

Environment and Climate Change Canada Response to FAAR Request – Ring of Fire Regional Assessment
Updated November 20, 2023

Attachments:

- ECCC-2023 RoF FAAR Update-Wildlife related funding.xlsx
- ECCC-2023 RoF FAAR Update-WildlifeDataSetsWithinProposedBoundary.xlsx
- ECCC-2023 RoF FAAR Update-AdditionalDataSets.xlsx

	FAAR Questions	Response
PART I	Include any relevant information on associated Indigenous, public or other consultation or engagement activities or projects/activities and identify any partners or collaborations	
1.	Area(s) of expertise and ECCC mandate in relation to the regional assessment	<p>Wildlife and Habitat:</p> <ul style="list-style-type: none"> • Migratory birds, their nests, eggs, and habitat • Species at risk, their habitat and critical habitat including recovery strategies and action plans for “endangered,” “threatened,” and “extirpated” species; management plans for species “of special concern” • Ecological function of wetlands • Invasive species • Ecotoxicological impacts/ecological risk assessment of contaminants of concern and effects on biota • Wildlife Environmental emergency advice and guidance in relation to possible accidents and malfunctions involving unplanned or uncontrolled releases or spills of Hazardous substances to the environment having a potential to result? in adverse effects to Migratory Birds and <i>Species at Risk Act</i>-listed species under ECCC’s jurisdiction <p>Air quality:</p> <ul style="list-style-type: none"> • Ambient air quality • Sources of emissions • Emissions estimation and measurement • Atmospheric transportation • Mitigation measures • Transformation and dispersion modeling • Air Quality policies and regulations Follow-up monitoring • Air quality modelling expertise at a regional scale <p>Water quality and quantity:</p> <ul style="list-style-type: none"> • Surface water quality insofar as it could affect fish and fish habitat – water quality predictions and modeling • Contamination sources to surface water quality

- Wastewater, seepage, runoff, and any dewatering effects
- Management of contaminated soils or sediments
- Assessment of management of mining waste (tailings, waste rock and others) including considerations of metal leaching and acid rock drainage
- Proposed mitigation measures and treatment technologies
- Analysis of potential of soil and aquatic sediments to contaminate surface water
- Effects on groundwater quality that would then impact surface water quality
- Assessment of potential for air-based contamination of surface water (i.e., deposition)
- Bioaccumulation of contaminants (e.g. selenium, mercury) downstream of the project
- Follow-up and monitoring
- For water quantity: baseline (surface water hydrology, streamflow rates data and modeling, flooding and extreme events management, drainage control, water levels, water balances), effects to water quantity, follow-up monitoring

Climate and Meteorology:

- Meteorology – long term climate patterns and norms, climate parameters selected for assessments, selection of representative stations, extremes (wind, precipitation) used for design
- Marine meteorology – winds, waves, and weather when used for oil spill modelling
- Sea ice – Ice extent, ice thickness, ice expanse, hazards and icebergs

Greenhouse Gas (GHG) Emissions and Climate change:

- Climate change science to inform evaluation of potential changes to the environment and project resilience to effects of climate change
- Climate change policy and national climate change projections
- Global and regional climate change modelling
- Estimates of GHG emissions
- Mitigation measures and determination of Best Available Technologies/Best Environmental practices
- Carbon sinks*
- Credible plans to achieve net-zero GHG emissions by 2050
- National GHG projections

* Performing a carbon sinks analysis in the context of a regional assessment may require a substantial amount time and resources. If expertise were required, ECCC would assess its capacity to determine how/to what extent it can provide support.

Environmental Emergencies:

- Environmental emergency management planning advice and guidance in relation to possible accidents and malfunctions involving unplanned or uncontrolled releases or spills of Hazardous substances to the environment having a potential to result in adverse environmental effects to fish or fish habitat, aquatic species or migratory birds

