lemmetyinen, J.; Salminen, M.; Ikonen, J.; Takala, M.; Cohen, J.; Smolander, T.; Norberg, J.	10.1038/s41586-020-2258-0	https://doi.org/10.1038/s41586-020-2258-0	2020	EN	Climate change	Warming surface temperatures have driven a substantial reduction in the extent and duration of Northern Hemisphere snow cover ^{1–3} . These changes in snow cover affect Earth's climate system via the surface energy budget, and influence freshwater resources across a large proportion of the Northern Hemisphere ^{4–6} . In contrast to snow extent, reliable quantitative knowledge on seasonal snow mass and its trend is lacking ^{7–9} . Here we use the new GlobSnow 3.0 dataset to show that the 1980–2018 annual maximum snow mass in the Northern Hemisphere was, on average, 3,062 ± 35 billion tonnes (gigatonnes). Our quantification is for March (the month that most closely corresponds to peak snow mass), covers non-alpine regions above 40° N and, crucially, includes a bias correction based on in-field snow observations. We compare our GlobSnow 3.0 estimates with three independent estimates of snow mass, each with and without the bias correction. Across the four datasets, the bias correction decreased the range from 2,433–3,380 gigatonnes (mean 2,867) to 2,846–3,062 gigatonnes (mean 2,938)—a reduction in uncertainty from 33% to 7.4%. On the basis of our bias-corrected GlobSnow 3.0 estimates, we find different continental trends over the 39-year satellite record. For example, snow mass decreased by 46 gigatonnes per decade across North America but had a negligible trend across Eurasia; both continents exhibit high regional variability. Our results enable a better estimation of the role of seasonal snow mass in Earth's energy, water and carbon budgets.
Peatland and Carbon Modelling	Ministry of Northern Development Mines, Natural Resources and Forestry (NRF)		Held by Ministry of Northern Development Mines, Natural Resources and Forestry	2010	EN	Climate change; Not public; Peatlands	To improve our understanding of how climate change, hydrology and peatland carbon storage are linked. Researchers are hoping to answer questions such as: How will peatlands respond to climate change and how quickly? Which peatlands are most sensitive to climate change? What is the effect of climate change on peatland carbon sequestration? The peatland carbon project uses a combination of climate monitoring, field data collection, and remote sensing to study the Far North peatlands. This information is used to develop models that combine what we know about the processes controlling carbon cycling, the distribution of peatland types, and information on changes in climate. Efforts are also underway to develop scientifically defensible peatland carbon storage and sequestration indicators that help to identify and track changes over time.
Peatland and carbon modelling	Ministry of Natural Resources and Forestry Science and Research Branch		Held by Ministry of Natural Resources and Forestry Science and Research Branch	2010	EN	Climate change; Not public; Peatlands	The peatland carbon project uses a combination of climate monitoring, field data collection, and remote sensing to study the Far North peatlands. This information is used to develop models that combine what we know about the processes controlling carbon cycling, the distribution of peatland types, and information on changes in climate. Efforts are also underway to develop scientifically defensible peatland carbon storage and sequestration indicators that help to identify and track changes over time.
Peatland-fire interactions: A review of wildland fire feedbacks and interactions in Canadian boreal peatlands	Nelson, K; Thompson, D; Hopkinson, C; Petrone, R; Chasmer, L.	10.1016/j.sciteot.2021.145212	https://www.sciencedirect.com/science/article/pii/S0048969721002783#bi0005	2021	EN	Peatlands; Forests	Boreal peatlands store a disproportionately large quantity of soil carbon (C) and play a critical role within the global C-climate system; however, with climatic warming, these C stores are at risk. Increased wildfire frequency and severity are expected to increase C loss from boreal peatlands, contributing to a shift from C sink to source. Here, we provide a comprehensive review of pre- and post-fire hydrological and ecological interactions that affect the likelihood of peatland burning, address the connections between peatland fires and the C-climate cycle, and provide a conceptual model of peatland processes as they relate to wildland fire, hydro-climate, and ecosystem change. Despite negative ecohydrological feedback mechanisms that may compensate for increased C loss initially, the cumulative effects of climatic warming, anthropogenic peatland fragmentation, and subsequent peatland drying will increase C loss to the atmosphere, driving a positive C feedback cycle. However, the extent to which negative and positive feedbacks will compensate for one another and the timelines for each remains unclear. We suggest that a multi-disciplinary approach of combining process knowledge with remotely sensed data and ecohydrological and wildland fire models is essential for better understanding the role of boreal peatlands and wildland fire in the global climate system.
Peregrine Falcon (Species at risk webpage)	Committee on the Status of Species at Risk in Ontario		https://www.ontario.ca/page/peregrine-falcon	2020	EN / FR	Avifauna; Migratory birds; Public; Species at risk	Provide information on the status of the peregrine falcon (e.g., endangered or threatened), general life history and a place to direct the general public or Proponents for further information regarding the species (e.g., Recovery Strategies, Government Response Statements, etc.)
Petroleum exploration increases methane emissions from northern peatlands	Strack, Maria; Hayne, Shari; Lovitt, Julie; McDermid, Gregory J.; Rahman, Mir Mustafizur; Saraswati, Saraswati; Xu, Bin	10.1038/s41467-019-10762-4	https://www.nature.com/articles/s41467-019-10762-4	6/26/2019	EN	Peatlands; Climate change	Peatlands are globally significant sources of atmospheric methane (CH ₄). In the northern hemisphere, extensive geologic exploration activities have occurred to map petroleum deposits. In peatlands, these activities result in soil compaction and wetter conditions, changes that are likely to enhance CH ₄ emissions. To date, this effect has not been quantified. Here we map petroleum exploration disturbances on peatlands in Alberta, Canada, where peatlands and oil deposits are widespread. We then estimate induced CH ₄ emissions. By our calculations, at least 1900 km ² of peatland have been affected, increasing CH ₄ emissions by 4.4–5.1 kt CH ₄ yr ⁻¹ above undisturbed conditions. Not currently estimated in Canada's national reporting of greenhouse gas (GHG) emissions, inclusion would increase current emissions from land use, land use change and forestry by 7–8%. However, uncertainty remains large. Research further investigating effects of petroleum exploration on peatland GHG fluxes will allow appropriate consideration of these emissions in future peatland management.
Pilot national scale maps of active deformation processes in Canada (National Mosaics)	Natural Resources Canada		https://ouvert.canada.ca/data/dataset/1da588c1-0dc6-45e4-9e63-9ac12f1dc353a/resource/d8aft989-9af9-4949-b0f7-9c73d849f343	3/19/2025	EN / FR	Not public; Geology	The maps show a multiyear ground deformation rate caused by small-scale deformation processes in Canada, measured in meters per year. Horizontal-east and vertical deformation components were computed from data acquired on ascending and descending orbits. This horizontal-east/vertical 2D decomposition is approximate and assumes constant viewing geometry and the absence of horizontal-north deformation.
Pilot: Community-driven riverine monitoring of the Winisk River	Ministry of Natural Resources and Forestry: Science and Research Branch		Held by Ministry of Natural Resources and Forestry: Science and Research Branch	2019	EN	Not public; Cultural vitality; Winisk River; Fish and fish habitat	This study and 10-day pilot monitoring program aimed to help Weenusk First Nation build capacity for, and undertake, a community-led fisheries monitoring program for the Winisk River.
Pinpipayhaytosowin [The Way We Do Things]: A Definition of Traditional Ecological Knowledge (TEK) in the Context of Mining Development on Lands of the Attawapiskat First Nation and its Effects on the Design of Research for a TEK Study	Witt, Norbert; Hookimaw-Witt., J		https://cjns.brandou.ca/wp-content/uploads/23-2-cjns23no2_pg361-390.pdf	2003	EN	Mining; Physical and cultural heritage; Cultural vitality; Treaty rights; Language maintenance; Inter and intra generational values; Traditional processes for deliberation; Current use; Indigenous Peoples	This paper offers a definition of the term of TEK study within the Attawapiskat context, establishes why TEK studies are needed, and discusses how a study has to proceed in order to be of advantage for the First Nation.
Policy for applying measures to offset harmful impacts to fish and fish habitat	Government of Canada, Fisheries and Oceans Canada		https://www.dfo-mpo.gc.ca/pnw-ppe/reviews-revues/policies-politiques-eng.html	2025	EN / FR	Fish and fish habitat	This Policy for Applying Measures to Offset Harmful Impacts to Fish and Fish Habitat provides guidance to proponents on the use of offsetting measures to counterbalance the death of fish or the harmful alteration, disruption or destruction of fish habitat. This includes the development of conservation project plans for habitat banks. It is meant to support the Applicant's Guide Supporting the Authorizations Concerning Fish and Fish Habitat Protection Regulations and expand upon the information provided on offsetting measures in DFO's Fish and fish habitat protection policy statement.

Pollution from wildfires	Government of Canada; Environment and Climate Change Canada; Meteorological Service of Canada		https://gcgeo.gc.ca/geonetwork/metadata/eng/1e42f630-a435-4c23-a293-d7cc5709f3bd	2020	EN / FR	Air quality	The Regional Air Quality Deterministic Prediction System FireWork (RAQDPS-FW) carries out physics and chemistry calculations, including emissions from active wildfires, to arrive at deterministic predictions of chemical species concentration of interest to air quality, such as fine particulate matter PM2.5 (2.5 micrometers in diameter or less). Geographical coverage is Canada and the United States. Data is available at a horizontal resolution of 10 km. While the system encompasses more than 80 vertical levels, data is available only for the surface level. The products are presented as historical, annual or monthly, averages which highlight long-term trends in cumulative effects on the environment.
Population status of migratory game birds in Canada (and regulation proposals for overabundant species)	Canadian Wildlife Service Waterfowl Committee		https://publications.gc.ca/site/eng/9.568816/publication.html	2010	EN / FR	Avifauna; Biodiversity; Migratory birds; Public; Wildlife and wildlife habitat	Population status of migratory game birds in Canada (and regulation proposals for overabundant species) - November 2010
Population status of migratory game birds in Canada: 2023	Canadian Wildlife Service Waterfowl Committee		https://www.canada.ca/en/environment-climate-change/services/migratory-game-bird-hunting/consultation-process-regulations/report-series/population-status-2023.html#toc0	2023	EN / FR	Migratory birds; Public	The first report, Population Status of Migratory Game Birds in Canada, contains population and other biological information on migratory game birds. It thus provides the scientific basis for informing management decisions that ensure long-term sustainability of bird populations. Environment and Climate Change Canada publishes the Population Status of Migratory Game Birds in Canada to evaluate the status of migratory game birds and formally reviews the hunting regulations every two years. Additionally, the Canadian Wildlife Service analyzes population trends after surveys are completed.
Population structure of threatened caribou in western Canada inferred from genome-wide SNP data	Cavedon, M; Poissant, J; vonHoldt, B; Michalak, A; Hegel, T; Heppenheimer, E; Hervieux, D; Neufeld, L; Polfus, J. L; Schwantje, H; Steenweg, R.; Musiani, M.	10.1007/s10592-022-01475-1	https://link.springer.com/article/10.1007/s10592-022-01475-1	10/16/2022	EN	Wildlife and wildlife habitat; Species at risk	Within-species, biodiversity can be organized in units, ranging from subspecies to evolutionarily significant units (ESUs), populations and social groups. To define ESUs, researchers often focus on the concordant distribution of traits that exhibit likely adaptive significance, including genetic and ecological variation. Caribou is a Species at Risk in Canada, and are conserved at the level of both subspecies and designatable units (DUs), which are conceptually similar to ESUs. However, the use of genomics has been suggested to provide better delineation of units that are based upon variation of genes—not just neutral genetic markers. Here, we analyzed single nucleotide polymorphisms (SNPs) for 190 caribou belonging to two recognized subspecies and four DUs found throughout western Canada. We confirmed two major genetic clusters, which we refer to as the Northern Caribou and Southern Caribou, characterized by divergence at numerous SNPs and genes with known functions in other mammals. Notably, the distribution of these two clusters did not fully overlap with currently recognized subspecies. A discrepancy with current classification was detected for Mountain DUs, which were thought to belong to the Woodland subspecies, but with significant northern-type ecological traits described in the literature, indicating more work is needed to refine our understanding of this transitional zone. We also detected genetic signals of male-biased dispersal, which may be natural or affected by habitat fragmentation effects on females. This work illustrates the value of genomics in rethinking subspecies and conservation unit designations and better conserve biodiversity within terrestrial species at risk.
Population Trends of Shorebirds on Fall Migration in Eastern Canada 1974-1991	Morrison, R.; Downes, C.; Collins, B.		https://digitalcommons.usf.edu/wilson_bulletin/vol106/iss3/3	9/1/1994	EN	Migratory birds; Public	Analysis of data from the Maritimes Shorebird Survey, involving counts of shorebirds made during fall migration in the Atlantic Provinces of Canada, indicated declines in a number of shorebird populations during the period 1974-1991. Significant declines were recorded most consistently for Least Sandpiper (<i>Culidris minicilla</i>), Semipalmated Sandpiper (<i>C. pusilla</i>), and Short-billed Dowitcher (<i>Limnodromus griseus</i>), and decreases for Red Knot (<i>C. canutus</i>) and Black-bellied Plover (<i>Plover squatarola</i>) approached statistical significance in some analyses. Population trends were not constant but varied consistently across species during different phases of the study period. Declines occurred in most of the 13 species analyzed during the latter part of the 1970s followed by increases during the first half of the 1980s with a less marked tendency towards declines in recent years. A series of cold summers on the breeding grounds during the 1970s may have led to the observed population declines at that time. Statistical power analysis indicated that population changes of 2-5% should be detected at 80% power for the number of sites and years of coverage for which data were available. Received 26 Aug. 1993, accepted 14 Dec. 1993.
Possible Impacts of Climate Change on Freezing Rain Using Downscaled Future Climate Scenarios: Updated for Eastern Canada	Cheng, C.S.; Li, G; Auld, H	10.1080/07055900.2011.555728	http://dx.doi.org/10.1080/07055900.2011.555728	2011	EN	Climate change; Scenario development	Specialized study to investigate the potential changes in the frequency of daily freezing rain events in the future (2016-2035, 2046-2065, 2081-2100) compared to historical frequencies (1958-2007) for Eastern Canada. Statistical downscaling, synoptic weather typing, and future projections were used to assess freezing rain-related weather type events. Freezing rain events are projected to increase in frequency during the cold months and decrease in frequency during the shoulder season months. The number of events in the cold months is also projected to be progressively greater from south to north. - Article abstract: The methods used in an earlier study focusing on the province of Ontario, Canada, were adapted for this current study to expand the study area over eastern Canada where the infrastructure is at risk of being impacted by freezing rain. To estimate possible impacts of climate change on future freezing rain events, a three-step process was used in the study: (1) statistical downscaling, (2) synoptic weather typing, and (3) future projections. A regression-based downscaling approach, constructed using different regression methods for different meteorological variables, was used to downscale the outputs of eight general circulation models to each of 42 hourly observing stations over eastern Canada. Using synoptic weather typing (principal components analysis, a clustering procedure, discriminant function analysis), the freezing rain-related weather types under historical climate (1958-2007) and future downscaled climate conditions (2016-2035, 2046-2065, 2081-2100) were identified for all selected stations. The potential changes in the frequency of future daily freezing rain events can be projected quantitatively by comparing future and historical frequencies of freezing rain-related weather types. The modelled results show that eastern Canada could experience more freezing rain events late this century during the coldest months (i.e., December to February) than the averaged historical conditions. Conversely, during the warmest months of the study season (i.e., November and April in the southern regions, October in the northern regions), eastern Canada could experience less freezing rain events late this century. The increase in the number of daily freezing rain events in the future for the coldest months is projected to be progressively greater from south to north or from southwest to northeast across eastern Canada. The relative decrease in magnitude of future daily freezing rain events in the warmest months is projected to be much less than the relative increase in magnitude in the coldest months.
Possible Impacts of Climate Change on Wind Gusts under Downscaled Future Climate Conditions over Ontario, Canada	Cheng, C.S.; Li, G; Li, Q; Auld, H; Fu, C	10.1175/JCLI-D-11-00198.1	https://doi.org/10.1175/JCLI-D-11-00198.1	2012	EN	Climate change; Scenario development	Cheng et al. use hourly/daily wind gust simulation models and regression-based downscaling methods to assess possible impacts of climate change on hourly and daily wind gust events. Cheng et al. found a projected increase in frequencies of hourly/daily wind gust events (≥ 28 , ≥ 40 , and ≥ 70 km/hr wind gusts) for the 2081-2100 time period (compared to the 1994-2007 time period). - Article abstract: Hourly/daily wind gust simulation models and regression-based downscaling methods were developed to assess possible impacts of climate change on future hourly/daily wind gust events over the province of Ontario, Canada. Since the climate/weather validation process is critical, a formal model result verification process has been built into the analysis to ascertain whether the methods are suitable for future projections. The percentage of excellent and good simulations among all studied seven wind gust categories ranges from 94% to 100% and from 69% to 95%, respectively, for hourly and daily wind gusts, for both model development and validation. The modeled results indicate that frequencies of future hourly/daily wind gust events are projected to increase late this century over the study area under a changing climate. For example, across the study area, the annual mean frequency of future hourly wind gust events ≥ 28 , ≥ 40 , and ≥ 70 km h ⁻¹ for the period 2081-2100 derived from the ensemble of downscaled eight-GCM A2 simulations is projected to be about 10%-15%, 10%-20%, and 20%-40% greater than the observed average during the period 1994-2007, respectively. The corresponding percentage increase for future daily wind gust events is projected to be, 10%, 10%, and 15%-25%. Inter-GCM-model and interscenario uncertainties of future wind gust projections were quantitatively assessed. On average, projected percentage increases in frequencies of future hourly/daily wind gust events ≥ 28 and ≥ 40 km h ⁻¹ are about 90%-100% and 60%-80% greater than inter-GCM-model-interscenario uncertainties, respectively. For wind gust events ≥ 70 km h ⁻¹ , the corresponding projected percentage increases are about 25%-35% greater than the interscenario uncertainties and are generally similar to inter-GCM-model uncertainties.

Potential climate change impacts on fire intensity and key wildfire suppression thresholds in Canada	Wotton, B. M.; Flannigan, M. D.; Marshall, G.A.	10.1088/1748-9326/aa7e6e	https://doi.org/10.1088/1748-9326/aa7e6e	2017	EN	Climate change; Forests	Much research has been carried out on the potential impacts of climate change on forest fire activity in the boreal forest. Indeed, there is a general consensus that, while change will vary regionally across the vast extent of the boreal, in general the fire environment will become more conducive to fire. Land management agencies must consider ways to adapt to these new conditions. This paper examines the impact of that changed fire environment on overall wildfire suppression capability. We use multiple General Circulation Models and carbon emission pathways to generate future fire environment scenarios for Canada's forested region. We then use these scenarios with the Canadian Forest Fire Behaviour Prediction System and spatial coverages of the current forest fuel composition across the landscape to examine potential variation in key fire behaviour outputs that influence whether fire management resources can effectively suppress fire. Specifically, we evaluate how the potential for crown fire occurrence and active growth of fires changes with the changing climate. We also examine future fire behaviour through the lens of operational fire intensity thresholds used to guide decisions about resources effectiveness. Results indicate that the proportion of days in fire seasons with the potential for unmanageable fire will increase across Canada's forest, more than doubling in some regions in northern and eastern boreal forest.
Potential impacts of climate change on the distributions of several common and rare freshwater fishes in Canada	Chu, C; Mandrak, N.E.; Minns, C.K.	10.1111/j.1366-9516.2005.00153.x	https://onlinelibrary.wiley.com/doi/full/10.1111/j.1366-9516.2005.00153.x	2005	EN	Climate change; Fish and fish habitat; Scenario development; Species at risk; Water and river systems	Climate change will ultimately affect the supply and quality of freshwater lakes and rivers throughout the world. This study examines the potential impacts of climate change on freshwater fish distributions in Canada. Climate normal data (means from 1961 to 1990) from Environment Canada were used to map current climate found throughout the tertiary watersheds of Canada. Logistic regressions based on these climate data were used to develop predictive presence-absence equations for (a) common commercially and recreationally important species and (b) an Arctic freshwater species and a freshwater fish species of conservation significance listed by the Committee on the Status of Endangered Wildlife (COSEWIC). The Canadian Centre for Climate Modelling and Analysis Global Coupled Model 2 (IS92a) provided forecasts of Canada's climate in 2020 and 2050. The data from this scenario and the logistic regressions provided a ready framework for predicting the potential distributions of the fishes. Physical and ecological barriers would have to be overcome for the distribution of these species to actually change in response to climate change. Generally, coldwater species may be extirpated from much of their present range while cool and warm-water species may expand northward. Species that are limited to the most southern regions of the country may expand northwards. A conceptual framework for assessing potential climate change impacts on fishes and the variety of management strategies required to deal with these impacts are discussed. Our forecasts demonstrate the need for climate change assessments in species at risk as well as for common species.
Potential Impacts of Mineral Exploration on Aquatic Environments within the Moose River Basin: A Discussion Paper	Stokes, K.		Held by Ministry of Natural Resources	1998	EN	Hydrology; Mining; Moose River; Not public; Peatlands	This paper discusses the potential impacts of mineral exploration in the Moose River Basin on aquatic resources, including wetlands. Potential impacts include acid mine draining, water contamination (by low pH or heavy metals, loss/damage of wetland habitat and organisms, and sedimentation).
Predator Reduction to Support Caribou Recovery: 2022-2023 Summary	Ministry of Water, Land and Resource Stewardship of British Columbia		https://www2.gov.bc.ca/assets/gov/environment/plants-animals-and-ecosystems/wildlife-wildlife-habitat/caribou/predator_reduction_to_support_caribou_recovery_2022-2023.pdf	2023-06	EN	Wildlife and wildlife habitat; Species at risk	The reduction of predator densities has been shown to be an effective short-term action for recovering threatened caribou herds when applied in an adaptive management framework. To achieve long-term caribou population sustainability, habitat protection and restoration must continue to be prioritized and implemented.
Presentation to the ICDA: Indigenous World View	Chief Ambrose Achneepineskum		http://kwgresources.com/wp-content/uploads/2018/05/01_Chief-Ambrose-Achneepineskum.pdf	2018	EN	Cultural vitality; Inter and intra generational values; Current use; Indigenous Peoples	Chief Ambrose Achneepineskum of Marten Falls First Nation presentation at the annual members ICDA in April 2018. The presentation includes an overview of Marten Falls First Nation and the Ring of Fire within their traditional territory.
Probability of Tornado Occurrence across Canada	Cheng, V.Y.S.; Arhonditsis, G.B.; Sills, D.M.L.; Auld, H; Shephard, M.W.; Gough, W.A.; Klaassen, J	10.1175/JCLI-D-13-00093.1	http://dx.doi.org/10.1175/JCLI-D-13-00093.1	2013	EN	Community safety	The number of tornadoes reported in Canada is believed to be significantly lower than the actual number of tornado occurrences. A Bayesian modeling approach is used to calculate tornado probability across Canada. In sparsely populated areas, the study indicates that the probability of tornado occurrence is significantly higher than what was reported in the 30-yr national tornado database compiled by Environment Canada. - Article abstract: The number of tornado observations in Canada is believed to be significantly lower than the actual occurrences. To account for this bias, the authors propose a Bayesian modeling approach founded upon the explicit consideration of the population sampling bias in tornado observations and the predictive relationship between cloud-to-ground (CG) lightning flash climatology and tornado occurrence. The latter variable was used as an indicator for quantifying convective storm activity, which is generally a precursor to tornado occurrence. The CG lightning data were generated from an 11-yr lightning climatology survey (1999-2009) from the Canadian Lightning Detection Network. The results suggest that the predictions of tornado occurrence in populated areas are fairly reliable with no profound underestimation bias. In sparsely populated areas, the analysis shows that the probability of tornado occurrence is significantly higher than what is represented in the 30-yr data record. Areas with low population density but high lightning flash density demonstrate the greatest discrepancy between predicted and observed tornado occurrence. A sensitivity analysis with various grid sizes was also conducted. It was found that the predictive statements supported by the model are fairly robust to the grid configuration, but the population density per grid cell is more representative to the actual population density at smaller resolution and therefore more accurately depicts the probability of tornado occurrence. Finally, a tornado probability map is calculated for Canada based on the frequency of tornado occurrence derived from the model and the estimated damage area of individual tornado events.
Progress or peril? First Nations in the Ring of Fire divided on infrastructure – and the mining development it would attract	Hiyate, A.		https://www.canadianminingjournal.com/featured-article/progress-or-peril-first-nations-in-the-ring-of-fire-divided-on-infrastructure-and-the-mining-development-it-would-attract/	2022	EN	Mining; Cumulative effects; Community safety; Economic development and livelihoods; Community health; Treaty rights; Social and economic; Indigenous Peoples; Infrastructure	
Progress Report on Steps Taken for Protection of Critical Habitat for Species at Risk in Canada (October 2022 - March 2023)	Environment and Climate Change Canada		https://www.canada.ca/en/environment-climate-change/services/species-risk-public-registry/critical-habitat-reports/october-2022-march-2023.html	2023-06	EN / FR	Wildlife and wildlife habitat; Avifauna; Species at risk; Fish and fish habitat	This report provides a summary of steps and actions taken and underway by provincial, territorial and federal governments to contribute towards the protection of identified critical habitat for 266 terrestrial species at risk in Canada, an increase of 4 species since the previous report published in January 2023. The report includes information related to species at risk critical habitat on federal and non-federal lands. Building on the previous ten publications, this report focuses on steps and actions that have been taken during the reporting period of October 1, 2022 to March 31, 2023.
Progress report on unprotected critical habitat for the woodland caribou (Rangifer tarandus caribou), boreal population, in Canada	Environment and Climate Change Canada		https://publications.gc.ca/site/eng/9.855625/publication.html	2018	EN / FR	Public; Species at risk; Wildlife and wildlife habitat	The Woodland Caribou, Boreal population (also called boreal caribou) was listed on Schedule 1 of the Species at Risk Act (SARA) as threatened in June 2003 when SARA came into force. This report provides a summary of protection measures that are currently in place to protect boreal caribou critical habitat under federal, provincial and territorial laws, and also provides a summary of steps taken, and being taken, to protect critical habitat by provincial, territorial and federal governments
Projected changes in daily fire spread across Canada over the next century	Wang, X; Parisien, M.A.; Taylor, S.W.; Candau, J.-N.; Stralberg, D; Marshall, G.A.; Little, J.M.; Flannigan, M.D.	10.1088/1748-9326/aa5835	https://doi.org/10.1088/1748-9326/aa5835	2017	EN	Climate change; Forests	In the face of climate change, predicting and understanding future fire regimes across Canada is a high priority for wildland fire research and management. Due in large part to the difficulties in obtaining future daily fire weather projections, one of the major challenges in predicting future fire activity is to estimate how much of the change in weather potential could translate into on-the-ground fire spread. As a result, past studies have used monthly, annual, or multi-decadal weather projections to predict future fires, thereby sacrificing information relevant to day-to-day fire spread. Using climate projections from the fifth phase of the Coupled Model Intercomparison Project (CMIP5), historical weather observations, MODIS fire detection data, and the national fire database of Canada, this study investigated potential changes in the number of active burning days of wildfires by relating 'spread days' to patterns of daily fire-conducive weather. Results suggest that climate change over the next century may have significant impacts on fire spread days in almost all parts of Canada's forested landmass; the number of fire spread days could experience a 2-to-3-fold increase under a high CO2 forcing scenario in eastern Canada, and a greater than 50% increase in western Canada, where the fire potential is already high. The change in future fire spread is critical in understanding fire regime changes, but is also imminently relevant to fire management operations and in fire risk mitigation.