		<ul style="list-style-type: none"> • Environmental Emergency (E2) Plan guidance in respect of Schedule 1-listed substances in the Environmental Emergency Regulations under the <i>Canadian Environmental Protection Act, 1999</i> • Atmospheric transport and dispersion modelling of contaminants in air; and fate and behaviour, hydrologic trajectory modelling of contaminants in water • Environmental Emergency Modelling, providing expertise for Meteorological and Environmental inputs to dispersion modelling for: Volcanic Atmospheric Emergencies, Atmospheric nuclear emergencies, local and regional atmospheric emergencies, aquatic emergencies (modelling of oil spills), transport and dispersion models, Canadian Urban Dispersion Modelling ambient air pollutant concentrations
2.	<p>Regulatory authority(s) in relation to physical works/activities in the Ring of Fire area</p>	<p><i>Fisheries Act – Pollution Prevention Provisions</i></p> <p>http://laws.justice.gc.ca/eng/acts/F-14</p> <p>The federal minister of Environment and Climate Change (ECCC) is responsible for the administration (including the enforcement) of the pollution prevention provisions of the <i>Fisheries Act</i>, subsection 36(3).</p> <p>Subsection 36(3) of the <i>Fisheries Act</i> states that, unless otherwise authorized by regulations meeting specific criteria, “no person shall deposit or permit the deposit of a deleterious substance of any type in water frequented by fish or in any place under any conditions where the deleterious substances or any deleterious substance that results from the deposit of the deleterious substance may enter any such water”.</p> <p>In the definition of deleterious, the <i>Fisheries Act</i> includes “any water that contains a substance in such quantity or concentration, or that has been so treated, processed or changed, by heat or other means, from a natural state that it would, if added to any other water, degrade or alter or form part of a process of degradation or alteration of the quality of that water so that it is rendered or is likely to be rendered deleterious to fish or fish habitat or to the use by man of fish that frequent that water.” Subsection 36(3) makes no allowance for a mixing or dilution zone.</p> <p>In the absence of a regulation authorizing their release, and to the extent that the substance is a prescribed substance or that it can be demonstrated that this substance is a "deleterious substance" as defined in paragraph subsection 34(1) of the <i>Fisheries Act</i>, any release from the construction, operation, reclamation or decommissioning stages of the Project, to any waters frequented by fish, may constitute a violation of the <i>Fisheries Act</i>.</p> <p><i>Metal and Diamond Mining Effluent Regulations under the Fisheries Act</i></p> <p>Authorization to use a water body frequented by fish as a Tailings Impoundment Area (TIA) under subsection 5(1) of the Metal and Diamond Mining Effluent Regulations (MDMER) of the <i>Fisheries Act</i>.</p> <p>Subsection 36(3) of the <i>Fisheries Act</i> prohibits the deposit of a deleterious substance in waters frequented by fish unless authorized by regulations. The MDMER authorizes the deposit of a deleterious substance under specified conditions, including deposits into a TIA that is a water or place set out in Schedule 2 of the Regulations. ECCC is responsible for the implementation of the MDMER. The use of waters frequented by fish for mine waste disposal can only be authorized by amending the MDMER to list these waters in Schedule 2 of the Regulations, designating them as TIAs. The Governor in Council (Treasury Board), on the recommendation of the Minister of the Environment, makes the final decision to list water bodies in Schedule 2 of the MDMER.</p>

Consultations under MDMER

As part of the process to determine whether to authorize the deposit of a deleterious substance into a TIA under the MDMER, ECCC, in collaboration with the Department of Fisheries and Oceans (DFO) and mining proponents, consults with the public and impacted Indigenous Nations on a report describing the alternatives considered for mine waste disposal and on proposed fish habitat compensation plans (FHCP), both prepared by mining proponents. The assessment of alternatives report is an analysis conducted by mining proponents to demonstrate that the use of waters frequented by fish for the disposal of mine waste is the best option from an environmental, technical and socio-economic perspective. This assessment must be prepared in accordance with ECCC's Guidelines on the Assessment of Alternatives (<https://www.canada.ca/en/environment-climate-change/services/managing-pollution/sources-industry/mining-effluent/metal-diamond-mining-effluent/tailings-impoundment-areas/guidelines-alternatives-mine-waste-disposal.html>). Section 27.1 of the MDMER also requires from mining proponents the development and implementation of a FHCP to offset the loss of fish habitat resulting from the deposit of mine waste into fish-frequented waters. Where possible, consultations on amendments to Schedule 2 of the MDMER will be coordinated with the consultations undertaken during a federal impact assessment, provided that the assessment of alternatives report has been completed in accordance with ECCC's Guidelines, and that DFO has recommended the proposed FHCP to ECCC for the purposes of public and Indigenous consultations.