Projected changes in fire size from daily spread potential in Canada over the 21st century	Wang, X; Studens, M.-A.; Parisien, M. A.; Taylor, S.W.; Candau, J.-N.; Boulanger, Y; Flannigan, M. D.	10.1088/1748-9326/aba101	https://doi.org/10.1088/1748-9326/aba101	2020	EN	Forests; Climate change	The broad consensus indicates that climate change will cause larger and more frequent fires, resulting in a growing annual area burned (AAB) in much of Canada. Our ability to predict future changes in fire size (FS) and AAB is limited due to the uncertainty embedded in climate change models and our inability to quantify the complex interactions between the changing environment and fire activity. In this study, we introduce a new method to predict future FS and AAB across Canada over the 21st century based on fire-conducive weather and how it translates to on-the-ground fire spread (i.e. spread days). We found that the potential for an extreme fire year (99th percentile of AAB) could quadruple by the end of the century across Canada, and 7-10 times more common in the boreal biome. Specifically, FS and AAB may increase 20%-64% and 25%-93%, respectively, and the average fire year under the extreme climate scenario may burn ~11 Mha, which is ~4 Mha higher than the most extreme fire year in Canada's modern history (~7 Mha). Our results demonstrate that by accounting for the strong nonlinear expansion of wildfires as a function of number of fire spread days, even conservative climate-change scenarios may yield significant increase in fire activity.
Projected Changes to Mean and Extreme Surface Wind Speeds for North America Based on Regional Climate Model Simulations	Jeong, D.I.; Sushama, L	10.3390/atmos10090497	https://doi.org/10.3390/atmos10090497	2019	EN	Climate change; Scenario development	This study evaluates projected changes to surface wind characteristics for the 2071-2100 period over North America (NA), using four Global Environmental Multiscale regional climate model simulations, driven by two global climate models (GCMs) for two Representative Concentration Pathway scenarios. For the current climate, the model simulates well the climatology of mean sea level pressure (MSLP) and associated wind direction over NA. Future simulations suggest increases in mean wind speed for northern and eastern parts of Canada, associated with decreases in future MSLP, which results in more intense low-pressure systems situated in those regions such as the Aleutian and Icelandic Lows. Projected changes to annual maximum 3-hourly wind speed show more spatial variability compared to seasonal and annual mean wind speed, indicating that extreme wind speeds are influenced by regional level features associated with instantaneous surface temperature and air pressure gradients. The simulations also suggest some increases in the future 50-year return levels of 3-hourly wind speed and hourly wind gusts, mainly due to increases in the inter-annual variability of annual maximum values. The variability of projected changes to both extreme wind speed and gusts indicate the need for a larger set of projections, including those from other regional models driven by many GCMs to better quantify uncertainties in future wind extremes and their characteristics.
Projected increases in near-surface air temperature over Ontario, Canada: a regional climate modeling approach	Wang, X; Huang, G; Liu, J.	10.1007/s00382-014-2387-y	https://doi.org/10.1007/s00382-014-2387-y	2015	EN	Climate change	Wang et al. developed high-resolution projections of near-surface air temperature (mean, maximum, and minimum daily temperature) over Ontario. Focus is placed on evaluating how climate change impacts local climatology at 'major cities', including Fort Hope, and spatial patterns over the province. Wang et al. find a consistent increasing trend in near-surface air temperature throughout the century. - Article abstract: As the biggest economy in Canada, the Province of Ontario is now suffering many consequences caused by or associated with global warming, such as frequent and intense heat waves, floods, droughts, and wind gust. Planning of mitigation and adaptation strategies against the changing climate, which requires a better understanding of possible future climate outcomes over the Province in the context of global warming, is of great interest to local policy makers, stakeholders, and development practitioners. Therefore, in this study, high-resolution projections of near-surface air temperature outcomes including mean, maximum, and minimum daily temperature over Ontario are developed, aiming at investigating how the global warming would affect the local climatology of the major cities as well as the spatial patterns of air temperature over the entire Province. The PRECIS modeling system is employed to carry out regional climate ensemble simulations driven by the boundary conditions of a five-member HadCM3-based perturbed-physics ensemble (i.e., HadCM3Q0, Q3, Q10, Q13, and Q15). The ensemble simulations are then synthesized through a Bayesian hierarchical model to develop probabilistic projections of future temperature outcomes with consideration of some uncertain parameters involved in the regional climate modeling process. The results suggest that there would be a consistent increasing trend in the near-surface air temperature with time periods from 2030s to 2080s. The most likely mean temperature in next few decades (i.e., 2030s) would be [2, 2] °C in northern Ontario, [2, 6] °C in the middle, and [6, 12] °C in the south, afterwards the mean temperature is likely to keep rising by ~ 2 °C per 30-years period. The continuous warming across the Province would drive the lowest mean temperature up to 2 °C in the north and the highest mean temperature up to 16 °C in the south. In addition, the spread of the most likely ranges of future outcomes shows a consistent widening trend from 2030s to 2080s, implying that long-term climate change is more difficult to predict than near-term change because many more uncertain or unknown factors may continue to emerge during the long-term simulation.
Projections of North American snow from NA-CORDEX and their uncertainties, with a focus on model resolution	McCrory, R.R.; Mearns, L.O.; Hughes, M; Biner, S; Bukovsky, M.S.	10.1007/s10584-021-03294-8	https://doi.org/10.1007/s10584-021-03294-8	2022	EN	Climate change	Snow is important for many physical, social, and economic sectors in North America. In a warming climate, the characteristics of snow will likely change in fundamental ways, therefore compelling societal need for future projections of snow. However, many stakeholders require climate change information at finer resolutions than global climate models (GCMs) can provide. The North American Coordinated Regional Downscaling Experiment (NA-CORDEX) provides an ensemble of regional climate model (RCMs) simulations at two resolutions (~ 0.5° and ~ 0.25°) designed to help serve the climate impacts and adaptation communities. This is the first study to examine the differences in end of twenty-first-century projections of snow from the NA-CORDEX RCMs and their driving GCMs. We find that the broad patterns of change are similar across RCMs and GCMs: snow cover retreats, snow mass decreases everywhere except at high latitudes, and the duration of the snow covered season decreases. Regionally, the spatial details, magnitude, percent, and uncertainty of future changes vary between the GCM and RCM ensemble but are similar between the two resolutions of the RCM ensembles. An increase in winter snow amounts at high latitudes is a robust response across all ensembles. Percent snow losses are found to be more substantial in the GCMs than the RCMs over most of North America, especially in regions with high-elevation topography. Specifically, percent snow losses decrease with increasing elevation as the model resolution becomes finer.
Prosperity and Growth Strategy for Northern Ontario (PGSNO) - What We Heard	Government of Canada, Federal Economic Development Agency for Northern Ontario		https://fednor.canada.ca/en/about-us/prosperity-and-growth-strategy-northern-ontario-pgsno-what-we-heard	1/17/2025	EN / FR	Economic development and livelihoods; Social and economic	The Prosperity and Growth Strategy for Northern Ontario (PGSNO) is the Government of Canada's plan for economic development in the region. The strategy recognizes the importance of place-based approaches to address the specific needs and challenges faced by residents, communities, and businesses in Northern Ontario. Its goal is to foster growth and prosperity in the region by supporting innovation, growing companies, and building stronger communities. From July to October 2024, FedNor heard from 300+ stakeholders through 22 virtual and in-person engagement sessions and 22 written submissions to inform the strategy update. This report summarizes the engagement efforts involved in updating the strategy and provides an overview of the major themes that surfaced during the engagement period.
Prosperity and Growth Strategy for Northern Ontario: A plan for economic development, inclusiveness and success	Federal Economic Development Agency for Northern Ontario		https://fednor.canada.ca/sites/default/files/attachments/PGS-NO-2018.pdf	7/24/2024	EN / FR	Economic development and livelihoods; Social and economic	The Prosperity and Growth Strategy for Northern Ontario (PGSNO) is designed with a regional approach to economic development in mind.
Canadian Protected and Conserved Areas Database	Government of Canada; Environment and Climate Change Canada; Canadian Wildlife Service		https://www.canada.ca/en/environment-climate-change/services/national-wildlife-areas/protected-conserved-areas-database.html	2/17/2017	EN / FR	Sustainability; Water and river systems; Wildlife and wildlife habitat	The Canadian Protected and Conserved Areas Database (CPCAD) contains the most up to date spatial and attribute data on marine and terrestrial protected areas (PA) and other effective area-based conservation measures (OECM) in Canada. CPCAD is compiled and managed by Environment and Climate Change Canada (ECCC), in collaboration with federal, provincial, territorial jurisdictions, and other data providers.
Provincial Park Regulated	Government of Ontario		https://geohub.lio.gov.on.ca/datasets/lio:provincial-park-regulated/about	1/11/2020		Land cover; Physical and cultural heritage; Species at risk; Water and river systems; Wildlife and wildlife habitat	Ontario provincial parks are classified as one of the following: Wilderness, Nature Reserve, Cultural Heritage, Natural Environment, Waterway, and Recreational. These parks are managed by Ontario Parks.

<p>Pushing for Better: Confronting Conflict, Unsustainability & Colonialism Through Sustainability Assessment and Regional Assessment in the Ring of Fire</p>	<p>Atlin, Cole</p>	<p>https://www.researchgate.net/publication/361173220_Pushing_for_Better_Confronting_Conflict_Unsustainability_Colonialism_through_Sustainability_Assessment_and_Regional_Assessment_in_the_Ring_of_Fire</p>	<p>2019</p>	<p>EN</p>	<p>Not public; Treaty rights; Sustainability; Indigenous Peoples; Infrastructure</p>	<p>The Ring of Fire is a mineral resource-rich area of approximately 5,120 km² located in the James Bay Lowlands region of Northern Ontario, about 500 kilometers northeast of Thunder Bay. The Ontario Ministry of Northern Development and Mines generously estimates the Ring of Fire to contain \$60 billion worth of minerals. The Ontario government and industry envision that the Ring of Fire could be a region with multi-generational mining activity. However, the area has no historical or current industrial activity, and no road or rail access. Also, mining proposals in this resource rich, inaccessible and ecologically sensitive area have generated significant controversy and conflict because the potential for wealth generation is accompanied by the potential for significant and possibly serious net negative lasting cumulative effects and poorly distributed benefits and risks, particularly for First Nations communities, including Eabametoong First Nation. One major method of anticipating and planning for the effects of industrial development is environmental assessment. However, my research finds that traditional assessment methods are woefully inadequate for considering the potential regional impacts of the Ring of Fire on the land, waters and communities. Conventional assessment is insufficient to identify and address cumulative effects, and it does not provide an adequate base for determining whether proposed developments are likely contribute to lasting well-being and sustainability. These inadequacies are particularly challenging for the most vulnerable communities, where these deficiencies threaten to perpetuate long standing colonialism and conflict. The findings suggest that Canadian resource development processes at large would be considerably assisted if anticipatory assessment and decision making focused on the actual (in this case regional) scale of the potential effects, examined the potential for lasting overall gains, and integrated fair process with equitable relationships and substantive consideration of context-dependent sustainability. In this research, assessment criteria were developed in collaboration with Eabametoong First Nation for application in the Ring of Fire utilizing generic sustainability criteria, existing academic data and Eabametoong's own perspectives. Central to the resulting assessment framework is the need to foster consent, respect indigenous rights and utilize indigenous knowledge. My findings indicate that much of the mainstream discussion on the Ring of Fire has framed the key debates as economy versus the environment, and have situated the current project-centred environmental assessment processes as a venue for battles over these priorities. A broader and more positive approach, using regional strategic assessments to find pathways to lasting overall benefits for the Ring of Fire communities and area, is not yet on the agenda. This research found that a more comprehensive package that utilizes assessment not simply as a box check, but as a means to enhance the lives of Eabametoong First Nations and other communities, would better ensure that development in the region contributes to a sustainable future.</p>
<p>RADARSAT Constellation Mission's Operational Polarimetric Modes: A User-Driven Radar Architecture</p>	<p>Raney, R. Keith; Brisco, Brian; Dabboor, Mohammed; Mahdianpari, Masoud</p>	<p>10.1080/07038992.2021.1907566 https://doi.org/10.1080/07038992.2021.1907566</p>	<p>1/2/2021</p>	<p>EN</p>	<p>Land cover</p>	<p>Canada's Earth-observing RADARSAT Constellation Mission (RCM) is intended to serve operational users. The users' main objectives were to have routinely available high-quality quantitative information about their applications, with large area coverage potential. That two-part requirement was sufficient to establish an innovative synthetic aperture radar (SAR) polarimeter's end-to-end system profile, the hybrid compact polarimetric (HCP) architecture. HCP's essential and defining characteristic is circularly polarized transmission. This is sufficient to evaluate the backscatterer Stokes vector, but only half of the scattering matrix elements are measured. Hence image classification methodologies for linearly polarized full- (or quad-) pol (FP) radars that depend on knowledge of all four of the scattering matrix elements if applied to HCP-derived data lead to erroneous results. HCP-appropriate classifications are based on the Stokes vector. Related methods traditionally used for radar astronomy—for which circularly polarized transmission is the norm—are reviewed. Those known methods are extended, bringing to light fundamental characteristics of a polarimetric electromagnetic field. Analysis tools appropriate for HCP's polarimetric data are introduced. The resulting polarimetric portraits—defined as the Stokes vector of the backscattered field in response to balanced illumination of the scene—from FP and HCP polarimeters are shown to be equivalent.</p>
<p>Rain-on-snow events over North America based on two Canadian regional climate models</p>	<p>Jeong, D.I.; Sushama, L</p>	<p>10.1007/s00382-017-3609-x https://doi.org/10.1007/s00382-017-3609-x</p>	<p>2018</p>	<p>EN</p>	<p>Climate change</p>	<p>This study evaluates projected changes to rain-on-snow (ROS) characteristics (i.e., frequency, rainfall amount, and runoff) for the future 2041–2070 period with respect to the current 1976–2005 period over North America using six simulations, based on two Canadian RCMs, driven by two driving GCMs for RCP4.5 and 8.5 emission pathways. Prior to assessing projected changes, the two RCMs are evaluated by comparing ERA-Interim driven RCM simulations with available observations, and results indicate that both models reproduce reasonably well the observed spatial patterns of ROS event frequency and other related features. Analysis of current and future simulations suggest general increases in ROS characteristics during the November–March period for most regions of Canada and for northwestern US for the future period, due to an increase in the rainfall frequency with warmer air temperatures in future. Future ROS runoff is often projected to increase more than future ROS rainfall amounts, particularly for northeastern North America, during snowmelt months, as ROS events usually accelerate snowmelt. The simulations show that ROS event is a primary flood generating mechanism over most of Canada and north-western and -central US for the January–May period for the current period and this is projected to continue in the future period. More focused analysis over selected basins shows decreases in future spring runoff due to decreases in both snow cover and ROS runoff. The above results highlight the need to take into consideration ROS events in water resources management adaptation strategies for future climate.</p>
<p>Rainy River Project, Township of Chapple, Ontario - Final Environmental Assessment Report (Environmental Impact Statement) Version 2</p>	<p>AMEC Environment & Infrastructure</p>	<p>https://www.ceaa-acee.gc.ca/050/evaluations/document/97716?culture=en-CA</p>	<p>2014</p>	<p>EN</p>	<p>Biodiversity; Community health; Cumulative effects; Current use; Fish and fish habitat; Hydrology; Mining; Physical and cultural heritage; Public; Social and economic; Species at risk; Treaty rights; Wildlife and wildlife habitat</p>	<p>This EIS provides and analyses baseline data for the areas surrounding the proposed Rainy river mining project (RRP) and an effects assessment and mitigation plan for both natural and socio economic factors that may be influenced by the RRP.</p>
<p>Range Management Policy in Support of Woodland Caribou Conservation and Recovery</p>	<p>Ministry of the Environment, Conservation and Parks</p>	<p>http://www.ontario.ca/page/range-management-policy-support-woodland-caribou-conservation-and-recovery</p>	<p>2019</p>	<p>EN / FR</p>	<p>Forests; Public; Species at risk; Wildlife and wildlife habitat</p>	<p>The Range Management Policy provides a transparent and evidence-based approach to planning and decision-making in caribou habitat that maintains or improves the condition of caribou ranges in Ontario. It directs the implementation of the Range Management Approach and enables industry to proceed with development in a way that complies with the Endangered Species Act (ESA).</p>
<p>Recent changes in summer distribution and numbers of migratory caribou on the southern Hudson Bay Coast</p>	<p>Abraham, K.F.; Pond, B.A.; Tully, S.M.; Trim, V; Hedman, D; Chenier, C; Racey, G.D.</p>	<p>10.7557/2.32.2.275 https://septentrio.uit.no/index.php/rangifer/article/view/2275</p>	<p>2012</p>	<p>EN</p>	<p>Public; Species at risk; Wildlife and wildlife habitat</p>	<p>The status of migratory woodland caribou inhabiting the coastal region in southern Hudson Bay is dynamic. The Pen Islands Herd within that region was defined in the 1990s, but opportunistic observations between 1999 and 2007 suggested that its status had significantly changed since the late 1980s and early 1990s. We undertook systematic surveys from the Hayes River, MB, to the Lakitusaki River, ON, in 2008 and 2009 to determine current distribution and minimum numbers of woodland caribou on the southern Hudson Bay coast from the Hayes River, Manitoba, to the Lakitusaki River, Ontario. We documented a significant change in summer distribution during the historical peak aggregation period (7–15 July) compared to the 1990s. In 2008 and 2009, respectively, we tallied 3529 and 3304 animals; however, fewer than 180 caribou were observed each year in the Pen Islands Herd's former summer range where over 10798 caribou were observed during a systematic survey in 1994. Over 80% of caribou were in the Cape Henrietta Maria area of Ontario. Calf proportions in herds varied from 8% of animals in the west to 20% in the east. Our 2008 and 2009 systematic surveys were focused on the immediate coast, but one exploratory flight inland suggested that more caribou may be inland than had been observed in the 1980s–1990s. The causes of change in the numbers and distribution in the coastal Hudson Bay Lowlands and the association of current caribou with the formerly large Pen Islands Herd may be difficult to determine because of gaps in monitoring, but satellite telemetry, genetic sampling, remote sensing, habitat analysis, and aboriginal knowledge are all being used to pursue answers.</p>
<p>Reconciliation and Indigenous resurgence in the Ontario Far North and Mushkegowuk Cree land use planning processes</p>	<p>Bowie, R.L.D.</p>	<p>10.1177/23996544209420957658 https://journals.sagepub.com/doi/full/10.1177/23996544209420957658</p>	<p>2020</p>	<p>EN</p>	<p>Cultural vitality; Treaty rights; Traditional processes for deliberation; Current use; Indigenous Peoples; Infrastructure</p>	<p>The introduction of Ontario's Far North Initiative in 2008 and resulting Far North Act (2010) set in motion efforts to create land use plans in the northern regions of the Canadian province. Ontario's approach to reconciling Aboriginal and treaty rights with provincial planning was through a community-based land use planning process, to which Mushkegowuk Council responded with a regional process based on the Omushkegowuk nation. The paper argues that the goals and approach of Mushkegowuk Council were reflective of indigenous resurgence principles, to which Ontario's community-based planning objectives were a significant obstacle. The paper will closely examine the challenges Mushkegowuk Council faced in their attempt to assert an alternative to Ontario's Far North planning, and the implications for Mushkegowuk Council and other indigenous communities and organizations involved in land use planning. The paper will conclude with a discussion of how the case study exemplifies the broader difficulties of achieving indigenous driven planning as resurgence necessarily confronts the institutions and ambitions of Settler governments.</p>

Recovery strategy for the Bank Swallow Bank Swallow (Riparia riparia) in Ontario	Falconer, M; Richardson, K.; Heagy, A; Tozer, D; Stewart, B; McCracken, J; Reid., R.	https://www.ontario.ca/page/recovery-strategy-bank-swallow	2016	EN	Migratory birds; Avifauna; Species at risk	The recovery strategy for the Bank Swallow was developed in accordance with the requirements of the Endangered Species Act, 2007 (ESA). This recovery strategy has been prepared as advice to the Government of Ontario, other responsible jurisdictions and the many different constituencies that may be involved in recovering the species. The recovery strategy does not necessarily represent the views of all of the individuals who provided advice or contributed to its preparation, or the official positions of the organizations with which the individuals are associated. The goals, objectives and recovery approaches identified in the strategy are based on the best available knowledge and are subject to revision as new information becomes available. Implementation of this strategy is subject to appropriations, priorities and budgetary constraints of the participating jurisdictions and organizations. Success in the recovery of this species depends on the commitment and cooperation of many different constituencies that will be involved in implementing the directions set out in this strategy.
Recovery Strategy for the Barn Swallow (Hirundo rustica) in Ontario	Heagy, A; Badzinski, D; Bradley, D; Falconer, M; McCracken, J; Reid, R.A.; Richardson, K	https://www.ontario.ca/page/barn-swallow-recovery-strategy	6/17/2021	EN	Migratory birds; Avifauna; Species at risk	This document advises the ministry on ways to ensure healthy numbers of the Barn Swallow, a threatened or endangered species, return to Ontario.
Recovery Strategy for the Eastern Small-footed Myotis (Myotis leibii) in Ontario	Humphrey, C.	https://www.ontario.ca/page/eastern-small-footed-mytotis-recovery-strategy	2017		Wildlife and wildlife habitat; Species at risk	This document is the recovery strategy for Eastern Small-footed Myotis, a species of bat at risk in Ontario.
Recovery strategy for the Least Bittern	Ministry of Natural Resources and Forestry	https://www.ontario.ca/page/recovery-strategy-least-bittern	6/17/2021		Wildlife and wildlife habitat; Migratory birds; Avifauna; Species at risk	The recovery strategy for the Least Bittern (Ixobrychus exilis) was developed in accordance with the requirements of the Endangered Species Act, 2007 (ESA). This recovery strategy has been prepared as advice to the Government of Ontario, other responsible jurisdictions and the many different constituencies that may be involved in recovering the species. The recovery strategy does not necessarily represent the views of all of the individuals who provided advice or contributed to its preparation, or the official positions of the organizations with which the individuals are associated. The goals, objectives and recovery approaches identified in the strategy are based on the best available knowledge and are subject to revision as new information becomes available. Implementation of this strategy is subject to appropriations, priorities and budgetary constraints of the participating jurisdictions and organizations. Success in the recovery of this species depends on the commitment and cooperation of many different constituencies that will be involved in implementing the directions set out in this strategy.
Recovery Strategy for the Little Brown Myotis (Myotis lucifugus), Northern Myotis (Myotis septentrionalis) and Tri-colored Bat (Perimyotis subflavus) in Ontario	Humphrey, C.; Fotherby, H.	https://www.ontario.ca/page/little-brown-mytotis-northern-mytotis-and-tri-colored-bat-recovery-strategy#:~:text=The%20federal%20recovery%20strategy%20provides%20evidence%20that%20Little%20Brown%20Myotis,comm.	2022	EN	Wildlife and wildlife habitat; Species at risk	The recovery strategy for the Little Brown Myotis (Myotis lucifugus), Northern Myotis (Myotis septentrionalis) and Tri-colored Bat (Perimyotis subflavus) was developed in accordance with the requirements of the Endangered Species Act, 2007 (ESA). This recovery strategy has been prepared as advice to the Government of Ontario, other responsible jurisdictions and the many different constituencies that may be involved in recovering the species. The recovery strategy does not necessarily represent the views of all individuals who provided advice or contributed to its preparation, or the official positions of the organizations with which the individuals are associated. The recommended goals, objectives and recovery approaches identified in the strategy are based on the best available knowledge and are subject to revision as new information becomes available. Implementation of this strategy is subject to appropriations, priorities and budgetary constraints of the participating jurisdictions and organizations. Success in the recovery of this species depends on the commitment and cooperation of many different constituencies that will be involved in implementing the directions set out in this strategy.
Red Knot (rufa Subspecies) - Species at risk webpage	Committee on the Status of Species at Risk in Ontario	https://www.ontario.ca/page/red-knot-rufa-subspecies	2021	EN / FR	Avifauna; Migratory birds; Public; Species at risk	Provide information on the status of Red Knot, rufa Subspecies (e.g., endangered or threatened), general life history and a place to direct the general public or Proponents for further information regarding the species (e.g., Recovery Strategies, Government Response Statements, etc.)
Reduced frequency and size of late-twenty-first-century snowstorms over North America	Ashley, W.S.; Habertle, A.M.; Gensini, V.A.	10.1038/s41558-020-0774-4 https://doi.org/10.1038/s41558-020-0774-4	2020	EN	Climate change	Understanding how snowstorms may change in the future is critical for estimating impacts on water resources and the Earth and socioeconomic systems that depend on them. Here we use snowstorms as a marker to assess the mesoscale fingerprint of climate change, providing a description of potential changes in winter weather event occurrence, character and variability in central and eastern North America under a high anthropogenic emissions pathway. Snowstorms are segmented and tracked using high-resolution, snow water equivalent output from dynamically downscaled simulations which, unlike global climate models, can resolve important mesoscale features such as banded snow. Significant decreases are found in the frequency and size of snowstorms in a pseudo-global warming simulation, including those events that produce the most extreme snowfall accumulations. Early and late boreal winter months show particularly robust proportional decreases in snowstorms and snow water equivalent accumulations.
Regional Deterministic Air Quality Analysis (RDAQA)	Government of Canada; Environment and Climate Change Canada; Meteorological Service of Canada	https://gc-geo.gc.ca/geonetwork/metadata/eng/0a8f138e-2598-42a8-a7ad-0ebc09f1b0c5e	9/10/2020	EN / FR	Air quality	The Regional Deterministic Air Quality Analysis (RDAQA) is an objective analysis of surface pollutants which combines numerical forecasts from the Regional Air Quality Deterministic Prediction System (RAQDPS) and hourly observational data from monitoring surface networks over North America in order to produce a better description of the air quality at every hour. Chemical constituents include O3, SO2, and NO2 gases, as well as fine particulate matter PM2.5 (2.5 micrometers in diameter or less) and coarse particulate matter PM10 (10 micrometers in diameter or less). Geographical coverage is Canada and the United States. Data is available only for the surface level, at a horizontal resolution of 10 km. The products are presented as historical, annual or monthly, averages which highlight long-term trends in cumulative effects on the environment.
Regions of intensification of extreme snowfall under future warming	Quante, L; Willner, S.N.; Middelanis, R; Levermann, A	10.1038/s41598-021-95979-4 https://doi.org/10.1038/s41598-021-95979-4	2021	EN	Climate change	Due to climate change the frequency and character of precipitation are changing as the hydrological cycle intensifies. With regards to snowfall, global warming has two opposing influences; increasing humidity enables intense snowfall, whereas higher temperatures decrease the likelihood of snowfall. Here we show an intensification of extreme snowfall across large areas of the Northern Hemisphere under future warming. This is robust across an ensemble of global climate models when they are bias-corrected with observational data. While mean daily snowfall decreases, both the 99th and the 99.9th percentiles of daily snowfall increase in many regions in the next decades, especially for Northern America and Asia. Additionally, the average intensity of snowfall events exceeding these percentiles as experienced historically increases in many regions. This is likely to pose a challenge to municipalities in mid to high latitudes. Overall, extreme snowfall events are likely to become an increasingly important impact of climate change in the next decades, even if they will become rarer, but not necessarily less intense, in the second half of the century.
Relative abundance of birds in the boreal and subarctic habitats of northwestern Ontario and northeastern Manitoba	McLaren, M.A.; McLaren, P.L.	10.5962/p.352421 https://doi.org/10.5962/p.352421	1981		Avifauna; Biodiversity; Migratory birds; Public; Species at risk	Indices of abundance of breeding birds based on transect surveys are presented for an area stretching 1000 km NW from the Albany River, Ontario to the Caribou River, Manitoba. Data are summarized for six geographic areas and nine habitats. Overall abundance changed little with latitude. Species composition changed considerably and these changes are discussed in relation to habitat. The highest abundance indices of birds were found in deciduous scrub and the lowest in coniferous forest with understorey.
Report on the Risk Assessment Framework for Cumulative Effects (RAFCE)	Antwi, E.; Boakye-Danquah, J.; Silver, D. A.; Dabros, A.; Abolina, E.; Ryan, S.; Wiebe, P. A.; Eddy, I.; Eddy, B.	https://ostrnrcan-dostmrcan.canada.ca/handle/1845/270032	2023	EN	Cumulative effects; Public	The assessment of cumulative effects (CEs) in the context of a regional assessment (RA), is a complex scientific and management activity. It requires interdisciplinary knowledge, purposefully designed and integrative science-policy interactions as well as effective planning guided by structured decision making. Currently, there are no commonly agreed upon frameworks or methods to guide how to conduct a RA. For instance, identifying and prioritizing potential risks and issues for the effective management of decisions about CEs is challenging and not well known. This report is the outcome of work predominantly led by scientists from the Canadian Forest Service, Natural Resources Canada. It provides specialist information and expert knowledge needed to effectively address and manage the CEs of natural resource development to guide future RAs. It summarizes the work carried out to develop the Risk Assessment Framework for Cumulative Effects (RAFCE), a risk and impacts-based cumulative effects assessment (CEA) framework. The RAFCE helps with scoping and prioritizing regional risk and CEs issues in the context of a RA. This report also provides information on how the RAFCE was tested using Northern Ontario's Ring of Fire (RoF) region as a case study. It concludes with lessons learned and implications for conducting future regional-scale assessments.
Reporting Centre on Specific Claims	Crown-Indigenous Relations and Northern Affairs Canada	https://services.aadnc.aandc.gc.ca/SCBRL_E/Main/ReportingCentre/External/external-reporting.aspx	10/24/2014	EN	Indigenous Peoples; Public	With this tool, you can search for information about specific claims that are still in progress as well as claims that have already been resolved.
Resource Development in Canada: A Case Study on the Ring of Fire	Chong, J.	https://publications.gc.ca/collections/collection_2014/bdp-top/bp/2014-17-eng.pdf	2014	EN / FR	Mining; Economic development and livelihoods; Treaty rights; Social and economic; Geology; Indigenous Peoples; Infrastructure	A case study focusing on resource development in the Ring of Fire. The case study suggests that regarding infrastructure, the remoteness of First Nations communities has had a discernible impact on their levels of social and economic development; these communities might therefore benefit from access to any new infrastructure that is built. Some of these benefits to First Nations include: shared resource revenues, access to new infrastructure, use of traditional ecological knowledge, education and skills development, and business and employment opportunities.

Resource roads and wetlands: a guide for planning, construction and maintenance	Partington, M; Gillies, C; Gingras, B; Smith, C; Morissette, J.		https://boreal.ducks.ca/publications/resource-roads-and-wetlands-a-guide-for-planning-construction-and-maintenance/	2016	EN	Hydrology; Infrastructure; Peatlands; Water and river systems	The focus of this guide is on the planning, construction, and maintenance practices for resource roads that cross wetlands. Poor bearing capacity soils and an abundance of water are characteristic of wetlands. This guide focuses on two primary issues: • Ensuring that resource roads that cross wetlands function at the required design and performance levels to allow forest access and hauling operations in a cost-effective manner • Reducing the impacts of resource roads on the flow characteristics of wetlands
Resources to Understand Cumulative Effects in Northern Ontario - Content Collection	Natural Resources Canada; Impact Assessment Agency of Canada		https://osdp-psdo.canada.ca/dp/en/search/metadata/NRCAN-ROF-1-5F183851-3814-4352-85B8-D292EDC2CCA1	10/1/2023	EN / FR	Cumulative effects	The content in this collection has been selected to support the understanding of cumulative effects in the area surrounding the region referred to as the Ring of Fire area in Northern Ontario, located approximately 540 kilometres northeast of Thunder Bay. This collection features data and scientific publications within the area delineated by several large secondary watersheds in Northern Ontario, namely: Attawapiskat, Ekwan, Lower Albany, Upper Albany, and Winisk watersheds.
Review of Cr(VI) environmental practices in the chromite mining and smelting industry – Relevance to development of the Ring of Fire, Canada	Beukes, J.P; du Preez, S.P; van Zyl, P.G; Paktunc, D; Fabritius, T; Päätao, M; Cramer, M.	10.1016/j.jclepro.2017.07.176	https://www.sciencedirect.com/science/article/pii/S0959652617316220	2017	EN	Mining; Peatlands; Community health; Indigenous Peoples	A review of relevant mining and/or smelting processes were considered within the context of possible prevention and mitigation of hexavalent chromium, Cr(VI), formation, and the treatment of possible Cr(VI) containing waste materials. Assessments of all process steps associated with conventional ferrochrome production indicated that smelting will lead to the formation of unintended small amounts of Cr(VI) (mg.kg ⁻¹ concentration range), irrespective of the technology applied. However, this review proved that it will be possible to produce ferrochrome without causing occupational/community health issues related to Cr(VI), as well as environmental pollution, if appropriate preventative and mitigation measures are applied (i.e., dust prevention, extraction and suppression).
Ring of Fire Assessment: An Assessment of Reflections from the Members of the Nishawbe Aski Nation Territory	Duncan, Joseph; Spasevski, Aleksandra		https://www.sierraclub.ca/sites/default/files/ring-of-fire-assessment.pdf	2021	EN	Mining; Economic development and livelihoods; Community health; Cultural vitality; Treaty rights; Social and economic; Traditional processes for deliberation; Indigenous Peoples	This assessment aimed to hear and record the Indigenous members of the Nishawbe Aski Nation who shared their traditional and land base knowledge on the Ring of Fire development.
Ring of Fire Baseline Environmental Data Collection Project	Ministry of the Environment, Conservation and Parks		Held by Ministry of the Environment, Conservation and Parks	2013	EN	Air quality; Forests; Hydrology; Not public; Water and river systems	Environmental monitoring activities included the sampling of lakes and streams/rivers for water chemistry, sediment chemistry, and aquatic organisms (types and abundance); measurement of groundwater levels, temperature, and groundwater quality (water chemistry); vegetation inventories (identification of lichen, mosses, plant and tree species), metal and nutrient concentrations in vegetation; and measurement of air quality (fine particulate matter and metal concentrations)
Risk assessment framework for cumulative effects (RAFCE)	Antwi, E.; Boakye-Danquah, J.; Owusu-Banahene, W.; Dabros, A.; Eddy, I.; Silver, D. A.; Eddy, B. G.; Winder, R. S.		https://ostrnrcan-dostmcan.canada.ca/handle/1845/270086	2023	EN	Cumulative effects; Public	Regional environmental risk assessment is a practical approach to understanding and proactively addressing the cumulative effects of resource development in areas of regional importance. This research developed a structured framework to guide present and future project and regional assessment(s). We operationalized the framework dubbed Risk Assessment Framework for Cumulative Effects (RAFCE) to assess the risks and impacts of proposed mining development in the Ring of Fire region of Northern Ontario, Canada. RAFCE enabled us to: 1) identify drivers and impacts of cumulative effects and potential preventive and mitigation measures for effective cumulative effects management, and b) describe, quantify, and rank the major impact and components of regional interest. By operationalizing the framework to assess the risks posed by mining in the RoF region of northern Ontario, we learned that this structured process provides a careful and transparent approach to risks assessment, helps to identify and prioritize risks of regional importance, and enables linkages between science and policy to promote effective management.
Roads, logging, and the large-mammal community of an eastern Canadian boreal forest	Bowman, Jeff; Ray, Justina C.; Magoun, Audrey J.; Johnson, Devin S.; Dawson, F. Neil	10.1139/z10-019	https://cdnsiencepub.com/doi/10.1139/z10-019	2010-05	EN	Biodiversity; Forests; Infrastructure; Public; Species at risk; Wildlife and wildlife habitat	We evaluated hypotheses concerning the distributions of large mammals in a 60 000 km ² study area that encompassed the contact zone between Ontario's roadless north and the postlogging southern landscape. We estimated occurrence probability in 575 sample units for woodland caribou (Rangifer tarandus caribou (Gmelin, 1788)), wolverine (Gulo gulo (L., 1758)), gray wolf (Canis lupus L., 1758), moose (Alces alces (L., 1758)), and white-tailed deer (Odocoileus virginianus (Zimmerman, 1780)). We used ordinations and spatial regressions to assess the contributions of parameters to species occurrence. Roads and cutovers were most abundant in the south, leading to an increased prevalence of deciduous forest. Mature coniferous forest, however, occurred most commonly in the north. Occurrence probabilities for moose and deer were greatest in the south, in close association with deciduous trees. Wolf occurrence was also greatest in the south, positively related to both deciduous forest and road density. Caribou occurrence, however, was positively related to mature coniferous forest and negatively related to both wolf occurrence and roads. Wolverine occurrence was negatively related to deciduous forest. Our surveys demonstrated distinct mammal communities in the northern and southern halves of our study area, a separation that appeared to be mediated by deciduous forest and roads.
RSPF - Using Resource Selection Probability Function to map caribou habitat	Ministry of the Environment, Conservation and Parks		Held by Ministry of the Environment, Conservation and Parks	2017	EN	Not public; Species at risk; Wildlife and wildlife habitat	The Resource Selection Probability Function (RSPF) is a science-based approach to delineating Category 2 and 3 habitat. It identifies the environmental and local conditions associated with high probability of occupancy at multiple scales (5,000 - 10,000 ha) using range-specific models (Hornseth and Rempel 2015). Each season (spring, summer, fall and winter) and range has a unique RSPF specific to landscape conditions and range-level habitat selection determined by 20+ collared animals. To delineate Seasonal Range, all four seasonal RSPFs are applied to determine the probability of use by caribou, where all 16 ha hexagons with a probability of use above the threshold in any season are classified as Category 2 habitat. The remaining areas (16 ha hexagons) below the threshold in all seasons, are classified as Category 3 habitat.
Rusty Blackbird (Species at risk webpage)	Committee on the Status of Species at Risk in Ontario		https://www.ontario.ca/page/rusty-blackbird	2021	EN / FR	Migratory birds; Public; Species at risk	Provide information on the status of the Rusty Blackbird (e.g., endangered or threatened), general life history and a place to direct the general public or Proponents for further information regarding the species (e.g., Recovery Strategies, Government Response Statements, etc.)
SCANFI: the Spatialized Canadian National Forest Inventory data product	Natural Resources Canada		https://osdp-psdo.canada.ca/dp/en/search/metadata/NRCAN-FGP-1-18e6a919-53fd-41ce-b4e2-44a9707c52dc	2023	EN / FR	Forests	This data publication contains a set of 30m resolution raster files representing 2020 Canadian wall-to-wall maps of broad land cover type, forest canopy height, degree of crown closure and aboveground tree biomass, along with species composition of several major tree species. The Spatialized Canadian National Forest Inventory data product (SCANFI) was developed using the newly updated National Forest Inventory photo-plot dataset, which consists of a regular sample grid of photo-interpreted high-resolution imagery covering all of Canada's non-arctic landmass. SCANFI was produced using temporally harmonized summer and winter Landsat spectral imagery along with hundreds of tile-level regional models based on a novel k-nearest neighbours and random forest imputation method.
Scattered and Received Wave Polarization Optimization for Enhanced Peatland Classification and Fire Damage Assessment Using Polarimetric PALSAR	Touzi, Ridha; Omari, K.; Sleep, Bob; Jiao, X.	10.1109/JSTARS.2018.2873740	https://ieeexplore.ieee.org/document/8542943	2018-11	EN	Peatlands	The complementarity of the "scattered" and "received" wave polarization signatures is demonstrated for enhanced characterization of peatlands and surrounding forests. Polarimetric L-band ALOS-PALSAR data collected for the Athabasca oil sand exploration region, with peatlands and forests partially affected by multiple wildfires, are used. It is shown that the scattered wave polarization signature, which represents the explicit variations of the degree of polarization (DoP) and the total scattered intensity R0 with transmitted polarization, permits enhanced discrimination of treed bogs from upland forests and improved identification of wildfire damage in peatlands and surrounding forests. Scattered wave optimization is used as a convenient method for efficient exploitation of the scattered wave polarization signature. The Touzi decomposition is adopted for the optimization of the received wave polarization signature. The unique potential of the scattering-type phase generated with the Touzi decomposition is confirmed for enhanced discrimination of poor fens from bogs. These two important peatland classes cannot be separated with the scattered wave optimization, the conventional multipolarization (HH-HV-VV) channels, and the Freeman model based decomposition. Finally, the Touzi decomposition is combined with the extrema of the scattered wave main parameters (DoP and R0) for optimum extraction of polarimetric PALSAR information. This information is, then, fused with Landsat-5-TM for enhanced peatland classification. The comparison with optical Landsat-5-TM based classification confirms the valuable added information that a long penetrating polarimetric L-band PALSAR can provide for enhanced peatland classification and efficient assessment of peat health in burnt peatlands.
Science for a Changing Far North: The Report of the Far North Science Advisory Panel	Far North Science Advisory Panel		https://www.arcgis.com/home/item.html?id=c82bc90a6f25498ab5581ea8d0118ed	2010-04	EN	Biodiversity; Climate change; Cultural vitality; Current use; Economic development and livelihoods; Fish and fish habitat; Indigenous Peoples; Peatlands; Social and economic; Species at risk; Treaty rights; Water and river systems; Wildlife and wildlife habitat	This report describes the vast and largely intact ecological systems of the Far North, and recommends a conservation-matrix approach for land use planning. It recommends landscape-level planning, with "benchmark" areas and specific features of interest set aside from development, while other areas are designated for active management, and the landscape overall is planned for continuity and resilience of ecological function. Adaptive management provides a means of evaluating management strategies as climate change and economic development proceed. It will require sustained commitment to the collection and sharing of information about the Far North, including scientific and aboriginal traditional knowledge.

Science to inform policy: Linking population dynamics to habitat for a threatened species in Canada	Johnson, Cheryl A.; Sutherland, Glenn D.; Neave, Erin; Leblond, Mathieu; Kirby, Patrick; Superbie, Clara; McLoughlin, Philip D.	10.1111/1365-2664.13637	https://onlinelibrary.wiley.com/doi/abs/10.1111/1365-2664.13637	2020	EN	Biodiversity; Cumulative effects; Forests; Species at risk; Wildlife and wildlife habitat	Boreal forests provide numerous ecological services, including the ability to store large amounts of carbon, and are of significance to global biodiversity. Increases in industrial activities in boreal landscapes since the mid-20th century have added to concerns over biodiversity loss and climate change. Boreal forests are home to dwindling populations of boreal caribou Rangifer tarandus caribou in Canada, a species at risk that requires large, undisturbed landscapes for persistence. In 2012, the Canadian government defined critical habitat for boreal caribou by relating calf recruitment to disturbances. Some have questioned whether the recruitment relationship can be extrapolated beyond the environmental conditions represented in the analysis. We examined the effects of human disturbances and fire (alone and in combination) on variation in recruitment and adult female survival using data from 58 study areas in Canada. Top models were used in spatial scenarios of landscape change to evaluate the efficacy of the critical habitat definition in achieving the recovery objectives for boreal caribou in two contrasting landscapes: Little Smoky, dominated by high levels of human disturbances, and the northern boreal shield of Saskatchewan (SK1), dominated by fire. The top recruitment model suggested the negative effect of fire was three to four times smaller than human disturbances. The top adult female survival model included human disturbances only. These results re-affirm that human disturbances are the primary factor contributing to boreal caribou declines. Our spatial scenarios suggested that undisturbed habitat would have to increase to ≥68% for Little Smoky to maintain a self-sustaining population of boreal caribou with some degree of certainty. In contrast, the SK1 population was self-sustaining with 40% undisturbed habitat when fire disturbance predominates, but could become vulnerable with increases in human disturbances (8%–9%). Policy implications. Boreal caribou are listed as threatened under Canada's Species at Risk Act. Our results suggest that the 65% undisturbed critical habitat designation in Canada's boreal caribou Recovery Strategy may serve as a reasonable proxy for achieving self-sustaining populations of boreal caribou in landscapes dominated by human disturbances. However, some populations may be less or more vulnerable, as illustrated by the scenarios in a landscape dominated by fire (SK1). Continued population monitoring will be essential to assessing the effectiveness of land management strategies developed for boreal caribou recovery, especially with climate change.
Scientific Assessment of Federal and Provincial Frameworks for the Conservation of Boreal Caribou in Ontario: Science Assessment Report	Environment and Climate Change Canada		https://ecprccsarstact.z9.web.core.windows.net/files/SARAFiles/legacy/Sa-BorealCaribouBoreale-v00-2024Ma-eng.pdf	5/16/2024	EN / FR	Forests; Species at risk; Wildlife and wildlife habitat	Caribou (Rangifer tarandus), boreal population (boreal caribou), are endemic to Canada's boreal forest region. The species requires large tracts of undisturbed, mature forest with a high abundance of lichens and low predator densities. Boreal caribou was listed as threatened under the federal Species at Risk Act in 2003. The governments of Canada and Ontario signed a conservation agreement under sections 10 and 11 of the Species at Risk Act in April 2022 to sustain or improve the environmental conditions necessary for the recovery of boreal caribou in the province. This Science Assessment Report is the result of collaboratively run Canada and Ontario scientific review workshops held on November 8-9th, 2023 and December 5-7th, 2023. A Directors' Steering Committee – composed of directors from the governments of Ontario and Canada – provided oversight and direction to the Expert Group, as well as a Terms of Reference to guide their work. The Expert Group itself consisted of experts from the governments, academia, industry and environmental non-government organizations. Secretariat support was provided by Canada's Expert Scientific Advice Section, who also produced the initial draft of this report. Experts were given an opportunity to review and contribute to the report.
Scientific Assessment to Inform the Identification of Critical Habitat for Woodland Caribou (Rangifer tarandus caribou), Boreal Population, in Canada: 2011 update	Environment and Climate Change Canada		https://www.canada.ca/en/environment-climate-change/services/species-risk-public-registry/related-information/scientific-assessment-critical-habitat-woodland-caribou-boreal-2011-update-part1.html	2011	EN / FR	Species at risk; Wildlife and wildlife habitat	This report describes work undertaken to inform the identification of critical habitat for the Boreal Population of Woodland Caribou (Rangifer tarandus caribou) in Canada, as part of the requirement for preparation of a National Recovery Strategy for this species under the federal Species at Risk Act. It extends earlier analyses also conducted for this purpose (Environment Canada 2008), and addresses identified limitations associated with implementation of that work. It does not address the need to consider Aboriginal Traditional Knowledge in the development of the National Recovery Strategy, which is being completed through an independent process.
Seasonal resource selection of woodland caribou (Rangifer tarandus caribou) across a gradient of anthropogenic disturbance	Hornseth, Megan L.; Rempel, Robert S.	10.1139/cjz-2015-0101	https://cdsciencepub.com/doi/10.1139/cjz-2015-0101	2016-02	EN	Forests; Wildlife and wildlife habitat; Climate change; Species at risk; Public	Resource selection functions are useful tools for land-use planning, especially for wide-ranging species with sensitivity to anthropogenic disturbance. We evaluated five a priori hypotheses describing seasonal habitat selection of woodland caribou (Rangifer tarandus caribou (Gmelin, 1788)) across three regions in northern Ontario. Two regions were Boreal Shield dominated, one area with relatively high anthropogenic disturbance (due to commercial forestry) and the other with relatively low anthropogenic disturbance. The final region was located on the wetland-dominated Hudson Bay Lowlands. Each region encompassed two caribou management ranges: one was used for model development and the other for model evaluation. We developed seasonal resource selection probability functions using seasonal utilization distributions and isopleths derived from GPS collar data (from 212 caribou) to identify high- and low-use areas. We explored selection across five spatial scales; selection patterns were strongest at the 10 000 ha scale. We found temporal and spatial variations in all environmental predictors across ranges and seasons, especially in the Hudson Bay Lowlands. Our results consistently supported the integrated global model (with common variables but range-specific coefficients) where caribou habitat use is related to minimizing apparent competition with moose (Alces alces (L., 1758)) while avoiding disturbed areas, and utilizing areas with adequate forage.
Selected Wildlife and Habitat Features: Inventory Manual.	Ministry of Natural Resources and Forestry		https://docs.ontario.ca/documents/2812/guide-wildlife-habitat.pdf	1997	EN	Wildlife and wildlife habitat; Avifauna	These guidelines have been prepared to assist resource managers in the standardized inventory of habitat and in some cases populations of selected species of wildlife that potentially occur within the Crown forests of Ontario.
Short-eared Owl (Species at Risk Webpage)	Ministry of the Environment, Conservation and Parks		https://www.ontario.ca/page/short-eared-owl	5/19/2023	EN / FR	Avifauna; Species at risk	Provide information on the status of the Short-eared Owl (e.g., endangered or threatened), general life history and a place to direct the general public or Proponents for further information regarding the species (e.g., Recovery Strategies, Government Response Statements, etc.)
Short-term drinking water advisories	Indigenous Services Canada		https://www.sac-isc.gc.ca/eng/1562856509704/1562856530304	7/8/2025	EN / FR	Community health; Community safety; Family, youth, and children; Indigenous Peoples; Water and river systems	Find active and recently-lifted short-term drinking water advisories in First Nations communities south of 60. A short-term drinking water advisory is issued when there is a temporary water quality issue on a specific water system.
Site-specific satellite data record from LEAF-Toolbox to support afforestation assessment in Ontario	Hong, G.; Fernandes, R. A.		https://ostrnrcan-dostmcan.canada.ca/handle/1845/284343	3/4/2025	EN	Forests	Afforestation is the process of establishing forests on formerly non-forested lands. Monitoring afforested lands is critical to understand processes related to sustainable development mitigating the impact of green house gas emissions on climate, characterizing ecosystem services and planning policy actions. It is challenging to monitor this process due to costs associated with, limited availability of in-situ survey and the frequent absence of systematic in-situ survey during the establishment period. Spectral vegetation indices, like Normalized Difference Vegetation Index (NDVI), the Enhanced Vegetation Index (EVI), and the Normalized Difference Water Index (NDWI), etc., are widely used as proxies for canopy regrowth during afforestation because these indices are locally proportional to canopy biophysical variables such as canopy cover (fCOVER), leaf area index (LAI), fraction of absorbed photosynthetically active radiation (fAPAR), etc. But they have limitations, like being impacted by differences between sensors, noise due to uncorrected atmospheric effects, not linearly related to canopy physical properties, etc. Biophysical variables such as fAPAR, fCOVER, and LAI become alternatives to monitor afforestation status as they are sensor independent, traceable to reference in-situ measurements etc. An update of the Simplified Level 2 Prototype Processor (SL2P), SL2P-CCRS, is used in this study with inputs of Landsat 8/9 and Sentinel 2. The goal of this study was to extract Landsat 8/9 and Sentinel 2 surface reflectance inputs derived fCOVER, fAPAR and LAI estimates using SL2P-CCRS over 4,905 afforestation sites in Southern Ontario, Canada and to compare the derived variables with the widely used NDVI.
Slate Falls: through memory and material	Hudson, Kunicky		https://knowledgecommons.lakeheadu.ca/handle/2453/4879	2021	EN	Housing and infrastructure; Physical and cultural heritage; Cultural vitality; Inter and intra generational values; Indigenous Peoples	This research addresses the last 100 to 150 years of Slate Falls First Nations' history through the archaeological and ethnographic study of the Old Slate Falls Village. The village site is located on North Bamaji Lake (Ontario) in the headwaters of the Albany River. Many of the former residents of Old Slate Falls are still living and can recollect their days spent in the old village, this allows the archaeological investigation to be informed by the oral histories of former village residents. The project reported herein assists the community members of Slate Falls to preserve and celebrate their history in this location. It is through knowing one's past, connections to the land, understanding space and place, and the ability to trace history and lineage, that self-determination can be asserted. Archaeological documentation of the cabins and structures in Old Slate Falls offers an overview of the transformation of construction techniques, village layout, and material culture over time in response to rapid changes defining the 20th Century. This data offers supplemental information which will be compared to insights deriving from interviews and reminiscences about life within the village through living memory.
SLFNHA Food Security Environmental Scan	hme Enterprises		https://www.slnha.com/wp-content/uploads/2023/03/FoodSecurityEnvironmentalScan-2019.pdf	2019	EN	Food security; Community health; Treaty rights; Social and economic	This project provides baseline information about food security initiatives undertaken in 33 communities served by Sioux Lookout First Nations Health Authority, through a comprehensive environmental scan. This includes Marten Falls, Aroland, Webequie, Neskanataga, Eabametoong, Nibinamik, Kasabonikam Wawakapewin, Wunnumin, King Fisher Lake, Kitchenuhmaykoosib Ininiwug, Mishkeegogamang, Cat Lake, and Slate Falls