The Minister of the Environment, on the expert advice from the DFO, may approve the FHCP once all the conditions in the MDMER have been met.

Canadian Environmental Protection Act, 1999

<http://laws.justice.gc.ca/eng/acts/C-15.31>

ECCC is responsible for the administration and enforcement of the *Canadian Environmental Protection Act, 1999* (CEPA). CEPA is aimed at preventing pollution and protecting the environment and human health. One of CEPA's major thrusts is the prevention and management of risks posed by harmful substances. This includes products of biotechnology, marine pollution, vehicle, engine and equipment emissions, fuels, hazardous waste, environmental emergencies and other sources of pollution.

Authority to require emergency plans for toxic or other hazardous substances set out in Schedule 1 to the *Environmental Emergency Regulations* (E2 Regulations) is provided in Part 8 of CEPA. The E2 Regulations are aimed at enhancing the protection of the environment and human life and health by promoting the preparedness for response to and recovery from environmental emergencies. The E2 Regulations require those who own, have charge, management or control of toxic and hazardous substances set out in Schedule 1 to the E2 Regulations at or above the specified thresholds to provide required information on the substance(s), their quantities and to prepare and implement environmental emergency plans. ECCC provides expertise related to emergency plans for projects to ensure they remain consistent with the requirements of CEPA. Further, ECCC's reviews of accidents and malfunctions are also based on the Department's mandated interests as they relate to the pollution prevention provisions of the *Fisheries Act* and the *Migratory Birds Convention Act*.

Under CEPA, the Canadian Ambient Air Quality Standards (CAAQS) have been established for fine particulate matter (PM2.5), ground-level ozone, nitrogen dioxide and sulphur dioxide. Although the CAAQS are not legally-binding, federal, provincial, and territorial governments have agreed to work collaboratively to implement actions to improve air quality and to report on the achievement of the CAAQS on a regular basis. The CAAQS are underpinned by air quality management levels which call for progressively more rigorous actions by jurisdictions as air quality approaches or exceeds the CAAQS.

Environmental Emergency Regulations 2019 under the Canadian Environmental Protection Act

The *Environmental Emergency Regulations 2019*, made under the *Canadian Environmental Protection Act, 1999*, require those in possession of listed hazardous substances, exceeding specific quantity and storage levels, to prepare, implement and exercise an Environmental Emergency plan (E2 plan).

The E2 plan must provide details on prevention, preparedness, response, and recovery measures in the event of an environmental emergency. E2 plans are risk management tools. They allow the regulated community to plan for and manage the consequences of chemical substance releases if there is an uncontrolled, unplanned or accidental release into the environment.

In accordance with the *Environmental Emergency Regulations, 2019*, regulated persons must:

- Report company and substance information to Environment and Climate Change Canada (ECCC) within prescribed timelines.
- Prepare, bring into effect and periodically exercise an environmental emergency plan for each applicable hazard category when meeting or exceeding specific quantity and/or storage thresholds, within prescribed timelines.
- Ensure that the public is notified of the possibility and potential consequences of an environmental emergency, as well as of the measures that would be taken by a regulated party to protect human life and health, and the environment before, during and after a possible environmental emergency.
- Activate the applicable measures set out in the E2 plan in the event of an environmental emergency.
- Report environmental emergencies to ECCC.
- Submit updated information on company and regulated substances, and E2 plan where applicable, every 5 years.

Species at Risk Act

ECCC is responsible for the overall administration and enforcement of the *Species at Risk Act, 2002* (SARA). The federal Minister of Environment and Climate Change and the Parks Canada Agency is responsible for species at risk found in national parks, national historic sites or other protected heritage areas, as well as for all other non-aquatic species at risk. The federal Minister of Fisheries and Oceans is responsible for aquatic species at risk.

The purpose of SARA is to prevent wildlife species from being extirpated or becoming extinct, to provide for the recovery of wildlife species that are extirpated, endangered or threatened as a result of human activity, and to manage species of special concern to prevent them from becoming endangered or threatened. Schedule 1 of SARA provides a list of wildlife species at risk in Canada that are considered extirpated, endangered, threatened, or of special concern.