Snow Cover	Natural Resources Canada	https://open.canada.ca/data/en/dataset/acc870a3-9f13-58b7-b15a-7d771a0827ab	9/25/2016	EN / FR	Land cover	Contained within the 3rd Edition (1957) of the Atlas of Canada is a map that shows the snow cover data, referring primarily to the presence and total depth of a snow cover on the surface of the earth, across Canada. This is in contrast to data characteristics of snow cover depth, which increases by the occurrence of freshly fallen snow, but decreases by melting, wind action and settling. Two maps of these maps show the mean dates of the occurrence of first and last snow covers by one inch (2.54 cm) or greater. These are not necessarily the average dates to the beginning and ending of a continuous snow cover, since the snow cover may form and later disappear once or several times during a winter season. A third map showing the mean annual number of days with a snow cover of one inch (2.54 cm) or greater, only includes those days on which there was a snow cover. For the last map, the mean annual maximum depth of snow data was obtained by averaging the maximum depth reported for each snow season record. Snow cover data is mainly based on the ten-year period from 1941 to 1950.	
Social determinants of health and health inequalities	Public Health Agency of Canada	https://www.canada.ca/en/public-health/services/health-promotion/population-health/what-determines-health.html	7/18/2024	EN / FR	Community health	Many factors have an influence on health. In addition to our individual genetics and lifestyle choices, where we are born, grow, live, work and age also have an important influence on our health. Determinants of health are the broad range of personal, social, economic and environmental factors that determine individual and population health. Social determinants of health refer to a specific group of social and economic factors within the broader determinants of health. These relate to an individual's place in society, such as income, education or employment. Experiences of discrimination, racism and historical trauma are important social determinants of health for certain groups such as Indigenous Peoples, LGBTQ and Black Canadians.	
Socio-economic Profile for the Geographic Area Served by Nishnawbe Aski Development Fund	Statistics Canada	Available on request	2022	EN	Economic development and livelihoods; Social and economic		
Socio-economic Profile for the Geographic Area Served by Wakenagun Community Futures Development Corporation	Statistics Canada	Available on request	2022	EN	Economic development and livelihoods; Social and economic		
Spatial differences in genetic diversity and northward migration suggest genetic erosion along the boreal caribou southern range limit and continued range retraction	Thompson, Laura M.; Klütsch, Cornelya F. C.; Manseau, Micheline; Wilson, Paul J.	10.1002/ece3.5269	https://onlinelibrary.wiley.com/doi/abs/10.1002/ece3.5269	5/26/2019	EN	Forests; Species at risk; Wildlife and wildlife habitat	With increasing human activities and associated landscape changes, distributions of terrestrial mammals become fragmented. These changes in distribution are often associated with reduced population sizes and loss of genetic connectivity and diversity (i.e., genetic erosion) which may further diminish a species' ability to respond to changing environmental conditions and lead to local population extinctions. We studied threatened boreal caribou (Rangifer tarandus caribou) populations across their distribution in Ontario/Manitoba (Canada) to assess changes in genetic diversity and connectivity in areas of high and low anthropogenic activity. Using data from >1,000 caribou and nine microsatellite loci, we assessed population genetic structure, genetic diversity, and recent migration rates using a combination of network and population genetic analyses. We used Bayesian clustering analyses to identify population genetic structure and explored spatial and temporal variation in those patterns by assembling networks based on RST and FST as historical and contemporary genetic edge distances, respectively. The Bayesian clustering analyses identified broad-scale patterns of genetic structure and closely aligned with the RST network. The FST network revealed substantial contemporary genetic differentiation, particularly in areas presenting contemporary anthropogenic disturbances and habitat fragmentation. In general, relatively lower genetic diversity and greater genetic differentiation were detected along the southern range limit, differing from areas in the northern parts of the distribution. Moreover, estimation of migration rates suggested a northward movement of animals away from the southern range limit. The patterns of genetic erosion revealed in our study suggest ongoing range retraction of boreal caribou in central Canada.
Spatially explicit network analysis reveals multi-species annual cycle movement patterns of sea ducks	Lamb, Juliet S.; Paton, Peter W. C.; Osenkowski, Jason E.; Badzinski, Shannon S.; Berlin, Alicia M.; Bowman, Tim; Dwyer, Chris; Fara, Luke J.; Gilliland, Scott G.; Kenow, Kevin; Lepage, Christine; Mallory, Mark L.; Olsen, Glenn H.; Perry, Matthew C.; Petrie, Scott A.; Savard, Jean-Pierre L.; Savoy, Lucas; Schummer, Michael; Spiegel, Caleb S.; McWilliams, Scott R.	10.1002/eap.1919	https://onlinelibrary.wiley.com/doi/abs/10.1002/eap.1919	2019	EN	Migratory birds; Avifauna	Conservation of long-distance migratory species poses unique challenges. Migratory connectivity, that is, the extent to which groupings of individuals at breeding sites are maintained in wintering areas, is frequently used to evaluate population structure and assess use of key habitat areas. However, for species with complex or variable annual cycle movements, this traditional bimodal framework of migratory connectivity may be overly simplistic. Like many other waterfowl, sea ducks often travel to specific pre- and post-breeding sites outside their nesting and wintering areas to prepare for migration by feeding extensively and, in some cases, molting their flight feathers. These additional migrations may play a key role in population structure, but are not included in traditional models of migratory connectivity. Network analysis, which applies graph theory to assess linkages between discrete locations or entities, offers a powerful tool for quantitatively assessing the contributions of different sites used throughout the annual cycle to complex spatial networks. We collected satellite telemetry data on annual cycle movements of 672 individual sea ducks of five species from throughout eastern North America and the Great Lakes. From these data, we constructed a multi-species network model of migratory patterns and site use over the course of breeding, molting, wintering, and migratory staging. Our results highlight inter- and intra-specific differences in the patterns and complexity of annual cycle movement patterns, including the central importance of staging and molting sites in James Bay, the St. Lawrence River, and southern New England to multi-species annual cycle habitat linkages, and highlight the value of Long-tailed Ducks (Calengula haemalis) as an umbrella species to represent the movement patterns of multiple sea duck species. We also discuss potential applications of network migration models to conservation prioritization, identification of population units, and integrating different data streams.
Spatiotemporal Changes in Active Layer Thickness under Contemporary and Projected Climate in the Northern Hemisphere	Peng, X.; Zhang, T.; Frauenfeld, O.W.; Wang, K.; Luo, D.; Cao, B.; Su, H.; Jin, H.; Wu, Q	10.1175/JCLI-D-16-0721.1	https://doi.org/10.1175/JCLI-D-16-0721.1	2018		Climate change	Variability of active layer thickness (ALT) in permafrost regions is critical for assessments of climate change, water resources, and engineering applications. Detailed knowledge of ALT variations is also important for studies on ecosystem, hydrological, and geomorphological processes in cold regions. The primary objective of this study is therefore to provide a comprehensive 1971–2000 climatology of ALT and its changes across the entire Northern Hemisphere from 1850 through 2100. To accomplish this, in situ observations, the Stefan solution based on a thawing index, and the edaphic factor (E factor) are employed to calculate ALT. The thawing index is derived from (i) the multimodel ensemble mean of 16 models from phase 5 of the Coupled Model Intercomparison Project (CMIP5) over 1850–2005, (ii) three representative concentration pathways (RCP2.6, RCP4.5, and RCP8.5) for 2006–2100, and (iii) Climatic Research Unit (CRU) gridded observations for 1901–2014. The results show significant spatial variability in in situ ALT that generally ranges from 40 to 320 cm, with some extreme values of 900 cm in the Alps. The differences in the ALT climatology between the three RCPs and the historical experiments ranged from 0 to 200 cm. The biggest increases, of 120–200 cm, are on the Qinghai–Tibetan Plateau, while the smallest increases of less than 20 cm are in Alaska. Averaged over all permafrost regions, mean ALT from CMIP5 increased significantly at 0.57 +/- 0.04 cm decade ⁻¹ during 1850–2005, while 2006–2100 projections show ALT increases of 0.77 +/- 0.08 cm decade ⁻¹ for RCP2.6, 2.56 +/- 0.07 cm decade ⁻¹ for RCP4.5, and 6.51 +/- 0.07 cm decade ⁻¹ for RCP8.5.
Species at Risk - Critical Habitat	Environment and Climate Change Canada	https://open.canada.ca/data/en/dataset/47ca405-be2b-4e9e-8f53-c478ade2ca74	7/19/2022	EN / FR	Species at risk; Wildlife and wildlife habitat	This dataset displays the geographic areas within which critical habitat (CH) for terrestrial species at risk, listed on Schedule 1 of the federal Species at Risk Act (SARA), occurs in Canada. Note that this includes only terrestrial species and species for which Environment and Climate Change Canada (ECCC) and Parks Canada Agency (PCA) lead.	
Species at risk public registry	Environment and Climate Change Canada	https://www.canada.ca/en/environment-climate-change/services/species-risk-public-registry.html	1/8/2018	EN / FR	Species at risk; Public	In this registry you will find documents relating to the administration of the Species at Risk Act (SARA). The act is part of Canada's strategy to protect hundreds of wild plants and animal species from becoming extinct, and to help in their recovery.	
Species Observations - Provincially Tracked	Ministry of Natural Resources and Forestry	https://geohub.lio.gov.on.ca/documents/liao::species-observation-provincially-tracked/about	2014	EN / FR	Wildlife and wildlife habitat; Species at risk	Species observations derived by the then Ontario Ministry of Natural Resources wildlife program business areas, in particular for wide-ranging species such as caribou. A data sharing agreement would be required with MNR to obtain this data.	
Species Occurrence Provincially Tracked	Ministry of Natural Resources and Forestry	https://geohub.lio.gov.on.ca/documents/liao::species-occurrence-provincially-tracked/about	2012	EN / FR	Wildlife and wildlife habitat; Avifauna; Species at risk	Species Occurrence (EO) data are collected and maintained by the NHC using a standardized methodology to provide accurate and current biodiversity and conservation information to public and private agencies and individuals. Uses of the data can include: natural resource management, conservation planning, environmental review, biological and ecological research, land acquisition, and economic development. Through aggregation of the EO data at regional, national, or range-wide scales, these data can be used to examine broad patterns and set priorities in a global context.	
Spring-loaded reproduction: effects of body condition and population size on fertility in migratory caribou (Rangifer tarandus)	Pachkowski, M.; Côté, S.D.; Festa-Bianchet, M.	10.1139/cjz-2012-0334	https://cdsciencepub.com/doi/10.1139/cjz-2012-0334	2013-07	EN	Public; Species at risk; Wildlife and wildlife habitat	In many ungulates, female fecundity is affected by body condition and has important effects on population dynamics. In some species, females adopt a conservative strategy, reducing reproductive effort when population density is high. We investigated what factors affect the probability of gestation in adult female caribou (Rangifer tarandus (L., 1758)) from the Rivière-George herd in northern Quebec and Labrador over 5 years that spanned various population sizes and trends. Similar to other populations of migratory caribou, the probability that a female was pregnant in spring increased with body mass and percent body fat. The probability of gestation appeared to be reduced by high infestation of warbles (Hypoderma tarandi (L., 1758)). The proportion of females pregnant varied between years and was lower at high population size. Females of similar mass, however, were pregnant regardless of whether the population was increasing at low density, had reached a peak, or was declining. Compared with other ungulates that reduce maternal expenditure at high density, female caribou of the Rivière-George herd may have a risk-prone reproductive strategy.

Stable isotope characterization of Rainy River, Ontario, lake sturgeon diet and trophic position	Smith, A; Smokorowski, K.; Marty, J.; Power, M.	10.1016/j.jglr.2015.12.016	https://www.sciencedirect.com/science/article/abs/pii/S0380133016000083	2016	EN	Fish and fish habitat	Lake sturgeon (<i>Acipenser fulvescens</i>) are considered threatened and many populations have declined since the early 1890s. Limited food web studies have been conducted with lacustrine lake sturgeon populations while similar studies do not exist for riverine populations. We use stable isotope analysis to study the diet composition of lake sturgeon captured in the Rainy River, Ontario. Historical reports of lake sturgeon consumption of fish and fish eggs exist, but both prey have largely been considered as a minor contribution to the overall diet of lake sturgeon. More recent dietary studies have focused on juvenile sturgeon and report low or no incidence of fish or fish eggs in lake sturgeon diets. The results of the stable isotope studies of Rainy River lake sturgeon suggest they obtain a large portion of their energy from organic material derived directly or indirectly from fish. Results parallel those recently reported for adult sturgeon in Lake Winnebago, Wisconsin, and are important in the context of contributing modern technical verification to earlier historical reports of fish and fish eggs in lake sturgeon diets. The results of this study provide evidence of potential seasonal or temporal shifts in lake sturgeon diet and further evidence to the potential shift in resource use based on life stage. Estimates of isotopic niches for the Rainy River sturgeon establish an important baseline for future changes in food web structure that might accompany the introduction of invasive species or the addition of anthropogenic stressors that could have implications for lake sturgeon conservation.
Stage 1 and 2 Archaeological and Heritage Impact Assessment of the Proposed Baxter Outpost Location on the Attawapiskat River, Otoskwin-Attawapiskat River Provincial Park	Boreal Heritage Consulting		Held by the Ministry of Citizenship and Multiculturalism	2001	EN	Attawapiskat River; Not public; Physical and cultural heritage	An archaeological assessment of a proposed outpost on the Attawapiskat River. The Baxter site (Fclm-1), a multi-component site dating from pre-contact Indigenous period to the 19th century, was identified, and is considered fully documented. The report includes a concise overview of the cultural history of the area after the Laurentide Ice Sheet retreated.
Stage 1 Archaeological and Cultural Heritage Resource Assessment of a Proposed All-Season Road from former Highway 808, Northeast of Pickle Lake, to Webequie Junction, and a Winter Road Access Corridor / Transmission Line / Sturry Pipeline from Webequie Junction to the Eagle's Nest Project in BMA 526 862 (Geographic Area) Kenora District, Ontario	Woodland Heritage Services Ltd.		Held by the Ministry of Citizenship and Multiculturalism	2011	EN	Infrastructure; Mining; Not public; Physical and cultural heritage	Areas of archaeological potential were identified in portions of the study area, and Stage 2 archaeological assessment was recommended.
Stage 1 Archaeological and Cultural Heritage Resource Assessment of the Proposed Noront Eagle's Nest Mine Site, in BMA 527 862 and BMA 526 862 (Unsurveyed), Kenora District, Ontario	Woodland Heritage Services Ltd.		Held by the Ministry of Citizenship and Multiculturalism	2013	EN	Mining; Not public; Physical and cultural heritage	Areas of archaeological potential in the mine site area were identified through background research and confirmed through an on-ground assessment. One pre-contact Indigenous archaeological site (Feln-1) was identified within the study area. A Stage 2 archaeological assessment was recommended.
Stage 1 Archaeological Assessment of the Big Daddy Values Assessment Area, District of Kenora	Ross Archaeological Research Associates		Held by the Ministry of Citizenship and Multiculturalism	2010	EN	Not public; Physical and cultural heritage	Stage 1 assessment for proposed mine site to determine potential for archaeological resources.
Stage 1 Archaeological Assessment of the Cliffs Chromite Project, Mine Site, District of Kenora, Ontario	Golder Associates Ltd.		Held by the Ministry of Citizenship and Multiculturalism	2015	EN	Mining; Not public; Physical and cultural heritage	Stage 1 assessment for proposed mine site to determine potential for archaeological resources. Stage 2 was recommended for areas with potential.
Stage 1 Archaeological Assessment: Railway from McFaulds Lake Area to Nakina, Ontario, Kenora (Patricia Portion) and Thunder Bay Districts	Western Heritage		Held by the Ministry of Citizenship and Multiculturalism	2011	EN	Infrastructure; Not public; Physical and cultural heritage	Areas of archaeological potential were identified in portions of the study area, and Stage 2 archaeological assessment was recommended.
Stage 1 Archaeological Assessment: Rapid Lynx Fibre Optic Communication Network: Various Municipalities, District of Kenora, District of Cochrane, and District of Thunder Bay, Ontario	Stantec Consulting Ltd.		Held by the Ministry of Citizenship and Multiculturalism	2020	EN	Infrastructure; Not public; Physical and cultural heritage	Stage 1 assessment for a proposed fibre optic cable that would follow the existing winter road network in Northern Ontario. The study area comes close to but is just outside the Ring of Fire study area, specifically the winter road between Webequie and Neskantaga on the western edge of the Ring of Fire study area. The assessment provides background information on the region, and criteria used to evaluate archaeological potential in Northern Ontario.
Stage 1-2 Archaeological Assessment for the Northern Road Link Project Marten Falls First Nation and Webequie First Nation District of Kenora	Archaeological Services Inc. (ASI)		Held by the Ministry of Citizenship and Multiculturalism	2023	EN	Indigenous Peoples; Infrastructure; Not public; Physical and cultural heritage	This report provides the results of the Stage 1-2 archaeological assessment to determine archaeological potential and identify any archaeological resources in support of a geotechnical borehole drilling program for the Northern Road Link Project. This coordinated provincial Environment Assessment and federal Impact Assessment involves the design, construction, and operation and maintenance of a proposed all-season road between the proposed Marten Falls Community Access Road and the proposed Webequie Supply Road. No archaeological resources were documented during survey, but the Attawapiskat First Nation identified areas of concern and asked for further archaeological survey. This further work is reported in Archaeological Services Inc. 2023b
Stage 2 Archaeological Assessment for the Northern Road Link Project Marten Falls First Nation and Webequie First Nation District of Kenora	Archaeological Services Inc. (ASI)		Held by the Ministry of Citizenship and Multiculturalism	2023	EN	Indigenous Peoples; Infrastructure; Not public; Physical and cultural heritage	This report provides the results of the Stage 2 archaeological assessment (archaeological test pit survey) to determine the presence of any archaeological resources within specific areas of the Northern Road Link Project identified as areas of concern by the Attawapiskat First Nation. This coordinated provincial Environment Assessment and federal Impact Assessment involves the design, construction, and operation and maintenance of a proposed all-season road between the proposed Marten Falls Community Access Road and the proposed Webequie Supply Road. No archaeological resources were encountered during the Stage 2 survey, and no further assessment was recommended. Parts of the project overlap with the Study Area.
Stage One and Two Archaeological Heritage Impact Assessment of the Proposed Martin 1, Remote Airstrip, East Branch Muketei River, Unsurveyed Twp., District of Kenora, Patricia Portion	Boreal Heritage Consulting		Held by the Ministry of Citizenship and Multiculturalism	2009	EN	Infrastructure; Not public; Physical and cultural heritage	Stage 1 and 2 archaeological assessment of the proposed airstrip area to determine archaeological potential and identify any archaeological resources. No archaeological resources were found during the survey.
Standards and codes of practice - Fish and fish habitat	Government of Canada, Fisheries and Oceans Canada	https://www.dfo-mpo.gc.ca/pnw-ppe/practice-practique-eng.html		10/20/2016	EN / FR	Fish and fish habitat	Codes of practice specify conditions and measures to manage risks to fish and fish habitat. They are designed for routine projects.
State of Ontario's Biodiversity: 2025 Summary	Ontario Biodiversity Council	https://sobr.ca/wp-content/uploads/State-of-Ontarios-Biodiversity-2025-Summary-Oct-16-online-version-2.pdf		2025	EN	Avifauna; Biodiversity; Fish and fish habitat; Migratory birds; Wildlife and wildlife habitat	In order to protect biodiversity we have to understand it. Ontario's Biodiversity Strategy includes commitments to report on the state of Ontario's biodiversity and on progress in achieving Ontario's 13 Biodiversity Targets every 5 years.
State of the Woodland Caribou Resource Report: Part 1	Ministry of Natural Resources and Forestry	https://www.ontario.ca/page/state-woodland-caribou-resource-report-part-1		2014	EN / FR	Forests; Food security; Cultural vitality; Wildlife and wildlife habitat; Species at risk	The State of the Woodland Caribou Resource Report provides an overview of initiatives undertaken towards the protection and recovery of caribou. Part 1 reports on the progress of the recovery actions and commitments in the Caribou Conservation Plan, which has been supported by a more than \$11-million investment, as well as the status of policy, planning and resource management commitments.
State of the Woodland Caribou Resource Report: Part 2	Ministry of Natural Resources and Forestry	https://www.ontario.ca/page/state-woodland-caribou-resource-report-part-2		2014	EN / FR	Forests; Food security; Cultural vitality; Wildlife and wildlife habitat; Species at risk	The State of the Woodland Caribou Resource Report provides an overview of initiatives undertaken towards the protection and recovery of caribou. Part 2 provides technical details and outlines key findings of the monitoring and assessment of caribou within Ontario's Continuous Distribution (except the Lake Superior Coast Range); describes the distribution of caribou and summarizes the findings from the initial Integrated Range Assessments.
State of the Woodland Caribou Resource Report: Part 3	Ministry of Natural Resources and Forestry	https://www.ontario.ca/page/state-woodland-caribou-resource-report-part-3		2014	EN / FR	Forests; Food security; Cultural vitality; Wildlife and wildlife habitat; Species at risk	The State of the Woodland Caribou Resource Report provides an overview of initiatives undertaken towards the protection and recovery of caribou. Part 3 provides a technical summary of information on the ministry's extensive Collaborative Provincial Caribou Conservation Plan.
Statistically Downscaled Climate Scenarios	Pacific Climate Impacts Consortium	https://www.pacificclimate.org/data/statistically-downscaled-climate-scenarios		n.d.	EN	Climate change; Scenario development	PCIC offers statistically downscaled, daily, Canada-wide climate scenarios, at a gridded resolution of approximately 10km (300 arc-seconds or 1/12°) for the simulated period of 1950-2100. Users can choose between different data sets, models and scenarios, with further information about the options provided in the section below.