SARA provides measures for the protection of listed threatened, endangered or extirpated species and their residences. Subsection 32(1) of SARA states that no person shall kill, harm, harass capture or take an individual of a wildlife species listed as an extirpated, endangered or threatened, and Section 33 states that no person shall damage or destroy the residence of one or more individuals of a wildlife species listed as endangered or threatened or as an extirpated species if a recovery strategy recommends the reintroduction of the species into the wild in Canada.

Finally, another consideration related to the assessment of projects under the *Impact Assessment Act* is found in Section 79 of SARA. This section requires that the person responsible for the assessment notify the competent minister(s) in writing if the project is likely to affect a listed wildlife species or its critical habitat, and identify the adverse effects that the project will have. If the project is carried out, the person must “ensure that measures are taken to

avoid or lessen those effects and to monitor them.” The measures taken must be consistent with any applicable recovery strategy or action plan under SARA.

For species listed in Schedule 1 of SARA as Extirpated, Endangered or Threatened, a permit may be required from ECCC (e.g. under section 73 of SARA) for activities that affect a listed terrestrial wildlife species, any part of its critical habitat, or the residences of its individuals, where those prohibitions are in place. Such permits may only be issued: if all reasonable alternatives to the activity that would reduce the impact on the species have been considered and the best solution has been adopted; all feasible measures will be taken to minimize the impact of the activity on the species or its critical habitat or the residences of its individuals; and if the activity will not jeopardize the survival or recovery of the species.

Currently, prohibitions are in place regarding individuals and residences for species listed under SARA as Extirpated, Endangered or Threatened, and on federal lands, including First Nation reserve land, as well as for individuals and residences of birds listed under the *Migratory Birds Convention Act, 1994* wherever they occur. Furthermore, prohibitions may be in force on land other than federal land pursuant to other orders or regulations under SARA. It is possible that further prohibitions may come into force in the future through orders in Council for individuals, residences and critical habitat on non-federal lands and / or through ministerial order for critical habitat on federal lands. It is also possible that, over the course of the assessment or after the assessment, additional species could be listed under SARA; permits may be required for project activities that affect these additional species. Proponents are advised to monitor for such developments on the SARA Registry <https://www.canada.ca/en/environment-climate-change/services/species-risk-public-registry.html>.

Examples of activities that could require a SARA permit include:

- Site preparation (clearing, grubbing, site access, staging, blasting);
- Construction and operation of temporary and permanent works and infrastructure;
- Creation of new roads, rail lines, or power lines;
- Infilling of wetlands or watercourses;
- Any monitoring that requires capture/release of individuals; and
- Sensory disturbance effects (artificial lighting, noise, vibration, human activity, vehicular traffic).
- Species surveys that would affect individuals or residences (including capture/release of individuals);

ECCC will require detailed information on the potential effects of physical works or activities in the Ring of Fire area, including locations and/or occurrences of species at risk, their use of habitat and critical habitat within the project area, and specific effects on federal land, before ECCC can determine whether a SARA permit is required for a specific project or activity.

Links to publicly available documents:

- [Guidelines for permitting under Section 73 of Species at Risk Act https://www.canada.ca/en/environment-climate-change/services/species-risk-public-registry/policies-guidelines/permitting-under-section-73.html](https://www.canada.ca/en/environment-climate-change/services/species-risk-public-registry/policies-guidelines/permitting-under-section-73.html)
- [Species at Risk Permitting Policy https://species-registry.canada.ca/index-en.html#/consultations/2983](https://species-registry.canada.ca/index-en.html#/consultations/2983)

Section 73 of the SARA describes requirements for consultation with Indigenous communities:

- 73(4) If the species is found in an area in respect of which a wildlife management board is authorized by a land claims agreement to perform functions in respect of wildlife species, the competent minister must consult the wildlife management board before entering into an agreement or issuing a permit concerning that species in that area
- 73(5) If the species is found in a reserve or any other lands that are set apart for the use and benefit of a band under the *Indian Act*, the competent minister must consult the band before entering into an agreement or issuing a permit concerning that species in that reserve or those other lands

ECCC's consultation activities with Indigenous communities would begin following receipt of a SARA permit application. These activities would typically begin with an initial letter to the band council or wildlife management board responsible for the lands where the activity is proposed. This initial contact is then followed by emails, phone calls and/or in person discussions as appropriate. Consultation on SARA permits will be coordinated with consultation during the assessment where possible.