Status of aboriginal, commercial and recreational inland fisheries in North America: past, present and future	Cooke, S.J.; Murchie, K.J.	10.1111/mfe.12005	https://www.researchgate.net/publication/259549250_Status_of_aboriginal_commercial_and_recreational_inland_fisheries_in_North_America_Past_present_and_future	2015	EN	Fish and fish habitat	The inland fisheries of North America (i.e. Canada and the United States of America) are diverse in terms of the sectors that harvest fish, the waters fished and the species targeted. Aboriginal fisheries have a long tradition of harvesting fish for food and ceremonial purposes using gears such as dip nets and spears, and targeting species such as suckers (Catostomidae) and upriver migrating salmon (Salmonidae). The commercial sector includes large-scale industrial operations on the Great Lakes and Mississippi River as well as smaller-scale fisheries throughout North America that harvest fish for food or the bait industry. The recreational fishery is the largest sector (millions of participants) and includes everything from specialized catch-and-release fisheries for muskellunge, Esox masquinongy Mitchill and black bass (Micropterus spp.) to put-and-take fisheries for rainbow trout, Oncorhynchus mykiss (Walbaum). All sectors provide substantial socio-economic benefit and regionally can have significant cultural value and yield an important amount of food protein. Using the best available information and a number of assumptions, total harvest for all three sectors in the inland waters of North America was estimated to be >480 000 t yr ⁻¹ . Nonetheless, there are a number of internal threats that face these fisheries including over-exploitation, bycatch/release mortality as well as external threats such as inter-sectoral conflict, environmental change, water availability, invasive species and habitat alteration. Given that most inland fisheries are managed at the state/provincial level, there is a need to adopt management strategies that are holistic, coordinated and trans-jurisdictional if inland fisheries in North America are to be sustainable in the future. There is also a critical need for information management systems that enable regional data to be scaled up to the national or continental level, which would facilitate the generation of inland fisheries status reports and the monitoring of trends through time. All stakeholders must recognize that while inland fisheries tend to not receive the same attention from the media, public or politicians as marine fisheries, the potential for local and broad-scale irreversible changes exist and need to be identified and addressed if the many ecosystem services that inland fisheries provide are to be maintained.
Stillwater Canada Inc. Marathon PGM-Cu Project, Supporting Information Document No. 12 – Baseline Technical Report – Air – Marathon PGM – Cu Project	Stillwater Canada Inc; True Grit Consulting Ltd.		https://iaac-aeic.gc.ca/050/documents_staticpost/54755/80368/Supporting_Document_12_-_Baseline_Technical_Report_-_Air.pdf	2012	EN	Air quality	Air quality assessment report in support of the federal and provincial environmental assessment for the Marathon PGM-Cu Project in Marathon, Ontario.
Stopover Ecology of Red Knots in Southwestern James Bay During Southbound Migration	Macdonald, Amelia J.; Smith, Paul A.; Friis, Christian A.; Lyons, James E.; Aubry, Yves; Nol, Erica	10.1002/jwmg.22059	https://onlinelibrary.wiley.com/doi/abs/10.1002/jwmg.22059	2021	EN	Avifauna; Migratory birds; Species at risk; Wildlife and wildlife habitat	Many shorebirds rely on small numbers of staging sites during long annual migrations. Numerous shorebird species are declining and understanding the importance of these staging sites is important for successful conservation. We surveyed endangered rufa red knots (Calidris canutus rufa) staging in James Bay, Ontario, Canada, during southbound migration in 2017 and 2018. We used mark-resight data and count data in an integrated Bayesian analysis to quantify migration phenology, estimate passage population size, and model the age structure of the stopover population. Many adult red knots arrived in James Bay in a single wave in early August in 2017, whereas adult red knots arrived in multiple smaller waves in July and mid-August in 2018. These waves may correspond with breeding phenology where more red knots bred successfully and arrived in one large event in 2017 and the higher number of earlier arrivals in July 2018 may have been failed breeders. We included a binomial generalized linear model in the integrated analysis to estimate that 20% and 10% of staging red knots were juveniles in 2017 and 2018, respectively. In future applications, this method could provide a metric to assess breeding performance and develop our understanding of its role in population declines. Overall, we estimated that up to 23% of the estimated rufa red knot population staged in southwestern James Bay for an average of 10–12 days. The region is a key staging site for endangered red knots and could be included in conservation planning. © 2021 The Wildlife Society.
Supplemental 2015 Fish and Fish Habitat Data Report –Hardrock Project	Stantec Consulting Ltd.		https://iaac-aeic.gc.ca/050/documents/p80068/119879E.pdf	2016	EN	Fish and fish habitat	Baseline aquatic data collection, including fish community inventories and fish habitat assessments was completed by Stantec in the fall 2013, spring 2014, summer 2014, and fall 2014. To further supplement these data, Stantec was retained by to complete fish and fish habitat assessments in 2015. The objective of the field programs was to collect additional fisheries data over multiple sampling seasons and sampling years. The focus of sampling effort in 2015 was to confirm fish use and habitat attributes in areas that are anticipated to be directly affected by the Project.
Support for development of a long term environmental monitoring strategy for the Ring of Fire area	Rempel, R.S.; Mackereth, R.W.; Rodgers, A.R.; Iwachewski, E.P.; Furlong, P.D.; Hagens, J.S.; Shuter, J.S.; Jackson, J.M.; Kushneriuk, R.S.; McCormick, D.J.		https://books.google.ca/books/about/Support_for_Development_of_a_Long_Term_E.html?id=r4M5wFACAAJ&redir_esc=y	2016	EN	Mining; Sustainability; Indigenous Peoples; Infrastructure	Support for development of a long term environmental monitoring strategy for the Ring of Fire area.
Surface Water and Groundwater Contributions to Streamflow in the James Bay Lowland, Canada	Orlova, J.; Branfiren, B.A.	10.1657/1938-4246.46.1.236	https://www.tandfonline.com/doi/full/10.1657/1938-4246-46.1.236	2018	EN	Climate change; Hydrology; Water and river systems	Examination of the sources of water to streams and rivers across a range of catchment sizes (~30-2000 km ²) in the James Bay Lowlands. The relative contributions of bedrock derived groundwater to streamflow was analyzed for wet and dry climate conditions and varying catchment sizes. Runoff contributions from peatlands was estimated, with future changes in precipitation and temperature from climate and land-use changes predicted to have significant implications for streamflow in the James Bay Lowland, particularly during summer base-flow conditions.
Surficial Geology by Ecoregion	Natural Resources Canada		https://ouvert.canada.ca/data/dataset/a88f1437-f93f-42e8-9b44-6cdc2213a172	5/21/2013	EN / FR	Mining; Geology	The National Ecological Framework for Canada's "Surficial Geology by Ecoregion" dataset contains tables that provide surficial geology information with the ecoregion framework polygons. It provides codes that characterize surficial geology (unconsolidated geologic materials) and their English and French-language descriptions as well as information about the area and percentage of the polygon that the material occupies.
Surficial Geology of the Kapiskau River Area Southeast, Northern Ontario	Bajc, A.F.; Yeung, K.H.		https://www.geologyontario.mines.gov.on.ca/publication/P3714	2017	EN	Water and river systems; Geology; Hydrology	Quaternary geology map sheet.
Survey trends of North American shorebirds: population declines or shifting distributions?	Bart, Jonathan; Brown, Stephen; Harrington, Brian; I. Guy Morrison, R.	10.1111/j.2007.0908-8857.03698.x	https://onlinelibrary.wiley.com/doi/abs/10.1111/j.2007.0908-8857.03698.x	2007	EN	Migratory birds; Public	We analyzed data from two surveys of fall migrating shorebirds in central and eastern North America to estimate annual trends in means per survey and to determine whether trends indicate a change in population size or might have been caused by other factors. The analysis showed a broad decline in means per survey in Atlantic Canada and the northeastern United States (North Atlantic region). For example, 9 of 9 significant trends in this region were <1 (P=0.004), and the mean, annual rate of change among 30 species was 0.9783, a decline of -2.17% per year (P<0.001). Trends in the midwestern United States (Midwest region) showed no clear pattern. The mean among 29 species was 1.0090 (P=0.35). Only 4 of the trends were significant. Several hypotheses were evaluated to identify causes of the declining means per survey in the North Atlantic region. The most likely hypothesis appears to be a decline in the breeding populations that supply migrants to the North Atlantic region, but a change in movements, for example passing through the region more quickly in recent years, cannot be excluded as an explanation. Further surveys of arctic breeding areas coupled with analysis of long-term survey data from western North America would be helpful in determining whether the declines found in this analysis are also occurring in other areas.
Surveying and Monitoring Wolverines in Ontario and Other Lowland, Boreal Forest Habitats: Recommendations and Protocols	Koen, Erin L.; Ray, Justina C.; Bowman, Jeff; Dawson, F. Neil; Magoun, Audrey J.		https://programs.wcs.org/portals/42/media/file/wolverine-web.pdf	2008-09	EN	Forests; Species at risk; Wildlife and wildlife habitat	This document is aimed at those responsible for monitoring wolverine populations as part of recovery efforts or in conducting research on this elusive animal. The recommendations and protocols are intended as survey methods for wolverines and other wide-ranging species in lowland, boreal forest habitats.
Sustainability assessment of Indigenous communities affected by mining - holistic model to impact assessment under the Canadian Impact Assessment Act (2019). Note 16	Antwi, E.		https://ostrmcan-dostmcan.canada.ca/handle/1845/243289	2022	EN	Cumulative effects; Mining; Public; Sustainability; Treaty rights	In this research project, we will identify and define the risks and impacts of mining and other forms of disturbances on the socioeconomic and ecological well being of Indigenous communities. We develop a detailed list of socioeconomic and ecological indicators and an assessment framework to guide regional cumulative effects assessment. The project will improve knowledge on the cumulative effects of mining and other disturbances on Indigenous communities. It will also encourage stakeholders to take a holistic view on setting and implementing sustainable mine restoration for Indigenous community wellbeing. The assessment framework can serve as a guide to examine the effectiveness of policy and program options that seek to advance the participation of Indigenous peoples in the mining industry.
Taykwa Tagamou Nation Written Brief on the 2017 Federal Environmental Regulatory Reviews Discussion Paper	Taykwa Tagamou Nation		https://s3.ca-central-1.amazonaws.com/ehq-production-canada/file_answers/files/12bdd3335d261ebd35d7107e588a8362e19aed9f/004/772/333/original/Taykwa_Tagamou_Nation_-_Discussion_Paper.pdf?1503930845&utm_campaign=website&utm_source=ehq&utm_medium=email	2017	EN	Cumulative effects; Cultural vitality; Treaty rights; Current use; Water and river systems; Fish and fish habitat; Indigenous Peoples	Taykwa Tagamou Nation's response to the 2017 Government of Canada Discussion Paper on environmental regulatory reviews.

Technical Data Report –Hardrock Project: Metal Bioavailability	Stantec Consulting Ltd.		https://www.greenstonegoldmines.com/upload/documents/final-eis-ea-2020/hp-mg003-ev-136-0004-71_f7_tdr_metal-bio.pdf	2015	EN	Fish and fish habitat	The open pit gold mine and ore processing facility, and ancillary activities, collectively known as the Hardrock Project (the Project) is situated within a historical mine site. The property is a brownfield site that was actively mined between the 1930s and 1970s, and in later years was known as the MacLeod - Mosher complex. Runoff and seepage from tailings associated with the two previous mine sites enter Barton Bay (McLeod Tailings) and the Central Basin (Hardrock Tailings) of Kenogamis Lake, resulting in elevated metal levels (arsenic, copper, and iron) in water and sediment. Premier has undertaken a bioavailability study to assess whether the existing elevated metals in surface water and sediment are biologically available and causing adverse effects on resident aquatic organisms. The strongest evidence for metals to be of concern in Kenogamis Lake, particularly Barton Bay and the Central Basin, comes from the water and sediment data, with arsenic as the main metal present at levels higher than the water and sediment quality guidelines. However, despite the elevated arsenic levels in sediment and water, no adverse effects on phytoplankton or benthic invertebrate communities have been identified and no water or sediment toxicity was indicated from laboratory tests. Bioaccumulation of arsenic was documented in tissue of benthic invertebrates (Hyalella) and fish (Spottail Shiner and Walleye) but did not appear to have an adverse biological effect on these species. While the elevated levels of arsenic and other metals in water and sediments of Barton Bay and the Central Basin may lead to bioaccumulation, they do not lead to any recognizable adverse effects on phytoplankton, benthic, or fish communities studied.
Technical Data Report: Hardrock Project - Atmospheric Environment	Stantec Consulting Ltd.		https://iaac-aeic.gc.ca/050/documents/p80068/119891E.pdf	2017	EN	Air quality	The assessment of the potential changes in air quality due to the Project was performed by conducting dispersion modelling to predict the downwind concentrations of air parameters of potential concern (PoPCs) and comparing these predictions to regulatory standards, objectives and guidelines. The assessment consisted of the following elements: compilation of an emissions inventory of Project point and mobile sources, assessment of baseline ambient air quality conditions for PoPCs from the existing published sources of air quality data and site-specific measurements, dispersion and deposition modelling of the Project to provide input to the "Technical Data Report: Hardrock Project – Human Health and Ecological Risk Assessment", and to support the assessment of potential environment effects, including cumulative effects, for the Final EIS/EA, comparison of dispersion model predictions to ambient air quality criteria (AAQC) as well as evaluation of the incremental change in air quality associated with the Project.
Technical Report - Drinking Water System at the Kashechewan First Nation	Ministry of Environment Conservation, and Parks		https://ia600302.us.archive.org/31/items/std01079774.ome/std01079774.pdf	2005		Community health; Indigenous Peoples; Lower Albany River; Water and river systems	An assessment of the raw water from Red Willow Creek, Albany River, and East Creek and the treated water from the Kashechewan First Nation drinking water system. Provides analytical results of water quality tests in Appendix D.
Temporal changes in mercury concentrations of large-bodied fishes in the boreal shield ecoregion of northern Ontario, Canada	Tang, R.W.K; Johnston, T.A.; Gunn, J.M.; Bhavsar, S.P.	10.1016/j.scitotenv.2012.11.109	https://pubmed.ncbi.nlm.nih.gov/23280299/	2013	EN	Fish and fish habitat	Much of the mercury (Hg) in freshwater fish of the boreal shield ecoregion is believed to originate from atmospheric deposition. As such, declines in fish Hg concentrations would be expected in response to recent declines in atmospheric Hg deposition in this ecoregion. We compared recent (2005-2010) and historic (1974-1981) muscle total mercury concentrations ([THg], standardized to a fish body mass of 1 kg) in seven fish species (five piscivores, two benthivores) from 73 lakes in northern Ontario (Canada) using a paired-comparisons approach. The rate of bioaccumulation (i.e., slopes of log(e)[THg] vs log(e) total length relationship) increased for walleye (Sander vitreus) but did not change significantly for any other species. There was no significant decline in mean [THg] between recent and historic time periods for any species. In fact, recent mean [THg] were slightly higher (<0.08 ppm) than historic mean [THg] for all species, and this difference was significant for northern pike (Esox lucius). The magnitude of the temporal change in northern pike declined significantly from south to north over the study area but there were no discernible geographic patterns in the temporal change in [THg] for any other species. This study shows that [THg] of most large-bodied fish species in boreal shield lakes are not declining in response to the decline in atmospheric Hg deposition.
Terrestrial Ecological Monitoring: A review and recommendations for Northern Ontario's Ring of Fire	Burton, Cole; Chetkiewicz, Cheryl	10.13140/RG.2.1.4468.6568	https://www.researchgate.net/publication/281411321_Terrestrial_Ecological_Monitoring_A_review_and_recommendations_for_Northern_Ontario's_Ring_of_Fire/link/55e61c4508aebc1a7cc654c/download	2015	EN	Biodiversity; Cumulative effects; Water and river systems; Wildlife and wildlife habitat; Fish and fish habitat	The purpose of this report is to facilitate progress toward an effective ecological monitoring program for the Ring of Fire by: a) reviewing key themes for ecological monitoring from the scientific literature, b) summarizing examples of other relevant regional-scale monitoring initiatives, and c) making recommendations for further development of a monitoring framework for terrestrial biodiversity in the region.
Terrestrial Ecozones of Canada	Government of Canada; Agriculture and Agri-Food Canada		https://open.canada.ca/data/en/dataset/7ad7ea01-eb23-4824-bccc-66adb7c5bdf8	5/21/2013	EN / FR	Peatlands; Forests; Wildlife and wildlife habitat; Geology	The "Terrestrial Ecozones of Canada" dataset provides representations of ecozones. An ecozone is the top level of the four levels of ecosystems that the National Ecological Framework for Canada defines. The framework divides Canada into 15 terrestrial ecozones that define its ecological mosaic on a sub-continental scale. Ecozones represent an area of the earth's surface as large and very generalized ecological units. These units are characterized by interactive and adjusting abiotic and biotic factors.
The Anishinabek Nation	Anishinabek Nation		https://www.anishinabek.ca/wp-content/uploads/2020/04/AN_Book.pdf	2020	EN	Community health; Community safety; Economic development and livelihoods; Education; Indigenous Peoples; Public; Social and economic	Overview of the Anishinabek Nation Territory including Long Lake #58 First Nation.
The Big Hole: Environmental Assessment and Mining in Ontario	Mining Watch Canada for the Canary Research Institute		https://miningwatch.ca/sites/default/files/the_big_hole_report.pdf	2014	EN	Mining; Cumulative effects; Community safety; Economic development and livelihoods; Community health; Physical and cultural heritage; Treaty rights; Social and economic; Current use; Hydrology; Species at risk; Indigenous Peoples	Analysis of the Ontario mining sector. Explores negative environmental impacts of mining in Ontario using case studies, socio economic issues, and federal, provincial and indigenous EA processes. Appendix contains summarized EAs for several mining projects
The Canadian field-naturalist	Ottawa Field-Naturalists' Club		https://www.biodiversitylibrary.org/item/89183	1981	EN	Biodiversity; Water and river systems; Wildlife and wildlife habitat; Migratory birds; Avifauna; Species at risk; Public	
The Canadian Water Resource Vulnerability Index to Permafrost Thaw (CWRVIPT)	Spence, C; Norris; Bickerton, G; Bonsal, B.R.; Brua, R; Culp, J.M.; Dibike, Y; Gruber, S; Morse, P.D.; Peters, D.L.; Shrestha, R; Wolfe, S.A.	10.1139/as-2019-0028	https://cdsciencepub.com/doi/full/10.1139/as-2019-0028	2020	EN	Water and river systems; Climate change	This study developed and applied a framework for assessing the vulnerability of pan-Canadian water resources to permafrost thaw. The national-scale work addresses a key, but neglected, information gap, as previous research has focused on small scale physical processes and circumpolar trends. The framework was applied to develop the Canadian Water Resources Vulnerability Index to Permafrost Thaw (CWRVIPT) and map the index across the Canadian North. The CWRVIPT is a linearly additive index of permafrost, terrain, disturbance, and climatic conditions and stressors that influence water budgets and aquatic chemistry. Initial results imply water resources in the western Northwest Territories and Hudson Bay Lowlands are most vulnerable to permafrost thaw; however, water resources on Banks, Victoria and Baffin Islands are also relatively vulnerable. Although terrain and permafrost sub-indices are the largest component of the CWRVIPT across a wide swath from the Mackenzie River Delta to the Hudson Bay Lowlands, the climate sub-index is most important farther north over parts of the southern portion of the Arctic Archipelago. The index can be used to identify areas of water resource vulnerability on which to focus observation and research in the Canadian North.
The Canadian Wildlife Health Cooperative Annual National Bat Health Report – 2022	Segers, J; McBurney, S; Jones, M.; Zimmer, P.		https://www.cwhc-rctsf.ca/docs/technical_reports/CWHC%20National%20bat%20Health%20report%202022.pdf	2022	EN	Wildlife and wildlife habitat; Species at risk	This report summarizes Bat Health information collected through post mortem necropsy by the Canadian Wildlife Health Cooperative across Canada, from samples collected and provided by provincial, territorial, federal, and other partners.
The Consideration of cumulative effects in support of decision making on Fisheries Act authorizations concerning fish and fish habitat protection	Government of Canada, Fisheries and Oceans Canada		https://www.dfo-mpo.gc.ca/pnw-ppe/measure-mesures/cumulative-effects-cumalatif-effets/index-eng.html	3/20/2025	EN / FR	Cumulative effects; Fish and fish habitat	Fisheries and Oceans Canada's (DFO) Fish and Fish Habitat Protection Program (FFHPP) conserves and protects fish and fish habitat by applying the fish and fish habitat protection provisions of the Fisheries Act, in combination with the relevant provisions of the Species at Risk Act and the Aquatic Invasive Species Regulations to regulate projectsFootnoted, in or near water that could result in harmful impacts to fish and fish habitat. FFHPP administers the prohibitions in the Fisheries Act against the carrying on of a project that results in the death of fish by means other than fishing, and the harmful alteration, disruption or destruction of fish habitat. This Position Statement on the Consideration of Cumulative Effects in Support of Decision Making on Fisheries Act Authorizations Concerning Fish and Fish Habitat Protection (Position Statement) explains how FFHPP considers cumulative effects on fish and fish habitat prior to making a decision to issue or refuse a Fisheries Act authorization related to the death of fish and the harmful alteration, disruption or destruction of fish habitat. This position statement outlines an approach that will be taken by FFHPP to ensure that cumulative effects on fish and fish habitat are considered consistently and transparently.

The Draft Guidelines for the Preparation of an Environmental Impact Statement pursuant to the Ontario Environmental Assessment Act and the Canadian Environmental Assessment Act for the Marathon Platinum Group Metals and Copper Mine Project Registry #10-05-54755	Red Sky Métis Independent Nation	https://www.ceaa.gc.ca/050/documents/50340/50340E.pdf	2011	EN	Mining; Community health; Physical and cultural heritage; Current use; Wildlife and wildlife habitat; Sustainability; Indigenous Peoples; Infrastructure	Red Sky Métis Independent Nation comment letter on the draft guidelines for the preparation of an Environmental Impact Statement for the Marathon Platinum Group Metals and Copper Mine Project.
The embarrassment of riches: agricultural food subsidies, high goose numbers, and loss of Arctic wetlands: a continuing saga	Jefferies, R L; Rockwell, R F; Abraham, K F	10.1139/a04-002 https://cdnsiencepub.com/doi/10.1139/a04-002	2003-12	EN	Migratory birds; Public	Agriculture has provided a nutritional subsidy to the Anatidae (swans, geese, ducks), which has affected their trophic relationships and the Arctic wetlands where they breed. The Mid-Continent Population of lesser snow geese, which breeds in the Canadian Arctic and which traditionally wintered in the coastal marshes of the Gulf States, now feeds in agricultural landscapes. The geometric growth of this population since 1970 is coincident with increased application of nitrogen to farmland and high crop yields. Widespread availability of agricultural foods allows the birds to meet much of their energy demand for migration and reproduction. Their migration conforms to a stepping stone model linked to land use, but feeding also takes place upon arrival on the Arctic breeding grounds. High bird numbers have dramatically affected coastal marshes of the Canadian Arctic. Foraging has produced alternative stable states characterized by sward destruction and near irreversible changes in soil properties of exposed sediments. Locally, this loss of resilience has adversely affected different groups of organisms, resulting in an apparent trophic cascade. A spring hunt was introduced in 1999 in an attempt to check population growth. The current annual cull is now thought to be higher than the replacement rate. Much of the decline of the Mid-Continent Population is probably linked to shooting, but the harassment of birds that fail to acquire sufficient food for reproduction may contribute. The agricultural food subsidy has led to a mismatch between this avian herbivore and its environment — a consequence of migratory connectivity that links wintering and breeding grounds. Key words: agricultural crops, lesser snow geese, migratory connectivity, Arctic coastal marshes, grubbing, hypersalinity, the spring hunt.
The ERA5 global reanalysis	Hersbach, H; Bell, B.; Berrisford, P; Hirahara, S; Horányi, A; Muñoz-Sabater, J; Nicolas, J; Peubey, C; Radu, R; Schepers, D; Simmons, A; Soti, C; Abdalla, S; Abellan, X; Balsamo, G; Bechtold, P; Blavati, G; Bidlot, J; Bonavita, M; De Chiara, G; Dahlgren, P; Dee, D; Diamantakis, M; Dragani, R; Flemming, J; Forbes, R; Fuentes, M; Geer, A; Haimberger, L; Healy, S; Hogan, R.J.; Hólm, E.; Janisková, M; Keeley, S; Laloyaux, P; Lopez, P; Lupu, C; Radnoti, G; de Rosnay, P; Rozum, I; Vamborg, F; Villaume, S; Thépau, J.-N.	10.1002/qj.3803 https://rmts.onlinelibrary.wiley.com/doi/10.1002/qj.3803	2020	EN	Climate change	This article provides information on the methodology and development of the ERA5 global reanalysis dataset which provides historical meteorological data. / Article abstract: Within the Copernicus Climate Change Service (C3S), ECMWF is producing the ERA5 reanalysis which, once completed, will embody a detailed record of the global atmosphere, land surface and ocean waves from 1950 onwards. This new reanalysis replaces the ERA-Interim reanalysis (spanning 1979 onwards) which was started in 2006. ERA5 is based on the Integrated Forecasting System (IFS) Cy41r2 which was operational in 2016. ERA5 thus benefits from a decade of developments in model physics, core dynamics and data assimilation. In addition to a significantly enhanced horizontal resolution of 31.25km, compared to 80km for ERA-Interim, ERA5 has hourly output throughout, and an uncertainty estimate from an ensemble (3-hourly at half the horizontal resolution). This paper describes the general set-up of ERA5, as well as a basic evaluation of characteristics and performance, with a focus on the dataset from 1979 onwards which is currently publicly available. Re-forecasts from ERA5 analyses show a gain of up to one day in skill with respect to ERA-Interim. Comparison with radiosonde and PILOT data prior to assimilation shows an improved fit for temperature, wind and humidity in the troposphere, but not the stratosphere. A comparison with independent buoy data shows a much improved fit for ocean wave height. The uncertainty estimate reflects the evolution of the observing systems used in ERA5. The enhanced temporal and spatial resolution allows for a detailed evolution of weather systems. For precipitation, global-mean correlation with monthly-mean GPCP data is increased from 67% to 77%. In general, low-frequency variability is found to be well represented and from 107hPa downwards general patterns of anomalies in temperature match those from the ERA-Interim, MERRA-2 and JRA-55 reanalyses.
The essential carbon service provided by northern peatlands	Harris, L; Richardson, K; Bona, K; Davidson, S; Finkelstein, S; Gameau, M; McLaughlin, J; Nwaisi, F; Oledet, D; Packalen, M; Roulet, N.	https://doi.org/10.1002/fee.21002/fee.2437 https://esajournals.onlinelibrary.wiley.com/doi/10.1002/fee.2437	2021	EN	Peatlands; Climate change	Northern peatlands have cooled the global climate by accumulating large quantities of soil carbon (C) over thousands of years. Maintaining the C sink function of these peatlands and their immense long-term soil C stores is critical for achieving net-zero global carbon dioxide (CO2) emissions by 2050 to mitigate climate warming. One-quarter of the world's northern peatlands are in Canada, with these mostly intact ecosystems providing a global C service that is increasingly recognized as a critical part of nature-based solutions to combat climate change. However, land-use change and other disturbances threaten these globally important stores of "irrecoverable C" (that is, soil C lost to disturbance that will take centuries to recover). Inadequate policy safeguards to avoid conversion and degradation, and the limited quantification and reporting of peatland greenhouse-gas emissions and removals, increase the vulnerability of these peatlands. Targeted policies from local to global scales will be needed for improved decision making and incentivizing long-term C management of northern peatlands.
The Far North Biodiversity Project	Ontario Biodiversity Council	https://sobr.ca/the-far-north-biodiversity-project/	2024	EN	Biodiversity; Wildlife and wildlife habitat; Avifauna; Fish and fish habitat	This project seeks to provide a foundation of information on the terrestrial living resources in the Far North to support community and strategic land use planning. At the broader scale, the project provides information on the occurrence and distribution of selected terrestrial biodiversity components (birds, mammals, reptiles and amphibians, invertebrates) across community planning areas. In addition, previously identified areas of high natural heritage value were targeted for site-specific sampling as these areas may be considered for some level of protection through land use planning exercises
The future intensification of hourly precipitation extremes	Prein, A; Rasmussen, R; Ikeda, K; Clark, M.P.; Liu, C; Holland, G.J.	10.1038/nclimate3168 https://doi.org/10.1038/nclimate3168	2016	EN	Climate change	Prein et al. analyze very high resolution current and simulated (future climate scenario) hourly precipitation extremes to investigate scaling rates of extreme precipitation intensity increases under climate change. Extreme precipitation intensities are expected to increase by ~7% per degree Celsius of warming (following the Clausius-Clapeyron relation), however, the scaling rates are dependent on region, temperature, and moisture availability. Prein et al. find that extreme precipitation increases with temperature in moist, energy-limited environments and decreases in dry, moisture-limited environments. Extreme precipitation increases are found for Northern Ontario. - Article abstract: Extreme precipitation intensities have increased in all regions of the Contiguous United States (CONUS) and are expected to further increase with warming at scaling rates of about 7% per degree Celsius, suggesting a significant increase of flash flood hazards due to climate change. However, the scaling rates between extreme precipitation and temperature are strongly dependent on the region, temperature, and moisture availability, which inhibits simple extrapolation of the scaling rate from past climate data into the future. Here we study observed and simulated changes in local precipitation extremes over the CONUS by analyzing a very high resolution (4 km horizontal grid spacing) current and high-end climate scenario that realistically simulates hourly precipitation extremes. We show that extreme precipitation is increasing with temperature in moist, energy-limited, environments and decreases abruptly in dry, moisture-limited, environments. This novel framework explains the large variability in the observed and modelled scaling rates and helps with understanding the significant frequency and intensity increases in future hourly extreme precipitation events and their interaction with larger scales.
The Future of Mining in Canada's North	Center of the North	https://www.canada2030.ca/wp-content/uploads/2013/08/Future-of-mining-in-Canadas-north_cfn.pdf	2013	EN	Mining; Cumulative effects; Treaty rights; Social and economic	Examines impact of mining industry in Canada's Northern regions including Northern Ontario, the Northwest territories Northern NL and Northern Quebec. Examines the impacts and benefits of mining in northern communities (indigenous)
The Hudson Bay Lowland Cree in the Fur Trade to 1821: A Study in Historical Geography	Lytwyn, Victor Petro	https://mspace.lib.umanitoba.ca/handle/1993/3658	1993	EN	Physical and cultural heritage; Cultural vitality; Indigenous Peoples	Study of Indigenous people of the Hudson Bay Lowlands, known as the Lowland Cree. The time period is coincident with the European fur trade period in the region from about 1670 to 1821.
The impact of severe pollution from smelter emissions on carbon and metal accumulation in peatlands in Ontario, Canada	Newman, Jodi E.; Levasseur, Patrick A.; Beckett, Peter; Watmough, Shaun A.	10.1016/j.envpol.2023.121102 https://www.sciencedirect.com/science/article/pii/S0269749123001045	3/1/2023	EN	Peatlands; Air quality	Peatlands are unique habitats that function as a carbon (C) sink and an archive of atmospheric metal deposition. Sphagnum mosses are key components of peatlands but can be adversely impacted by air pollution potentially affecting rates of C and metal accumulation in peat. In this study we evaluate how the loss of Sphagnum in peatlands close to a copper (Cu) and nickel (Ni) smelter in Sudbury, Ontario affected C accumulation and metal profiles. The depth of accumulated peat formed during the 100+ year period of smelter activities also increased with distance from the smelter. Concurrently, peat bulk density decreased with distance from the smelter, which resulted in relatively similar average rates of apparent C accumulation (32-46 g/m ² /yr). These rates are within the range of published values despite the historically high pollution loadings. Surface peat close to the smelters was greatly enriched in Cu and Ni, and Cu profiles in dated peat cores generally coincide with known pollution histories much better than Ni that increased well before the beginning of smelter activities likely a result of post-deposition mobility in peat cores.

The Indigenous Food Circle: Reconciliation and resurgence through food in Northwestern Ontario	Levkoe, C.Z.; Ray, L; McLaughlin, J	10.5304/jafscd.2019.09B.008	https://doi.org/10.5304/jafscd.2019.09B.008	2019	EN	Family, youth, and children; Food security; Cultural vitality; Inter and intra generational values; Indigenous Peoples	Food policy councils provide a forum to address food systems issues and a platform for coordinated action among multisectoral stakeholders. While diverse in structure, most councils aim to develop democratic and inclusive processes to evaluate, influence, and establish integrated policy and programs for healthy, equitable, and sustainable food systems. The Thunder Bay and Area Food Strategy (TBAFS) is one such example that pro-motes regional food self-reliance, healthy environ-ments, and thriving economies through the implementa-tion of research, planning, policy, and program development. Despite its success, the TBAFS had no formal engagement from the Indigenous com-munities that make up almost 13% of Thunder Bay's population (the highest urban Indigenous population in Canada). Recognizing this gap, in 2016, members of the TBAFS began to develop partnerships with regional Indigenous leaders and organizations to better understand the barriers and opportunities to engagement. The result was the establishment of the Indigenous Food Circle, which aimed to reduce Indigenous food insecurity, increase food self-determination, and establish meaningful relationships with the settler population through food. In this paper, we trace the history of the Indigenous Food Circle. Drawing on theories of decolonization and Indige-nous food sover-eignty, we argue that the Indige-nous Food Circle requires more than simply good-will from TBAFS members and other allied organizations. It demands confronting our histories and engaging in action that transforms current pat-terns of relations. It means embracing the discom-fort that comes with recognizing the prevalence of settler colonial-ism and developing respectful and just relation-ships followed by action. We conclude with some suggestions for continuing this work and the opportunity to experiment with food as a tool for reconciliation and resurgence.
The Lake Sturgeon (Southern Hudson Bay, James Bay) a Species at Risk in the North	Fisheries and Oceans Canada (DFO)		https://publications.gc.ca/collections/collection_2011/mpo-dfo/Fs22-4-64-2006-eng.pdf	2006	EN / FR	Fish and fish habitat	Eight designatable units have been identified for Lake Sturgeon based on genetic and biogeographical distinctions. Within the Southern Hudson Bay and James Bay designatable unit (DU7), this species has been identified as Special Concern by the Committee on the Status of Endangered Wildlife in Canada (COSEWIC). It is currently being considered for listing under the federal Species at Risk Act (SARA). Protection is afforded through the federal Fisheries Act. If listed under the SARA, it will be afforded additional protection. Under the SARA, a management plan must be developed for this species.
The matter of spatial and temporal scales: A review of reindeer and caribou response to human activity	Vistnes, I; Nellemann, C	10.1007/s00300-007-0377-9	https://www.researchgate.net/publication/225393726_The_matter_of_spatial_and_temporal_scales_A_review_of_reindeer_and_caribou_response_to_human_activity	2008	EN	Wildlife and wildlife habitat; Species at risk; Public; Infrastructure	Research on impacts of human activity and infrastructure development on reindeer and caribou (Rangifer tarandus) is reviewed in the context of spatial (m to many km) and temporal (min to decades) scales. Before the 1980s, most disturbance studies were behavioral studies of individual animals at local scales, reporting few and short-term (min to h) impacts within 0-2km from human activity. Around the mid 1980s, focus shifted to regional-scale landscape studies, reporting that Rangifer reduced the use of areas within 5km from infrastructure and human activity by 50-95% for weeks, months or even years and increased use of remaining undisturbed habitat far beyond those distances. The extent could vary with type of disturbance, sex, terrain, season, and sensitivity of herds. Of 85 studies reviewed, 83% of the regional studies concluded that the impacts of human activity were significant, while only 13% of the local studies did the same. Accurate assessment of impacts from human activity requires regional-scale studies, a pattern confirmed in a few long-term (decades) pre- and post-development studies. Such long-term studies are needed to improve understanding of both temporal and spatial patterns.
The Mining Industry in Northwestern Ontario: An Analysis of Recent Developments and the Strategy for Success	Northern Policy Institute		https://www.lakeheadu.ca/sites/default/files/uploads/3123/The%20Mining%20Industry%20in%20Northwestern%20Ontario%20sm.pdf	2016	EN	Mining; Economic development and livelihoods	This research paper analyses 9 potential mining projects in Northwestern Ontario and determining what factors may lead to their failure or success
The Persistence of Aboriginal Land Use: Fish and Wildlife Harvest Areas in Hudson and James Bay Lowland, Ontario	Berkes, F; Hughes, A; George, P.J; Preston, R.J; Cummins, B.D.; J., Turner		https://pubs.aina.ucalgary.ca/arctic/Arctic48-1-81.pdf	1994	EN	Cultural vitality; Inter and intra generational values; Current use; Wildlife and wildlife habitat; Fish and fish habitat	Wildlife harvesting areas used in 1990 by the Indigenous people of the Mushkegowuk region, Hudson and James Bay Lowland, were documented by interviewing 925 hunters from eight communities (Moose Factory, Moosonee, New Post, Fort Albany, Kashechewan, Attawapiskat, Peawanuck, and Fort Severn). Results show that geographically extensive land use for hunting and fishing persists in the Mushkegowuk region, some 250,000 km.
The potential environmental risks associated with the development of rare earth element production in Canada	Yin, X., Martineau, C; Demers, I; Basiliko, N.; Fenton, N	10.1139/er-2020-0115	https://doi.org/10.1139/er-2020-0115	2021	EN	Mining; Community health; Water and river systems; Wildlife and wildlife habitat; Air quality; Hydrology; Fish and fish habitat	The development of rare earth element (REE) production in Canada could generate significant economic benefits but also poses serious potential risks to the environment. Rare earth elements have been widely used in modern life and industries and are even indispensable in some crucial advanced technologies (e.g., permanent magnets). Increasing demand and the current United States – China trade tensions provide a commercial economic development opportunity for Canada, which has rich resources of REEs, to develop its own sector. However, environmental and health issues caused by REE production are challenges that Canada has to face given that significant environmental impacts have been reported elsewhere (e.g., China). Little literature is available on the potential environmental risks associated with the development of REE production in Canada. It is important to know what environmental issues, particularly those generated by REEs themselves, may happen in Canada in the future. Therefore, three major aspects are evaluated and summarized from multidisciplinary perspectives in this paper: (1) a general conceptual model of the transport of REEs as a group in the environment is established; (2) toxicity levels, biochemical mechanisms, and physiological effects of REEs on different organisms are reviewed, and case-studies from existing REE mining areas are briefly highlighted; and (3) considering specific environmental condition and risk factors, environmental risks that Canada may face in future REE developments are identified and discussed. This review concludes with macro-identification of potential environmental risks associated with the development of REE production in Canada considering both human and ecological health. We note that ingestion, inhalation, and dermal exposure for workers and surrounding residents (including potentially Indigenous communities) and subarctic and arctic climate conditions could increase the risks to human and ecological health in future REE production development in Canada. Finally, future research directions are proposed that could be applied to both Canadian and other geographical contexts.
The Recovery Strategy for Woodland Caribou (Forest-dwelling, Boreal population) in Ontario	Ministry of the Environment, Conservation and Parks		https://www.ontario.ca/page/woodland-caribou-recovery-strategy	2008	EN	Forests; Wildlife and wildlife habitat; Species at risk	Ontario led the development of this recovery strategy for the Woodland Caribou (forest-dwelling, boreal population), under the Accord for the Protection of Species at Risk in Canada. The recovery strategy was prepared as advice to the government and the many different constituencies that may be involved in recovering the species. The recovery strategy does not necessarily represent the views of all individuals of the recovery team or the official positions of the organizations with which the individual recovery team members are associated. The goals, objectives and recovery approaches identified in the strategy were based on the best existing knowledge and are subject to modifications resulting from new findings and revised objectives. Implementation of the strategy is subject to appropriations, priorities, and budgetary constraints of the participating jurisdictions and organizations. Success in the recovery of this species depends on the commitment and cooperation of many different constituencies that will be involved in implementing the directions set out in this strategy.
The speciation of arsenic in the muscle tissue of inland and coastal freshwater fish from a remote boreal region	Lescord, Gretchen L.; Johnston, Thomas A.; Ponton, Dominic E.; Amyot, Marc; Lock, Alan; Gunn, John M.	10.1016/j.chemosphere.2022.136140	https://www.sciencedirect.com/science/article/pii/S0045653522026339	2022	EN	Fish and fish habitat	Elevated concentrations of total arsenic (As) have been reported in boreal freshwater fish in both human-impacted and relatively pristine areas. We assessed the arsenic speciation profiles in muscle tissue of six fish species (n = 300) sampled from nine locations across a remote freshwater watershed in northern Ontario, Canada, extending from inland headwater lakes to the coastal marine confluence. Of the five arsenic species measured, only arsenobetaine (AsB) and dimethylarsinic acid (DMA) were detected in these fish. Riverine fish had up to 10-fold higher total [As] when compared to lacustrine fish. On average, these riverine fish also had higher percentages of AsB (%AsB, 60 ± 26%) and lower percentages of unmeasured arsenic (%UNM, 20 ± 21%), compared to lacustrine fish (28 ± 18% and 52 ± 21% %AsB and %UNM, respectively). DMA percentages (%DMA) were relatively consistent across the watershed, averaging 20 ± 21% across all fish. We examined ecological drivers of As speciation and found that %AsB increased slightly with fish weight in large-body predatory fish, but not in forage fish or insectivores. Furthermore, %AsB was positively related to trophic elevation (inferred from δ15N) in lacustrine fish across 3 out of 4 communities and within some populations. Lastly, riverine fish with a more marine-based diet had markedly higher %AsB when compared to fish with more freshwater-based diets, indicating an effect of anatomy on arsenic speciation. Overall, knowledge on arsenic speciation in freshwater fish has been limited and these results indicate potential drivers that can be considered in future studies. Furthermore, the absence of toxic inorganic As species in these boreal fish is an important consideration for future environmental monitoring practices and risk assessments, some of which assume 10–20% of total [As] in fish is present as toxic inorganic As. Additional studies on As bioaccumulation and biotransformation are needed in freshwater systems, particularly at the base of aquatic food webs.
The Streamlining of the Kabinakagami River Hydroelectric Project Environmental Assessment: What is the Duty to Consult with Other Impacted Aboriginal Communities When the Co-Proponent of the Project is an Aboriginal Community?	Gardner, Holly L; Kirchoff, Denis; Tsuji, L. J. S.	10.18584/iipj.2015.6.3.4	https://ojs.lib.uwo.ca/index.php/iipj/article/view/7467	2015	EN	Treaty rights; Indigenous Peoples; Infrastructure	There is existing tension within many Aboriginal communities between economic development and preservation of traditional lands for the continued practice of traditional activities. The "duty to consult" doctrine has become an important mechanism by which these concerns were identified and addressed (when possible) prior to development. This is a legal requirement that is rooted in the Constitution Act (1982) and subsequent legal case law that has further defined and outlined requirements under this obligation. This article describes the process that was carried out to advance the proposed Kabinakagami River Hydro Project Class Environmental Assessment in Northern Ontario, Canada with an emphasis on the approach to Aboriginal consultation. This project is unique because the co-proponent of the project is an Aboriginal community, with several neighbouring Aboriginal communities potentially affected by the project. This project raises questions about the approach to carrying out the duty to consult in an effective way. An evaluative framework was developed to examine timeline, information, means, and flexibility and transparency of the process to highlight shortcomings in the process and make recommendations for improvement.

The Trials and Tribulations of Ontario's Mining Act: The Duty to Consult and Anishinaabek Law	Drake, Karen		https://www.canlii.org/en/commentary/doc/2015CanLIIDocs172#1fragment/zoupio-_Toc2Page1-Page10/BQCwhgzIBcWMygK4DsDWszlQewE4UBTADwBdoAvbRABwEtsBaAFx2zgcYAFMAC0lCMjHwEAGAJQAaZNIKEIARUSFcAT2gByTVIIewuBmtUbtu-YZABlPKQBCGgEoBRADLOAagEEAcGfNkVwACNoUnYJCSA	2015	EN	Mining; Treaty rights; Natural law; Traditional processes for deliberation; Indigenous Peoples	After a series of high profile disputes pitting statutory mining rights against constitutionally protected Aboriginal rights, Ontario finally amended its Mining Act. This paper argues that Ontario's amended regime still fails to comply with the Crown's duty to consult and accommodate Aboriginal peoples in at least three ways. First, some areas of Ontario are subject to Aboriginal title claims. Recording a mining claim within Aboriginal title territory triggers the duty to consult, but the amended Mining Act still does not require consultation prior to the recording stage. Second, at least some treaties in Ontario, such as Treaty Nine, protect the right to implement the laws of the First Nations signatories, including Anishinaabek laws. The early exploration activities permitted by the Mining Act violate Anishinaabek laws about land use and thus adversely impact a treaty right, again with no requirement to engage in prior consultation. Third, the new regulations run afoul of both Anishinaabe law and Canadian law by failing to allow sufficient time for Anishinaabek decision-making processes. For these reasons, the amended Mining Act is still unconstitutional and another round of amendments is required.
The trophic niche of sculpins (Cottus spp) in forage fish assemblages of boreal lakes	Mozzon, C.M; Lescord, G.L.; Savage, P.-L.; Johnston, T.A.	10.1111/jfb.14188	https://pubmed.ncbi.nlm.nih.gov/31661158/	2020	EN	Fish and fish habitat	We compared the trophic niches of freshwater sculpins <i>Cottus</i> spp. with those of other co-habiting forage fishes in two groups of boreal lakes with distinct habitats and fish communities. Near North Lakes (45° 00' to 47° 30' N) were deeper, stratified and contained lake trout <i>Salvelinus namaycush</i> as the apex piscivore, whereas Far North Lakes (51° 10' to 52° 20' N) were shallower, did not stratify and contained pike <i>Esox lucius</i> and walleye <i>Sander vitreus</i> as the apex piscivores. Trophic niches of sculpins and other forage fishes were compared based on niche metrics calculated from muscle stable carbon (δ13 C) and nitrogen (δ15 N) isotope ratios. In Near North Lakes, sculpins were found almost exclusively in deep, offshore waters and their niche positions reflected a greater reliance on pelagic production (lower δ13 C) and a higher trophic elevation (higher δ15 N) compared with most other forage fishes. Furthermore, sculpins in Near North Lakes tended to have larger trophic niches (occupied greater area in δ13 C- δ15 N space), particularly in the food chain (δ15 N) dimension, than other cohabiting forage fishes. In contrast, sculpins in Far North Lakes were commonly found in the nearshore and had trophic niche positions and sizes that were similar to those of the other cohabiting forage fishes. This study illustrates the flexibility in the realized trophic niches of sculpins in relation to habitat availability and fish community composition in boreal lakes.
The Victor diamond Mine environmental assessment process: a critical First Nation perspective	Whitelaw, Graham S; McCarthy, Daniel D; Tsuji, Leonard J.S.	10.3152/146155109X4609X465931	https://www.tandfonline.com/doi/pdf/10.3152/146155109X4609X465931	2012	EN	Attawapiskat River; Current use; Indigenous Peoples; Lower Albany River; Mining; Treaty rights; Upper Albany River	Restrictive scoping has emerged as a contentious issue in environmental assessment (EA) with developments in northern Canada on Aboriginal territorial homelands. Restrictive scoping potentially leads to the exclusion of potentially affected stakeholders, constrained impact assessment, and inadequate collection of baseline information and traditional knowledge. The First Diamond Mine in Ontario, Canada, is located on the Attawapiskat River in the western James Bay region. We examined whether the scoping applied in the EA process that led to the approval of the mine addressed the needs of First Nations located southeast of the mine, specifically Fort Albany First Nation on the Albany River. Our findings indicate that the proponent, De Beers Canada Inc., with the approval of government authorities, primarily consulted and worked with Attawapiskat First Nation through the EA process and largely excluded other First Nations in the region. Limitations of EA in the context of northern Canada are identified. The potential of emerging community-based and regional land use planning in Ontario's far north is discussed.
The winter ecology of Cape Churchill caribou (Rangifer tarandus ssp.)	Campbell, Mitch William		http://hdl.handle.net/1993/7357	1995	EN	Public; Species at risk; Wildlife and wildlife habitat	Aspects of snow conditions, plant community use, and feeding habits were examined for caribou occupying the Cape Churchill Wildlife Management Area. Studies were carried out over each of the 1989-90 and 1990-91 snow seasons. Attempts were made to interrelate feeding habits and plant community use with changing snow conditions based on 7 snow stations set up within four taiga and three tundra plant communities. Fundamental differences between taiga and tundra snow conditions are also discussed. Plant communities were described based on quadrat and point quarter methods, prior to snowfall, within each of four taiga and three tundra plant community snow stations. Snow conditions at snow stations and caribou feeding sites were quantified through the excavation and examination of snow profiles... Taiga and tundra snow conditions are fundamentally different. This was primarily due to the effects of wind on the more exposed tundra and the relative lack of wind in the taiga... Cape Churchill caribou displayed a wide use of plant communities that varied both throughout the snow seasons and between them. Snow conditions within taiga plant communities differed both between themselves over both snow seasons, and differed between the two snow seasons. Tundra plant communities also displayed variability over the same periods though not as severe as taiga sites. Cape Churchill caribou did however remain in feeding sites beyond threshold levels if suitable alternate plant communities were not available. These data imply that conventional wildlife management techniques used to determine caribou range tend dramatically to underestimate actual requirements. Through the long term field monitoring of representative plant community snow conditions and winter habitat use by caribou, a more realistic estimate of caribou range can be achieved.
Tilling Frozen Soils with RipPlows and Environmental Risk Assessment	McNabb, D; Sobze, JM; Schoonmaker, A.		https://landusekn.ca/resource/tilling-frozen-soils-ripplovs-and-environmental-risk-assessment-technical-note	2012	EN	Hydrology	This technical note, in conjunction with the the technical note Tilling Compacted Soils with RipPlows, provides best management practices for using RipPlows for reclamation. In particular, environmental risks are discussed for frozen soil conditions.
Towards conservation of the diversity of Canada geese (Branta canadensis)	Dickson, Kathryn		https://publications.gc.ca/collections/Collection/CW69-1-103E.pdf	2000	EN	Wildlife and wildlife habitat; Migratory birds; Avifauna	A product of the Canadian Wildlife Service Waterfowl Committee. The Waterfowl Committee of the Canadian Wildlife Service resolved in 1994 to produce this publication to report on the great advances in understanding Canada Goose populations that have occurred in recent years.
Traditional food consumption behaviour and concern with environmental contaminants among Cree schoolchildren of the Mushkegowuk territory	Hlimi, Tina; Skinner, K; Hanning, R; Martin, I.D.; Tsuji, L. J. S.	10.3402/jch.v71i1.17344	https://www.tandfonline.com/doi/full/10.3402/jch.v71i1.17344	2012	EN	Family, youth, and children; Education; Food security; Community health; Cultural vitality; Treaty rights; Social and economic; Current use	<p>Objectives: To investigate factors influencing consumption of traditional foods (e.g. wild game, fish) and concerns about environmental contaminants among schoolchildren of the Mushkegowuk Territory First Nations (Moose Factory, Fort Albany, Kashechewan, Attawapiskat, and Peawanuck).</p> <p>Study design: Cross-sectional data collection from a Web-based Eating Behaviour Questionnaire (WEB-Q).</p> <p>Methods: Schoolchildren in grades 6–12 (n = 262) responded to 4 of the WEB-Q questions: (a) Do you eat game? (b) How often do you eat game? (c) How concerned are you about the environmental contaminants in the wild game and fish that you eat? (d) I would eat more game if... [6 response options]. Data were collected in 2004 (Fort Albany), 2005 (Peawanuck), 2006 (Attawapiskat), 2007 (Moose Factory) and 2009 (Kashechewan). Hierarchical log-linear modelling (LLM) was used for analyses of multi-way frequency data.</p> <p>Results: Of the schoolchildren answering the specific questions: 174 consumed game; 95 reported concerns about contaminants in game; and 84 would increase their game consumption if it were more available in their homes. LLM revealed significant differences between communities; schoolchildren in Moose Factory consumed game "rarely or never" at greater than expected frequency, and fewer than expected consumed game "at least once a day". Schoolchildren in Kashechewan had greater frequency of daily game consumption and few were concerned about contaminants in game. Using LLM, we found that sex was an insignificant variable and did not affect game consumption frequency or environmental contaminant concern.</p> <p>Conclusion: The consumption of traditional foods differed between communities and appears to be related to contamination concerns. In addition, latitudinal variation appears to influence the frequency of traditional food consumption in children; children in the most southerly location consumed traditional food less frequently.</p>
Traditional Knowledge & Land Use Study for the Hardrock Project	Know History		https://aac-aeic.gc.ca/050/documents/p80068/119992E.pdf	2015	EN	Physical and cultural heritage; Cultural vitality; Inter and intra generational values; Social and economic; Current use	In the spring and summer of 2015 Know History conducted a Traditional Knowledge and Land Use Study on behalf of the Métis Nation of Ontario to gather information on the land use and way of life of Métis people the Lakehead/Nipigon/Michipicoten Traditional Territory.