As per section 73 of the SARA, there is no public participation in the process to issue a SARA permit. If a permit is issued, the description of the activity and how SARA's preconditions were met will be posted on the SARA Registry here: <https://species-registry.canada.ca/index-en.html#/permits>

Under SARA, ECCC also consults on:

- Changes to schedule 1 of SARA including adding a new species, and reclassifying or removing a listed species, based on new or updated assessments conducted by the Committee on the Status of Endangered Wildlife in Canada (COSEWIC). In Ontario, groups consulted include Indigenous peoples known to have the species on their lands; concerned groups and individuals including industries, resource users, landowners and environmental non-governmental organizations; and the provincial government.
- Recovery documents mandated under SARA. In Ontario, recovery documents must be prepared in consultation and cooperation with every aboriginal organization that it is considered will be directly affected by the recovery document, the provincial government, any federal government department who has authority over federal land or other areas on which the species is found, and any other person or organization considered appropriate.
- Orders or regulations for the protection of critical habitat. When such orders or regulations affect a reserve or any other lands that are set apart for the use and benefit of a band under the *Indian Act*, the Minister of Indigenous Services and the band must be consulted before making the order or regulation.

Consultations include public posting of information, letters, phone calls and in-person meetings. Consultations under SARA occur regularly in the Ring of Fire region, particularly with First Nation communities. Consultations for listing, recovery and protection of species are a legal requirement under SARA and are not considered to directly impact the RA. As such, additional details have not been provided here, but can be provided on request.

Migratory Bird Convention Act

ECCC is responsible for implementing the *Migratory Birds Convention Act, 1994* (MBCA) and its *Migratory Birds Regulations, 2022* (MBR 2022) which protect migratory birds and prohibit the disturbance or destruction of migratory bird nests when they contain a viable egg or a migratory bird themselves (young or adult). Schedule 1 of MBR 2022 provides year-round nest protection for 18 species. The legislation and regulations apply to all lands and waters in Canada, regardless of ownership. To minimize the possibility of contravening the law, proponents must understand the potential effect(s) of their activities on

		<p>migratory birds, nests, and eggs and implement appropriate avoidance and mitigation measures. Pileated Woodpecker and Great Blue Heron are the only Schedule 1 species that could potentially occur in the Ring of Fire area.</p> <p>More information on the MBR 2022 can be found on the ECCC web site at: https://www.canada.ca/en/environment-climate-change/services/migratory-game-bird-hunting/status-update-modernization-regulations.html.</p>
<p>3.</p>	<p>Expert information or knowledge</p> <ul style="list-style-type: none"> • Include all existing research, reports and data sets 	<p>In addition to the areas of expertise outlined in questions 1 and 2 please find additional input on existing research, reports and data sets</p> <p>AIR</p> <p>The following datasets are available on the Federal Geospatial Platform.</p> <ul style="list-style-type: none"> • Air quality analysis for criteria air pollutants (O3, PM2.5, PM10, NO2, SO2) (Regional Deterministic Air Quality Analysis Cumulative Effects products; RDAQA 2013-2019, air quality surface analysis) – 2013 to 2019 https://gcgeo.gc.ca/geonetwork/metadata/eng/0a8f138e-2598-42a8-a7ad-0ebc09fdb5e • Wildfire pollution (Pollution from wildfires Cumulative Effects products; RAQDPS-FW 2013-2019, wildfires contribution to PM2.5 pollution) - 2013-2019 https://gcgeo.gc.ca/geonetwork/metadata/eng/1e42f630-a435-4c23-a293-d7cc5709f3bd <ul style="list-style-type: none"> ○ 2020 to 2022 are under production; the final publication of this data for open access remains to be determined • Hotspots (Wildfire hotspots Cumulative Effects products; Hotspots 2013-2019 as identified by the Canadian Wildland Fire Information System) - 2013-2019 https://gcgeo.gc.ca/geonetwork/metadata/eng/574c32db-aba7-4919-9c9f-c58398754173 <ul style="list-style-type: none"> ○ This data belongs to NRCan; further updates should be coordinated with them. • Meteorological reanalysis, including precipitation – 1980-2018 Meteorological reanalysis available on Canadian Meteorological Centre (CMC) archiving system HPNLS. Contact ECCC for access. Precipitation data available on CaSPAr (Canadian Surface Prediction Archive) available on CMC archiving system. Contact ECCC for access. • Air quality Reanalysis for 2007 to 2017 should be available by February/March 2024. <p>WATER</p> <p>Information on data from the Hydrometric Monitoring Program, for stations in the Ring of Fire area, can be found below under Policies, Programs and Initiatives.</p> <p>CLIMATE</p> <p>The Canadian Climate Data and Scenarios website (http://climate-scenarios.canada.ca/?page=main) provides multi-model ensemble projections of future climate specific for Canada. Projections of temperature, precipitation and several additional variables are available. The website also links to statistically downscaled climate projections, observed data, derived data products, seasonal forecasts, guidance documents and the recent Canada’s Changing Climate Report, 2019 (https://changingclimate.ca/CCCR2019/). Many of these datasets are available as part of the broader collection of climate data, information and resources available through the Canadian Centre for Climate Services (https://www.canada.ca/climate-services).</p>