Transformation and mobilization of arsenic in the historic Cobalt mining camp, Ontario, Canada	Kwong, Y.T.J.; Beauchemin, S.; Hossain, M.F.; Gould, W.D.	10.1016/j.gexplo.2006.08.002	https://www.sciencedirect.com/science/article/pii/S0375674206002020	2007	EN	Mining; Water and river systems; Hydrology	More than eight decades of silver mining in the Cobalt mining camp of northern Ontario, Canada, have left large volumes of As-bearing mine wastes widely distributed in and along watercourses in the Cobalt area. Metal leaching from these mine wastes has led to the contamination of the area drainage with dissolved As concentrations at least an order of magnitude higher than the Canadian drinking water criterion of 0.025 mg L ⁻¹ . To clarify the transformation and mobilization of arsenic in the historic mining camp, a portion of an extensive wetland located in northeast Cobalt and partially filled with historic tailings has been sampled for detailed characterization, chemical analysis and extraction tests. Field deployment of anionic exchange membranes, As sorption isotherm and desorption analyses in conjunction with chemical and mineralogical analyses indicate that: (1) the submerged tailings are likely a source instead of a sink of arsenic to the local streams; and (2) Al-minerals are the main sorbents for As with significant P competing for the available sorbing sites. Subjecting selected samples to a laboratory redox experiment complemented with X-ray absorption spectroscopic analyses confirms that changes in arsenic speciation readily occur with changes in redox conditions in the surface sediments, resulting in rapid mobilization of arsenic. Preliminary enumeration of iron- and sulfur-reducing bacteria at selected sites coupled with scanning electron microscopic analyses show that microbial sulfate reduction occurs locally in the wetland, possibly leading to co-precipitation of arsenic as a sulfide in associated with framboidal pyrite. Further detailed study of the bacteria responsible for the arsenic transformation in conjunction with arsenic speciation analysis is recommended.
Transforming Relations: Anishnawbe Natural Law in the Ring of Fire	Thomas, Darren		https://scholars.wlu.ca/cgi/viewcontent.cgi?article=3427&context=etd	2020	EN	Mining; Treaty rights; Natural law; Inter and intra generational values; Indigenous Peoples	This multiple manuscript dissertation project contributes to a larger case study research project examining Matawa First Nation experiences of negotiating a proposed mining project known as the "Ring of Fire." Nine independent First Nations located in the Treaty 9 territory in Northern Ontario, comprise a collective regional organization called Matawa First Nations. These First Nations have a long history of living their Ancestral ways of trapping, fishing, and gathering from the lands. During the early 20th century, the southern Matawa communities began to have contacts with forestry development, but a chromite deposit with an estimated value of 65 billion dollars on Matawa's traditional territory in 2008 gave rise to interest in mineral extraction across the entire region. In 2012, active communications began with Matawa First Nations to secure access to these lands for development. As a critical Indigenous doctoral student involved in this case study, my interest was to capture first-hand experiences of Matawa Peoples as they contemplate development on their traditional territory. This multiple manuscript dissertation shares three specific areas of interest: the challenge of conducting Indigenous research on lands and culture different than my own, Matawa's knowledge of Anishnawbe Natural Laws and inherent rights and the communities' priorities in the face of this proposed development, and lastly the knowledge gained by visiting with Matawa Knowledge Holders to learn the perspectives of leaders and Elders on the proposed development and what they see as future directions for the generations to come.
Goliath Gold Project: Environmental Impact Statement	Wheeler, Amec Foster		https://iaac-aeic.gc.ca/050/evaluations/document/101497	2018	EN	Community health; Cumulative effects; Current use; Fish and fish habitat; Geology; Hydrology; Indigenous Peoples; Mining; Physical and cultural heritage; Social and economic; Treaty rights; Wildlife and wildlife habitat	Treasury Metals Inc. is proposing the construction, operation, decommissioning, and abandonment of an open-pit and underground gold mine and associated infrastructure. The proposed mine, located 20 kilometres east of the City of Dryden, Ontario, would have an ore production capacity of 5,424 tonnes per day and an ore input capacity of 3,240 tonnes per day with an anticipated mine and mill life of 12 years. Over the 12 years of operations, the average ore production and ore input capacity of the mine and mill would be 2,700 tonnes per day.
Tree Measurements & Sites Summary - Multi-Agency Ground Plot (MAGPlot) Database: A Repository for pan-Canadian Forest Ground Plot Data	Natural Resources Canada		https://osdp-psdo.canada.ca/dp/en/search/metadata/NRCAN-FGP-1-8824392d-464e-413d-8bde-eaed61c79743	6/5/2023	EN / FR	Forests; Land cover	Multi-Agency Ground Plot (MAGPlot) database (DB) is a pan-Canadian forest ground-plot data repository. The database synthesizes forest ground plot data from various agencies, including the National Forest Inventory (NFI) and 12 Canadian jurisdictions: Alberta (AB), British Columbia (BC), Manitoba (MB), New Brunswick (NB), Newfoundland and Labrador (NL), Nova Scotia (NS), Northwest Territories (NT), Ontario (ON), Prince Edward Island (PE), Quebec (QC), Saskatchewan (SK), and Yukon Territory (YT), contributed in their original format. These datasets underwent data cleaning and quality assessment using the set of rules and standards set by the contributors and associated documentations, and were standardized, harmonized, and integrated into a single, centralized, and analysis-ready database. The primary objective of the MAGPlot project is to collate and harmonize forest ground plot data and to present the data in a findable, accessible, interoperable, and reusable (FAIR) format for pan-Canadian forest research.
Tree Type - Common Attribute Schema for Forest Resource Inventories	Natural Resources Canada		https://osdp-psdo.canada.ca/dp/en/search/metadata/NRCAN-FGP-1-11c59c37-07d9-4bb9-9bab-cfba1f45eb61	6/5/2023	EN / FR	Forests; Land cover	The Common Attribute Schema for Forest Resource Inventories (CASFRi) is a Canadian forest resource inventory data repository. Forest resource inventory datasets in CASFRi are harmonized to a common data model so that data collected by different agencies following different standards can be used together. Participating provincial, territorial and federal government departments and agencies share current and historical map-based forest resource inventory datasets through CASFRi so that their data are available to users who's areas of interest span multiple jurisdictions. CASFRi was originally developed by academic researchers (Cumming et al., https://doi.org/10.1139/cjfr-2014-0102). This flavour of CASFRi (CASFRiV5) was developed anew in collaboration with academic researchers at the University of Laval to provide a government version of CASFRi that is findable, accessible, interoperable, and reusable. It uses the most up-to-date forest inventory data provided by participating provincial, territorial, and federal government departments and agencies. CASFRiV5 is hosted on the Canadian Council of Forest Ministers' data portal, the National Forest Information System (http://nfris.org).
Trends in the Timing and Magnitude of Ice-Jam Floods in Canada	Rokaya, P.; Budhathoki, S.; Lindenschmidt, K.-E.	10.1038/s41598-018-24057-z	https://doi.org/10.1038/s41598-018-24057-z	2018	EN	Water and river systems; Climate change	Ice-jam floods (IJFs) are important hydrological and hydraulic events in the northern hemisphere that are of major concern for citizens, authorities, insurance companies and government agencies. In recent years, there have been advances in assessing and quantifying climate change impacts on river ice processes, however, an understanding of climate change and regulation impacts on the timing and magnitude of IJFs remains limited. This study presents a global overview of IJF case studies and discusses IJF risks in North America, one of the most IJF prone regions according to literature. Then an assessment of shifts in the timing and magnitude of IJFs in Canada is presented analyzing flow data from 1107 hydrometric stations across Canada for the period from 1903 to 2015. The analyses show clear signals of climate change and regulation impacts in the timing and magnitude of IJFs, particularly in small basins.
Trophic dynamics of several fish species in lakes of a climatically sensitive region, the Hudson Bay Lowlands	Persaud, A.; Luek, A.; Keller, W.; Jones, F.C.; Dillon, P.; Gunn, J.; Johnston, T.	10.1007/s00300-014-1628-1	https://link.springer.com/article/10.1007/s00300-014-1628-1	2015	EN	Fish and fish habitat	Freshwater lakes in the Hudson Bay Lowlands (HBL) area of Ontario are expected to undergo considerable physical, chemical and biological changes related to climatic change; however, the nature of those changes is still very uncertain. As a first step to improve our understanding of fish communities within these subarctic lakes, we aimed to: (a) characterize trophic dynamics of several large-bodied species within three HBL lakes and (b) determine whether trophic dynamics of selected species in the HBL lakes differed from the same species in Southern Ontario lakes. We found that species-specific trophic position and littoral resource reliance varied significantly within and among the HBL lakes of differing biological communities, chemistry and morphometry. Although several significant differences were evident among lakes in the northern and southern regions, we did not find striking consistent differences in trophic dynamics. Based on observations of high variation in trophic position and/or littoral reliance, we can hypothesize that changes in food resources resulting from climatic change would have little impact on most of the large-bodied species.
Undermining subsistence: Barren-ground caribou in a "tragedy of open access"	Parlee, B. L.; Sandlos, J.; Natcher, D. C.	10.1126/sciadv.1701611	https://www.science.org/doi/10.1126/sciadv.1701611	2/28/2018	EN	Mining; Food security; Cultural vitality; Wildlife and wildlife habitat; Species at risk	Sustaining arctic/subarctic ecosystems and the livelihoods of northern Indigenous peoples is an immense challenge amid increasing resource development. The paper describes a "tragedy of open access" occurring in Canada's north as governments open up new areas of sensitive barren-ground caribou habitat to mineral resource development. A growing body of science and traditional knowledge research points to the adverse impacts of resource development; however, management efforts have been almost exclusively focused on controlling the subsistence harvest of northern Indigenous peoples.
Understanding Mining Policy Drivers and Barriers in the Context of Climate Change Impacts and Adaptation	OCCAR, RSI		http://www.climateontario.ca/doc/p_ECCC/AP049_MIRARCO_RSI_Mining_Policy_Report-Final.pdf	2014	EN	Mining; Climate change	Assessment of the ability (and potential) of existing mining policy tools to enable or support climate change adaptation action, with specific focus on two policies and eight policy instruments relating to Tailings Design and Management and Closure Planning for Ontario mines. The assessment identified policy aspects that support climate change adaptation, hinder climate change adaptation or promote activities that are mal-adaptive in nature, and where policy tools have affected decision making with regard to climate change adaptation. Recommendations were also developed to increase the ability of mining policy tools to support climate change adaptation.
United Nations Declaration on the Rights of Indigenous Peoples Act	Department of Justice		https://laws-lois.justice.gc.ca/eng/acts/U-2.2/	11/27/2024	EN / FR	Indigenous Peoples; Treaty rights	An Act respecting the United Nations Declaration on the Rights of Indigenous Peoples
Updates on critical mining in Northern Ontario	Tollinksy, N		https://www.canadianminingjournal.com/featured-article/updates-on-critical-mining-in-northern-ontario/	2022	EN	Mining	The Northern Ontario mining industry is destined to play an important role in the province's critical minerals strategy as a supplier of nickel, cobalt, and lithium to southern Ontario's auto industry. Below is an update on the critical mineral operations ongoing in Northern Ontario.

Upper Albany River Watershed Region - Content Collection	Natural Resources Canada; Impact Assessment Agency of Canada		https://osdp-psdo.canada.ca/dp/en/search/metadata/NRCAN-ROF-1-2C82DC9C-FB7D-4B75-ACE6-E69F57B0EB45/metadata/NRCAN-ROF-1-5F183851-3814-4352-85B8-D292EDC2CCA1/metadata/NRCAN-ROF-1-0DAA735C-B358-41A2-B44B-EDB3CD905BFB	10/1/2023	EN / FR	Water and river systems; Upper Albany River; Fish and fish habitat	The Upper Albany Watershed Region is one of the five secondary watersheds in Northern Ontario surrounding the Ring of Fire, including: Winisk, Attawapiskat, Lower Albany, and Ekwan. In addition to the datasets found in this collection for this specific watershed region, further datasets may be found in the topic-based content collections for Northern Ontario that are Canada-wide. Consider searching the following content collections for information that covers a larger area and may include this watershed region: Air, Climate, Water, Economy and Industry, Land, and Biodiversity.
Use of traditional environmental knowledge to assess the impact of climate change on subsistence fishing in the James Bay Region of Northern Ontario, Canada	Hori, Y; Tam, B; Gough, W.A; Ho-Foong, E; Karagatzides, J.D.; Liberda, Eric N.; Tsuji, Leonard J.S.	10.22605/RRH1878	https://www.rrh.org.au/journal/article/1878	2012	EN	Climate change; Community health; Cultural vitality; Current use; Fish and fish habitat; Food security; Inter and intra generational values; Lower Albany River; Social and economic	<p>Introduction: In Canada, unique food security challenges are being faced by Aboriginal people living in remote-northern communities due to the impacts of climate change on subsistence harvesting. This study used traditional environmental knowledge (TEK) to investigate whether there was a temporal relationship between extreme climatic events in the summer of 2005, and fish die-offs in the Albany River, northern Ontario, Canada. Also, TEK was utilized to examine a potential shift in subsistence fish species distribution due to climate change.</p> <p>Methods: To investigate whether there was a temporal relationship between the fish die-offs of July 2005 (as identified by TEK) and an extreme climatic event, temperature and daily precipitation data for Moosonee weather station were utilized. To determine if there was an increasing trend in mean maximal summer temperatures with year, temperature data were examined, using regression analysis. Present-day fish distributions were determined using unpublished TEK data collated from previous studies and purposive, semi-directive interviews with elders and experienced bushman.</p> <p>Results: Fish die-offs in 2005 occurred during the time period 11-18 July, as reported by participants. Recorded air-temperature maxima of the two July 2005 heat waves delineate exactly the time period of fish die-offs. Two heat waves occurring during the same summer season and so close together has never before been recorded for this region. A highly significant ($p < 0.0009$) positive relationship between mean maximal summer temperatures and year was evident. Regionally novel fish species were not apparent, utilizing TEK.</p> <p>Conclusions: Traditional environmental knowledge coupled with climate data revealed temporal relationships between extreme climatic events in 2005, and fish die-offs in the Albany River. Thus, climate change can directly impact food security by decreasing the number of fish through mortality - and indirectly through population dynamics - by impacting the yield of fish subsistence harvests in the future. By contrast, TEK did not reveal northward expansion of novel fish species in the Albany River or fish distributional contraction in the western James Bay region.</p>
Use of Traditional Phenological Knowledge Indicators to Predict Lake Sturgeon Spawning Timing on the Seine River	Haines, Ryan		https://ijc.org/sites/default/files/36b_Seine_River_Sturgeon_Indicators_Report_for_Publication.pdf	2016	EN	Food security; Cultural vitality; Inter and intra generational values; Current use; Species at risk; Fish and fish habitat; Indigenous Peoples	Temperature and photoperiod are the two basic classes of environmental cues for phenological responses such as spawning fish. This study provided a comparison Traditional Phenological Knowledge (TPK) indicators identified by Seine River First Nation knowledge holders with photoperiod and water temperature as indicators for the lake sturgeon spawn in Seine River. To identify the lake sturgeon spawning timing; egg mats, underwater camera videography, and larval drift data was collected for the 2012 to 2015 field seasons. This spawning timing was compared to size of trembling aspen leaves and the presence of tiger swallowtail butterflies, two of the TPK indicators identified by Seine River First Nation knowledge holders. The results of this study indicate that observations of tiger swallowtail butterflies as a TPK environmental indicator is an effective tool for predicting the approximate timing of lake sturgeon spawning in the Seine River. While not as accurate as water temperature as a lake sturgeon spawning indicator, the presence of tiger swallowtail butterflies near Seine River would serve as an excellent indicator if water temperature data was not available.
Using tree ring analysis to determine impacts on a boreal peatland.	Bocking, E; Cooper, D.J.; Price, J.	10.1016/j.foreco.2017.08.007	https://www.sciencedirect.com/science/article/pii/S0378112717305005	2017	EN	Peatlands; Forests; Hydrology	Linear disturbances such as roads are common in areas of intensive resource development. When roads cross peatlands, they can interrupt natural hydrologic processes and alter vegetation composition and structure. Hydrological changes to a poor fen impacted by a road in northeastern Alberta were evaluated using tree rings of living and dead black spruce trees. All trees that were less than 83.5 cm above the road's single culvert died in 1989. The temporal uniformity of dieback suggested that a single inundation event caused the trees to drown. The inundation likely was caused by a culvert blocked by beavers, and indicates the critical role of hydrologic patterns and processes for controlling vegetation composition, including tree growth patterns and mortality. The disturbance of peatlands by roads could be reduced or eliminated by improving road designs to include multiple culverts that cannot easily be blocked by debris or beavers, or underdrain systems that create more natural surface and ground water flow patterns. In addition, regular inspection and maintenance could limit the negative effects of blocked point locations that can be dammed by beavers.
Utility Lines	Ontario Ministry of Natural Resources and Forestry		https://geohub.lio.gov.on.ca/datasets/mnrf::utility-line/about	1/29/2025	EN / FR	Infrastructure	Identifies utility lines in Ontario. This data set shows utility lines that provide services for: power, water, communications, and heating fuel.
Vegetation limits the impact of a warm climate on boreal wildfires	Girardin, M.P.; Ali, A.A.; Carcaillet, C; Blarquez, O; Hély, C; Terrier, A; Genies, A; Bergeron, Y.	10.1111/nph.12322	https://nph.onlinelibrary.wiley.com/doi/full/10.1111/nph.12322	2013	EN	Forests; Climate change	Assessment of the response of boreal wildfire activity to changes in vegetation and the strength of vegetation feedback to limit or amplify climatic changes on wildfires. Main finding is that an increasing broadleaf component to boreal landscapes may offset the increasing wildfire risks in needleleaf boreal forests under climate change and an increase in wildfire-prone climatic conditions. - Article abstract: Strategic introduction of less flammable broadleaf vegetation into landscapes was suggested as a management strategy for decreasing the risk of boreal wildfires projected under climatic change. However, the realization and strength of this offsetting effect in an actual environment remain to be demonstrated. Here we combined paleoecological data, global climate models and wildfire modelling to assess regional fire frequency (RegFF, i.e. the number of fires through time) in boreal forests as it relates to tree species composition and climate over millennial time-scales. Lacustrine charcoals from northern landscapes of eastern boreal Canada indicate that RegFF during the mid-Holocene (6000-3000 yr ago) was significantly higher than pre-industrial RegFF (AD c. 1750). In southern landscapes, RegFF was not significantly higher than the preindustrial RegFF in spite of the declining drought severity. The modelling experiment indicates that the high fire risk brought about by a warmer and drier climate in the south during the mid-Holocene was offset by a higher broadleaf component. Our data highlight an important function for broadleaf vegetation in determining boreal RegFF in a warmer climate. We estimate that its feedback may be large enough to offset the projected climate change impacts on drought conditions.
Victor diamond Project, Comprehensive Study Report	De Beers Canada Inc.		https://www.ceaa.gc.ca/80C30413-docs/report_e.pdf	2004	EN	Mining; Physical and cultural heritage; Sustainability; Hydrology; Indigenous Peoples	The Victor Diamond Project (VDP) was an open pit diamond mine built by De Beers Canada Inc. (De Beers) approximately 90 kilometres west of Attawapiskat, Ontario. In February 2004, the Responsible Authorities, in consultation with, other federal departments and agencies, First Nations, and other parties, developed guidelines for the comprehensive study review process.
Victor Mine Extension Project	AMEC Environment & Infrastructure		https://iaac-aeic.gc.ca/050/documents/p80043/89724E.pdf	2013	EN	Economic development and livelihoods; Fish and fish habitat; Hydrology; Infrastructure; Mining; Public; Social and economic; Species at risk; Treaty rights; Water and river systems	An examination of the environmental effects of an extension to the Victor Mine Project, including the physical, biological, and human environment. Hydrology, hydrogeology, surface water quality, and groundwater quality effects from mining activities are estimated based on previous monitoring data and environmental changes from the existing Victor Mine. De Beers submitted a Comprehensive Study Environmental Assessment Report (CSEA) report in March 2004. As part of the comprehensive study, information sessions, meetings and consultations with communities were conducted. Based on the information obtained through the comprehensive study, the RAs were able to reach conclusions about the likelihood and significance of the environmental effects of the Victor Diamond Project. This Comprehensive Study Report contains information on the project, the environmental effects of the project, how De Beers plans to reduce the negative environmental effects of the project, how the RAs and De Beers will monitor the environmental effects of the Project, and how the project will be closed and the land rehabilitated.
Views of Aboriginal People in Northern Ontario on Ontario's approach to Aboriginal Values in forest management planning	Sapic, T; Runesson, U; Smith, M.A.		https://pubs.cif-ffc.org/doi/pdf/10.5558/ffc85789-5	2009	EN	Forests; Food security; Physical and cultural heritage; Cultural vitality; Treaty rights; Traditional processes for deliberation; Indigenous Peoples	Qualitative research through focus groups and semi-structured interviews was conducted with members of 6 northern Ontario Aboriginal communities to obtain their views on how to define and protect Aboriginal values during forest management. Landscape visualization models were used for forest management scenario illustrations. Research results show that: (1) Aboriginal people take an all-encompassing view when discussing Aboriginal values; (2) some of the terminology used in forest management planning regarding Aboriginal values can be confusing to Aboriginal people; and (3) individual Aboriginal values are sometimes spatially defined as more than the physical objects that represent them. One of the conclusions of the research is that Ontario forest management planning needs a separate guide on defining and protecting Aboriginal values.

Vulnerability assessment of peatland complexes in the Hudson Plains (Ontario, Canada) to permafrost-thaw-induced landcover and hydrological change using a multiscale approach	Mack, Mikhail; Quinton, William; McLaughlin, James; Hopkinson, Christopher	https://doi.org/10.1002/eco.2554	https://onlinelibrary.wiley.com/doi/10.1002/eco.2554	2023	EN	Peatlands; Climate change; Hydrology; Land cover	The Hudson Plains, Canada, is one of the largest, undisturbed peatland regions (370,000*km2) in the world. Air temperature in the Hudson Plains is increasing rapidly leading to unprecedented permafrost thaw. The region's remoteness has hindered our knowledge of how permafrost thaw alters peatland land cover and hydrological response at multiple scales. To assess which landscapes in the Hudson Plains are vulnerable to such disturbances, we analysed latitudinal distributions of land cover over a 300-km transect spanning the sporadic (<30% areal) to continuous (>80% areal) permafrost zone in northern Ontario and quantified land cover changes over 40*years using multiple remote sensing datasets (lidar, air photographs, and high-resolution satellite imagery). We then evaluated these landscapes at a fundamental hydrological unit, the peatland complex, identified five peatland complex types, and conceptualized their potential hydrological response using circuitry analogues. Over four decades, we found that permafrost peatlands declined by 4%, 8.5%, and 2% areal in the sporadic, discontinuous, and continuous permafrost zones, respectively. Circuitry analogues partitioned peatland complexes into their component peatland forms (e.g., permafrost peatland, bog, and fen) and represented each component's hydrological function using an electrical equivalent (e.g., generator, switch, and conductor). When interpreted at the landscape scale, circuitry analogues demonstrated latitudinal patterns in landscape structure (i.e., circuitry wiring) and indicated where permafrost thaw will have the greatest impact on landscape structure (i.e., rewiring) and therefore hydrological response. Based on these analyses, we suggest a 60-km latitudinal segment (54.5°N to 54.9°N) where peatland complexes are most vulnerable to permafrost-thaw-induced land cover and hydrological change and should therefore be the focus of future research and monitoring efforts.
Boil Water Advisories	Indigenous Services Canada		https://open.canada.ca/data/en/dataset/eeaf1efa-d124-4ddc-b1fc-66ae8fd52482	1/6/2026	EN / FR	Community health; Community safety; Water and river systems	The Boil water advisories indicators provide an overview of the main reasons why boil water advisories are issued in Canada and also report on the relationship between community size and the percentage of boil water advisories issued each year. Drinking water advisories are public health protection messages issued by public health or regulatory authorities. The advisories inform those impacted about actions they should take to protect themselves from real or potential health risks related to their drinking water supply. Information is provided to Canadians in a number of formats including: static and interactive maps, charts and graphs, HTML and CSV data tables and downloadable reports. See the supplementary documentation for the data sources and details on how the data were collected and how the indicator was calculated.
Water Surface Evaporation over Canada's Landmass	Government of Canada; Natural Resources Canada; Canada Centre for Mapping and Earth Observation		https://open.canada.ca/data/en/dataset/7a600d2a-6a0f-4dd5-bb4c-71ffe17b9ca	10/29/2024	EN / FR	Water and river systems	The datasets contain water surface evaporation (PET, in mm of H2O) over Canada's landmass at a spatial resolution of 10-km and temporal intervals of a month and a year over a 24-year period of 2000-2023. The PET was produced by the Land Surface Model EALCO (Ecological Assimilation of Land and Climate Observations) developed at Natural Resources Canada. The PET algorithm in EALCO integrates the dynamic surface evolutions of liquid water, ice, and snow-on-ice for a waterbody into the Penman Equation. The PET was simulated at a daily time step. The monthly (or annual) PET in the datasets is the sum of the daily PET values in a month (or a year). Dew and frost formations simulated by EALCO are included in the PET as negative values, so the PET represents the net water flux between water surface and the atmosphere. Details of the dataset and the EALCO PET modelling algorithms can be found in Li, Wang, and Li (2020, Spatial variations and long-term trends of potential evaporation in Canada. Scientific Reports, 10: 22089, doi.org/10.1038/s41598-020-78994-9).
Water Well Information System	Ministry of Environment, Conservation, and Parks		https://data.ontario.ca/dataset/well-records	2024	EN / FR	Community health; Hydrology; Water and river systems	This dataset provides information submitted by well contractors as prescribed by Regulation 903, and is stored in the Water Well Information System (WWIS). Spatial information for all of the well records reported in Ontario are also provided.
Waterfowl Population Status, 2024	U.S. Fish and Wildlife Service		https://www.fws.gov/sites/default/files/documents/2024-08/waterfowl-population-status-report-2024.pdf	8/20/2024	EN	Wildlife and wildlife habitat; Migratory birds; Avifauna	In the United States, the process of establishing hunting regulations for waterfowl is conducted annually. This process involves a number of scheduled meetings in which information regarding the status of waterfowl is presented to individuals within the agencies responsible for setting hunting regulations. In addition, the proposed regulations are made available for public comment. This report includes the most current breeding population and production information available for waterfowl in North America and is a result of cooperative efforts by the U.S. Fish and Wildlife Service (USFWS), the Canadian Wildlife Service (CWS), various state and provincial conservation agencies, and private conservation organizations. In addition to providing current information on the status of populations, this report is intended to aid the development of waterfowl harvest regulations in the United States for the 2025–2026 hunting season.
Webeque First Nation Position Paper (Ring of Fire)	Webeque First Nation		https://republicofmining.com/2011/11/23/webeque-first-nation-wfn-position-paper-ring-of-fire-november-23-2011/	2011	EN	Community safety; Community health; Social and economic; Traditional processes for deliberation; Current use; Indigenous Peoples; Infrastructure	Webeque First Nation's position on the Ring of Fire area and the need for engaging and consulting directly with the first nation. Webeque First Nation (WFN) re-affirms that it has a right to determine its own community-based processes, community-driven initiatives, and community-led negotiations with commercial entities as well as with the different levels of government as its relates to the traditional, historic, ancestral, and customary areas of Webeque First Nation. This right is supported by the Canadian legal framework, the WFN Consultation Protocol, the WFN Lands & Resource Policy, and WFN Members.
Webeque Supply Road Environmental Assessment Terms of Reference. Chapter 6 - Existing Environmental Conditions	SNC-Lavalin		https://www.supplyroad.ca/wp-content/uploads/2020/08/WSR-ToR-Sections-6-8.pdf	2020	EN	Air quality; Attawapiskat River; Avifauna; Community health; Current use; Ekwon River; Fish and fish habitat; Forests; Geology; Housing and infrastructure; Hydrology; Indigenous Peoples; Infrastructure; Migratory birds; Social and economic; Species at risk; Water and river systems; Winisk River	This section describes the existing environmental conditions in the project area (refer to Figure 1.1) and the proposed approach to data collection to develop a fulsome understanding of the existing (or baseline) natural, socio-economic and cultural conditions for the Project. The EA will adopt a multi-scale approach for describing existing environmental conditions and predicting effects from the Project. As such, study areas will be used to define the geographic extent within which to capture the potential direct and indirect effects of the Project.
Webeque Supply Road: Detailed Project Description	SNC-Lavalin Inc.		https://aac-aeic.gc.ca/050/documents/p80183/133147E.pdf	2019	EN	Air quality; Avifauna; Climate change; Community health; Cultural vitality; Cumulative effects; Economic development and livelihoods; Fish and fish habitat; Geology; Housing and infrastructure; Hydrology; Indigenous Peoples; Infrastructure; Inter and intra generational values; Migratory birds; Physical and cultural heritage; Social and economic; Species at risk; Traditional processes for deliberation; Treaty rights; Water and river systems; Wildlife and wildlife habitat	This Detailed Project Description for the Webeque Supply Road Project ("the Project") has been prepared in accordance with subsection 15(1) of the Impact Assessment Act ("IAA") and Schedule 2 of the Act's Information and Management of Time Limits Regulations of the Impact Assessment Act. The Detailed Project Description provides essential information about the project's main components and potential changes to the environment that are anticipated if the Project is implemented as proposed. It also provides responses to project related issues identified by both the Agency and Webeque First Nation, as project proponent, during the Planning phase of the impact assessment process; and proposals as to how Indigenous groups, government agencies, the public, stakeholders and other interested parties will be engaged and consulted to address those issues and meet IAA requirements during the upcoming Impact Statement phase.
Wetland Mitigation Options for Project Developments in Far Northern Ontario: An Annotated Bibliography	Campbell, Daniel; Rochefort, Line		https://www.birchbarkenvir.com/_files/ugd/76d9af_6e4c7042edd449d9bba930e06600a9062.pdf	3/31/2025	EN	Forests; Hydrology; Migratory birds; Peatlands; Species at risk	This report presents and summarizes an annotated bibliography on the options to mitigate impacts on wetlands for proposed mining project developments in the Ring-of-Fire region in the far north of Ontario. The report and the bibliography were developed for the Priority Species Unit of the Ontario Region of the Canadian Wildlife Service (CWS-ON).
WETLAND RESOURCES: Status, Trends, Ecosystem Services, and Restorability	Zedler, Joy B.; Kercher, Suzanne	https://doi.org/10.1146/annurev.energy.30.050504.144248	https://www.annualreviews.org/content/journals/10.1146/annurev.energy.30.050504.144248	2005	EN	Peatlands; Biodiversity; Not public	Estimates of global wetland area range from 5.3 to 12.8 million km2. About half the global wetland area has been lost, but an international treaty (the 1971 Ramsar Convention) has helped 144 nations protect the most significant remaining wetlands. Because most nations lack wetland inventories, changes in the quantity and quality of the world's wetlands cannot be tracked adequately. Despite the likelihood that remaining wetlands occupy less than 9% of the earth's land area, they contribute more to annually renewable ecosystem services than their small area implies. Biodiversity support, water quality improvement, flood abatement, and carbon sequestration are key functions that are impaired when wetlands are lost or degraded. Restoration techniques are improving, although the recovery of lost biodiversity is challenged by invasive species, which thrive under disturbance and displace natives. Not all damages to wetlands are reversible, but it is not always clear how much can be retained through restoration. Hence, we recommend adaptive approaches in which alternative techniques are tested at large scales in actual restoration sites.
Wetlands as long-term sources of metals to receiving waters in mining-impacted landscapes	Szkokan-Emilson, E.J.; Watmough, S.A.; Gunn, J.M.	https://doi.org/10.1016/j.envpol.2014.05.009	https://www.sciencedirect.com/science/article/pii/S0269749114001973	2014	EN	Mining; Water and river systems; Hydrology	Wetlands are prevalent in the Sudbury, Ontario region and often operate at the interface between terrestrial and aquatic ecosystems, modifying water chemistry and potentially affecting the recovery of impacted lakes. The deposition of metals and sulphur in Sudbury in 2010–2012 was far below that reported in the 1970's, but still higher than background values. Wetlands in the area have accumulated large quantities of metals, and high concentrations of these metals in streams occurred primarily in response to SO4-related acidification events or associated with high dissolved organic carbon production in early summer. Concentrations of most metals in streams exceeded provincial guidelines and fluxes of some metals from catchments exceeded deposition inputs to lakes by as much as 12 times. The release of metals long after emissions reductions have been achieved must be considered in ecosystem recovery studies, particularly as dry conditions may become more prevalent in boreal regions affected by mining.

What's at stake in Ontario's Ring of Fire	Gamble, J.	https://www.canadiangeographic.ca/article/whats-stake-ontarios-ring-fire	2017	EN	Mining; Cumulative effects; Family, youth, and children; Food security; Physical and cultural heritage; Cultural vitality; Treaty rights; Inter and intra generational values; Wildlife and wildlife habitat; Fish and fish habitat; Indigenous Peoples; Infrastructure	Online article that discusses the existing conditions of the Ring of Fire and potential impacts of mining operations. David Paul Achneepineskum, CEO of Mattawa First Nations Management discusses how his people still live off the land and rely on it for food, medicine, and shelter.
Wild Rivers: James Bay and Hudson Bay	Parks Canada	http://parkscanadahistory.com/series/wild-rivers/james-hudson-bays-e.pdf	1977	EN	Attawapiskat River; Physical and cultural heritage; Water and river systems	Overview of the Attawapiskat River. Because of the difficulty involved in navigating the river, it never became an important artery of trade. At the confluence of the Missisa and Attawapiskat Rivers lies an abandoned Hudson's Bay Company post.
Wildfire hotspots	Government of Canada; Environment and Climate Change Canada; Meteorological Service of Canada	https://gc.geo.gc.ca/geonetwork/metadata/eng/574c32daba7-4919-9c9f-c58398754173	1/20/2022	EN / FR	Air quality	Hotspots are locations where wildfires are actively burning, identified from infrared satellite imagery. Hotspot locations are provided by NASA and NOAA, and further processed by Natural Resources Canada's Canadian Wildland Fire Information System. This layer contains the hotspots that are selected to be used as input for the Regional Air Quality Deterministic Prediction System FireWork (RAQDPS-FW) to enable forecasting air quality while taking into account wildfire emissions. Geographical coverage is Canada and the United States. The products are presented as historical annual compilations which highlight long-term trends in cumulative effects on the environment.
Wildland fire risk research in Canada	Johnston, L.M.; Wang, X; Ermi, S; Taylor, S.W.; McFayden, C.B.; Oliver, J.A.; Stockdale, C; Christianson, A; Boulanger, Y; Gauthier, S; Arseneault, D; Wotton, B.M.; Parisien, M.-A.; Flannigan, M. D.	10.1139/er-2019-0046 http://dx.doi.org/10.1139/er-2019-0046	2020	EN	Forests; Climate change	Despite increasing concern about wildland fire risk in Canada, there is little synthesis of knowledge that could contribute to the development of a comprehensive risk framework for a wide range of values, which is an essential need for the country. With dramatic variability in costs and losses from this natural hazard, there must be more support for complex decision-making under the uncertainty of how to assess and manage risk to coexist with wildland fire. A long history of Canadian wildland fire research offers solid foundational knowledge related to risk, but the key knowledge gaps must be addressed to fully consider risk in a comprehensive manner. We provide a review of the current context in which risk is variably defined, and recommend use of the general paradigm where risk is the product of both the likelihood and the potential impacts of wildland fire. We then synthesize research related to wildland fire risk from the Canadian scientific literature. With this review, we aim to provide a better understanding of research challenges, limitations, and opportunities for future work on fire risk within the country.
Wildlife Concentration Areas	Ministry of Natural Resources and Forestry	https://geohub.llo.gov.on.ca/documents/llo::wildlife-concentration-area-occurrence/about?path=	2019	EN / FR	Wildlife and wildlife habitat	To record occurrences of provincially tracked wildlife concentration areas that are of interest to the NHIC. Often used for by conservation practitioners and for Forest/Municipal/Land Use Planning. Species at Risk (SAR) Legislation, Planning Act, Crown Forest Sustainability Act, Draft Protection and Distribution of Provincially Tracked Species Data Policy.
Wildlife Harvesting and Sustainable Regional Native Economy in the Hudson and James Bay Lowland, Ontario	Berkes, F.; George, P. J.; Preston, R. J.; Hughes, A.; Turner, J.; Cummins, B. D.	https://www.istor.org/stable/40511596	1994	EN / FR	Attawapiskat River; Cultural vitality; Current use; Diverse economies and livelihoods; Food security; Inter and intra generational values; Lower Albany River; Moose River; Public; Social and economic; Species at risk; Sustainability; Treaty rights; Upper Albany River; Wildlife and wildlife habitat; Winisk River	To assist the Omushkego Cree in planning a community and regional economic development strategy that takes into account the traditional economy, we developed appropriate methodologies to investigate the quantitative importance and economic value of hunting and fishing for the Mushkegowuk region, Hudson and James Bay Lowland. Harvests of wildlife by the 6500 aboriginal residents of eight communities? Moose Factory, Moosonee, New Post, Fort Albany, Kashechewan, Attawapiskat, Peawanuck and Fort Severn? were estimated by means of a questionnaire study. A total of 925 persons were interviewed for 56% coverage in a stratified sampling design. Four species (moose, Canada goose, caribou, lesser snow goose) accounted for about two-thirds of the 1990 bush food harvest of 687 000 kg, the equivalent of 402 g meat or 97 g protein per adult per day. The replacement value of the bush food harvested in the region was about \$7.8 million in 1990. Including other products of the land (fur, fuel wood, berries), the total value of the traditional economy, \$9.4 million for the region or \$8400 per household per year, was about one-third as large as the total cash economy. The results show that the traditional economy is a cornerstone of the regional mixed economy, and that such a mixed economy may persist as a culturally and environmentally sustainable base for the region. // Dans le but d'aider les Cris Omushkego a planifier une strategie de developpement economique communautaire et regional qui tienne compte de l'economie traditionnelle, on a mis au point des methodologies appropriees permettant d'enqueter sur l'importance quantitative et sur la valeur economique de la chasse et de la peche pour la region de Mushkegowuk, dans les basses-terres de la baie d'Hudson et de la baie James. Une etude faite a l'aide d'un sondage a permis d'evaluer le nombre de prises d'animaux par les 6500 autochtones habitant les huit communes de Moose Factory, Moosonee, New Post, Fort Albany, Kashechewan, Attawapiskat, Peawanuck et Fort Severn. Un total de 925 personnes ont ete interviewees formant 56 p. cent d'un plan d'echantillonnage stratifie. Quatre especes (l'original, la bernache du Canada, le caribou et la petite oie blanche) comptaient pour environ les deux tiers des prises provenant de la nature au cours de l'annee 90. Le poids de ces prises etait de 687 000 kg, soit l'equivalent quotidien de 402 g de viande ou de 97 g de proteine par adulte. La valeur de remplacement de la nourriture tiree de la nature dans la region etait d'environ 7,8 millions de dollars en 1990. Si l'on inclut les autres produits de la nature (fourrure, bois de feu, baies), la valeur totale de l'economie traditionnelle ?9,4 millions de dollars pour la region Outer 8400 dollars annuels par foyer? Equivalait a environ un tiers de l'economie monetaire totale. Les resultats montrent que l'economie traditionnelle est un pilier de l'economie mixte regionale et que cette derniere peut persister en tant qu'assise durable sur le plan culturel et environnemental pour la region.
Wildlife Values Sites	Government of Ontario	https://osdp-psdo.canada.ca/dp/en/search/metadata/NRCAN-ROF-1-5F183851-3814-4352-85B8-D292EDC2CCA1/metadata/NRCAN-FQP-1-7da4ce6d-4c7a-4eee-8206-3062c46750f3	6/15/2020	EN / FR	Wildlife and wildlife habitat; Species at risk	The wildlife values area and site datasets represent the consolidation of 13 wildlife data classes collected by the Ministry of Natural Resources. The data estimates locations used by wildlife for various reasons, including: * breeding * calving and fawning * denning * feeding * staging * nesting * wintering * general habitat areas * nurseries * travel corridors Locations are represented as points (site) or polygons (area) and may be related to a specific species or described more generally. Wildlife values data is most often used to support policy and legislation associated with the Crown Forest Sustainability Act. The data may also be used to inform a wide range of resource management activities and decisions. There are additional sensitive features related to provincially tracked species and species at risk that are not available as part of the open data package. Sensitive features are subject to licensing and approvals and may be requested by contacting [geospatial@ontario.ca][geospatial@ontario.ca].
Wings over water: Canada's waterbird conservation plan	Milko, R; Dickson, L; Elliot, R; Donaldson, G	https://publications.gc.ca/site/eng/463390/publication.html	2003	EN	Migratory birds; Species at risk; Public	Wings Over Water (WOW), Canada's Waterbird Conservation Plan, outlines the steps needed to conserve the broad array of species of seabirds, inland colonial waterbirds, marshbirds and other water-related species that are addressed in this plan. Of the 93 species covered by the plan, 30% show negative population trends while another 10% are not well enough known to determine their trend.
Winisk River Provincial Park Management Statement	Ministry of the Environment, Conservation and Parks	https://www.ontario.ca/page/winisk-river-provincial-park-management-statement	1991	EN	Forests; Physical and cultural heritage; Current use; Water and river systems; Winisk River; Fish and fish habitat; Indigenous Peoples	This document provides policy direction for the protection, development and management of Winisk River Provincial Park and its resources.
Winisk Watershed Region - Content Collection	Natural Resources Canada; Impact Assessment Agency of Canada	https://osdp-psdo.canada.ca/dp/en/search/metadata/NRCAN-ROF-1-2C82DC9C-FB7D-4B75-ACE6-E69F57B0EB45/metadata/NRCAN-ROF-1-5F183851-3814-4352-85B8-D292EDC2CCA1/metadata/NRCAN-ROF-1-74C6FBC0-CD06-4E65-83ED-FD8819FCB675	10/1/2023	EN / FR	Fish and fish habitat; Water and river systems; Winisk River	The Winisk Watershed Region is one of the five secondary watersheds in Northern Ontario surrounding the Ring of Fire, including: Attawapiskat, Upper Albany, Lower Albany, and Ekwan. In addition to the datasets found in this collection for this specific watershed region, further datasets may be found in the topic-based content collections for Northern Ontario that are Canada-wide. Consider searching the following content collections for information that covers a larger area and may include this watershed region: Air, Climate, Water, Economy and Industry, Land, and Biodiversity.
Wolverine (Species at Risk Webpage)	Ministry of the Environment, Conservation and Parks	https://www.ontario.ca/page/wolverine	12/17/2021	EN / FR	Wildlife and wildlife habitat; Species at risk	Provide information on the status of the wolverine (e.g., endangered or threatened), general life history and a place to direct the general public or Proponents for further information regarding the species (e.g., Recovery Strategies, Government Response Statements, etc.)

Wolverine Database Project	Ministry of Natural Resources and Forestry, Science and Research Branch	Held by Ministry of Natural Resources and Forestry, Science and Research Branch	2014	EN	Not public; Species at risk; Wildlife and wildlife habitat	This project provides a baseline level of information (on the wolverine resource in the Far North and adjacent lands by compiling information from various sources such as: <ul style="list-style-type: none"> Information from aerial track surveys from the initial work of the Boreal Wolverine Project [partnership between MNRF, The Wolverine Foundation, Inc. (TWF), and Wildlife Conservation Society Canada (WCSC)] in 2003 through the Far North caribou/wildlife surveys (2009 – 2012) and additional aerial surveys by MNRF and WCSC. Collated information on wolverine trapping events up to 2009 (after which the season was closed) and known incidental wolverine harvest since then. Collated information from wolverine camera trapping projects conducted by MNRF – NWSI (2001-2002); Boreal Wolverine Project (2003-2004) and Red Lake District (2009). Wolverine telemetry data from the Boreal Wolverine Project (2003-2004). Information has been used to inform the provincial wolverine recovery strategy, 2014 COSEWIC wolverine status update report, and recent peer-reviewed literature (Ray et al. 2018). Shared information via community visits in Kitchenuhmaykoosib Inninuwug, Cat Lake and Webequie First Nations. Shared data for various planning activities in the Far North, including community land use planning and various development proposals
Wolverine Genetics Project	Ministry of Natural Resources and Forestry Science and Research Branch	Held by Ministry of Natural Resources and Forestry, Science and Research Branch	2010	EN	Wildlife and wildlife habitat	Three peer-reviewed journal articles published estimating levels of genetic variation relative to other North American wolverine populations. Information has been used to inform the provincial wolverine recovery strategy and the recent COSEWIC wolverine status update report. Shared information via community visits in Kitchenuhmaykoosib Inninuwug, Cat Lake and Webequie.
Wolverine government response statement	Ministry of the Environment, Conservation and Parks	https://www.ontario.ca/page/wolverine-government-response-statement	4/29/2022	EN / FR	Wildlife and wildlife habitat; Species at risk	Ontario's policy direction for the protection and recovery of Wolverine.
Wolverine Recovery Strategy	Ministry of the Environment, Conservation and Parks	https://www.ontario.ca/page/wolverine-recovery-strategy	4/12/2022	EN	Wildlife and wildlife habitat; Species at risk	This document provides a summary of the recovery strategy for the Wolverine, which advises the ministry on ways to ensure healthy numbers of the species return to Ontario.
Wood chip overburden reclamation in peatland	Bird, M.; Bin, X; Goehing, J; Brown, C	https://www.cclmport.ca/resource/wood-chip-overburden-reclamation-peatland	2016	EN	Peatlands; Hydrology	Thick wood chips on a temporary access road through a peatland provided a unique operational opportunity to test an adaption of the peat inversion process. The thick layer of wood chips prevented natural revegetation of the road, even though surrounding chemistry and hydrology were minimally affected by their presence. This technical note describes the process of excavating and burying wood chips beneath decompacted peat and the restoration of a suitable peat surface substrate to facilitate natural revegetation.
Woodland Caribou (Rangifer tarandus caribou) in the Far North of Ontario: Background information in support of land use planning	Berglund, Nancy; RaceyAbraham, G; Brown, G; Pond, B; Walton, Lyle	https://www.researchgate.net/publication/294880287_Woodland_caribou_Rangifer_tarandus_caribou_in_the_Far_North_of_Ontario_Background_information_in_support_of_land_use_planning	2014-01	EN	Forests; Wildlife and wildlife habitat; Species at risk	A technical report that describes the distribution and movement patterns of caribou in the Far North, how Ontario managers might differentiate between the two boreal woodland caribou ecotypes and use this information to refine the current ecotype boundary, population dynamics for caribou in the Far North, general habitat use patterns including apparent behaviours exhibited during the calving season, and insight into caribou ecology and management based on the results of the Far North Caribou Project.
Woodland Caribou Conservation Plan	Ministry of the Environment, Conservation and Parks	https://www.ontario.ca/page/woodland-caribou-conservation-plan	10/13/2009	EN / FR	Forests; Wildlife and wildlife habitat; Species at risk	Learn about our plan for the protection and recovery of the Woodland Caribou.
Woodland Caribou Extirpation and Anthropogenic Landscape Disturbance in Ontario	Vors, Liv S.; Schaefer, James A.; Pond, Bruce A.; Rodgers, Arthur R.; Patterson, Brent R.	10.2193/2006-263 https://wildlife.onlinelibrary.wiley.com/doi/10.2193/2006-263	2007	EN	Forests; Infrastructure; Mining; Species at risk; Wildlife and wildlife habitat	The decline of woodland caribou (Rangifer tarandus caribou) has been attributed to anthropogenic landscape disturbances, but critical distance thresholds and time lags between disturbance and extirpation are unknown. Using a database of caribou presence and extirpation for northern Ontario, Canada, geo-coded to 10 times 10-km cells, we constructed logistic regression models to predict caribou extirpation based on distance to the nearest of each of 9 disturbance types: forest cutovers, fires, roads, utility corridors, mines, pits and quarries, lakes, trails, and rail lines. We used Akaike's Information Criterion to select parsimonious models and Receiver-Operating Characteristic curves to derive optimal thresholds. To deal with the effects of spatial autocorrelation on estimates of model significance, we used subsampling and restricted randomizations. Forest cutovers were the best predictor of caribou occupancy, with a tolerance threshold of 13 km to nearest cutover and a time lag of 2 decades between disturbance by cutting and caribou extirpation. Management of woodland caribou should incorporate buffers around habitat and requires long-term monitoring of range occupancy.
Woodland caribou range occupancy in northwestern Ontario: past and present	Racey, G; Armstrong, T.	https://doi.org/10.7557/2.20.5.1643 https://septentrio.uit.no/index.php/rangifer/article/view/1643	2000	EN	Forests; Wildlife and wildlife habitat; Species at risk	A zone of continuous woodland caribou (Rangifer tarandus caribou) distribution is defined for northwestern Ontario. This zone establishes a benchmark for measuring the success of future management of habitat and conservation of populations. Inventory of key winter, summer and calving habitats reaffirms the concept of a dynamic mosaic of habitat tracts that supports caribou across the landscape. The historical range recession leading to this current distribution has been associated with resource development, fire and hunting activities over the past 150 years, and numerous attempts at conservation over the last 70 years. The decline was apparently phased according to several periods of development activity: i) early exploitation in the early to mid-1800s; ii) isolation and extirpation of southern populations due to rapid changes in forest use and access between 1890 and 1930; and iii) further loss of the southernmost herds due to forest harvesting of previously inaccessible areas since the 1950s. Lessons learned from history support current conservation measures to manage caribou across broad landscapes, protect southern herds, maintain caribou habitat as part of continuous range, maintain large contiguous tracts of older forest and ensure connectivity between habitat components.
Woodland Caribou, Boreal Population, Trends in Canada. Canadian Biodiversity: Ecosystem Status and Trends 2010	Callaghan, C; Virc, S; Duffe, J	https://publications.gc.ca/site/eng/9.694608/publication.html	2011	EN	Biodiversity; Wildlife and wildlife habitat; Species at risk; Public	
Yellow Rail (Species at Risk Webpage)	Ministry of the Environment, Conservation and Parks	https://www.ontario.ca/page/yellow-rail	8/12/2021	EN / FR	Migratory birds; Avifauna; Species at risk	Provide information on the status of the Yellow Rail (e.g., endangered or threatened), general life history and a place to direct the general public or Proponents for further information regarding the species (e.g., Recovery Strategies, Government Response Statements, etc.)
Keenebonanoh Keemoshaminook Kaese Peemishikhik Odaskiwakh - [We Stand on the Grace of Our Ancestors] Native Interpretations of Treaty #9 With Attawapiskat Elders	Jacqueline Hookimaw-Witt	https://www.collectionscanada.gc.ca/obj/s4/f2/dsk2/tape15/PODD_0016/MQ30219.pdf	5/1/1998	EN	Cultural vitality; Indigenous Peoples; Inter and intragenerational values; Physical and cultural heritage; Treaty rights	This thesis tries to make aware that in relations between people from different cultures 'facts' cannot be interpreted as such by merely referring to a set of values based in one of the two societies. Instead, knowledge and understanding as interpreted by Native societies have to be considered as well. In regards to the interpretations of treaty #9, I present the view of the Cree people of Attawapiskat, gathered in interviews among elders, political leaders and professionals in the community. Using the interpretations of the way of life by the elders of the community as a bridge to the time when the treaty was signed, this thesis explains why the people of Attawapiskat understand that land was never given up with the signing of the treaty, and that a surrender of land could not have happened due to the people's relations to the land that was given to them by Kitché Mando.
Canadian Arctic and Subarctic Shallow Marine Communities in Hudson and James Bay: Scientific Report from the 2022 National Geographic Pristine Seas Expedition	National Geographic Pristine Seas	https://drive.google.com/file/d/1HzjhiaYfEwAqmwG7SnPPNpMGrcrwl-y/view?usp=sharing	2024	EN	Fish and fish habitat; Western James Bay	Indigenous leadership and governments from First Nations and Inuit communities living along the shores of Hudson Bay and James Bay have identified areas for consideration under Indigenous-led marine protection. To support this vision, National Geographic Pristine Seas partnered with 10 Indigenous governance organizations, Oceans North, and the Government of Canada to conduct an unprecedented scientific and cinematographic expedition to document the unexplored shallow marine environments surrounding Hubbard Point in the Western Hudson, Arvilitt (Ottawa) Islands in Eastern Hudson Bay, and the Mushkegowuk and Eeyou Marine Regions within James Bay (Figure 1). This ambitious expedition was logistically complex given the number of Indigenous and non-Indigenous regions visited and the involvement of multiple community and regional governments required to make this expedition successful.
Tawich is Where I Belong: A DRAFT Feasibility Assessment for the Proposed Mushkegowuk National Marine Conservation Area in western Weeneebeg and southwestern Washaybeyoh	Mushkegowuk Council	https://mushkegowuk.ca/wp-content/uploads/2025/02/Tawich-Is-Where-I-Belong.pdf	2023	EN	Current use; Fish and fish habitat; Food security; Indigenous Peoples; Inter and intra generational values; Migratory birds; Traditional processes for deliberation; Water and river systems	The proposed Mushkegowuk National Marine Conservation Area (NMCA) is an Indigenous-led effort to permanently protect Washaybeyoh (Hudson Bay) and Weeneebeg (James Bay), along with a 20-km coastal buffer, known collectively as Aski-Gitchi Bayou (the place where "the land expands out into the waters"). With a study area spanning more than 91,000 sq km, this protected area will help fulfill the long-standing calls from Omushkego communities, as well as Weenusk (Peawanuck) First Nation and Fort Severn First Nation, to safeguard the lands and waters while protecting our inherent and Treaty rights.