Information on data from the Air Quality Monitoring Program, for stations in the Ring of Fire area, can be found below under Policies, Programs and Initiatives.

WILDLIFE/HABITAT

ECCC has a variety of information, expertise and data with respect to wildlife and their habitat. Specific to the Ring of Fire region the following information is available:

- Reports on species at risk published on the Species at Risk Public Registry
- Surveys and monitoring of migratory birds, species at risk, and their habitats, available upon request
- CWS-ON Interim Report on Biodiversity in the Ring of Fire Region, V2.0, 2023

The Species at Risk Public Registry houses the latest documents relating to the administration of SARA including COSEWIC status assessments, recovery documents, consultation documents, critical habitat orders and supporting information. The Species at Risk Public Registry is available at: <https://www.canada.ca/en/environment-climate-change/services/species-risk-public-registry.html>. For further information on Woodland Caribou, boreal population (hereafter boreal caribou) please see the following reports and references therein:

Environment and Climate Change Canada. 2022. Agreement for the Conservation of Caribou, Boreal Population in Ontario. Species at Risk Act Conservation Agreements. Environment and Climate Change Canada, Ottawa. 33pp.

The '[Agreement for the Conservation of Caribou, Boreal Population in Ontario](#)', signed on April 22, 2022 between the governments of Canada and Ontario, covers a five year period from 2022-2027. The overarching goal of the agreement is for Ontario, with support from Canada, to work collaboratively with Indigenous and non-Indigenous partners to sustain or improve the environmental conditions necessary for recovery of the boreal caribou at the Range-scale, informed by best available science, for all boreal caribou ranges within Ontario, including the Ring of Fire region. The agreement includes commitments to thirteen conservation measures organized into five themes: Monitoring and Science, Habitat Protection and Restoration, Planning and Management, Updates to boreal caribou Conservation Frameworks, and Stewardship Collaborations and Funding.

Environment and Climate Change Canada. 2020. Amended Recovery Strategy for the Woodland Caribou (*Rangifer tarandus caribou*), Boreal Population, in Canada. Species at Risk Act Recovery Strategy Series. Environment and Climate Change Canada, Ottawa. xiii + 143pp.

Environment and Climate Change Canada. 2018. Action Plan for the Woodland Caribou (*Rangifer tarandus caribou*), Boreal Population, in Canada – Federal Actions. Species at Risk Act Action Plan Series. Environment and Climate Change Canada, Ottawa. vii + 28 pp.

The CWS-ON Interim Report on Biodiversity in the Ring of Fire Region, V2.0, contains details of all work completed by ECCC from March 2020 up to April 2023 in anticipation of the Regional Assessment in the Ring of Fire area including Indigenous engagement; background knowledge and details of survey work related to caribou and caribou predators including potential threats and mitigation; details of survey work related to migratory birds; status of knowledge of species at risk, an assessment of information gaps and priorities for species at risk bats and details of related survey work on species at risk bats and bees; status of knowledge of wetlands in the Ring of Fire region including potential threats and mitigations and preliminary work to develop pathways of effects for peatlands in the Ring of Fire region; and information on research led by ECCC to assess the usefulness of existing models for projecting cumulative effects of natural disturbance and human activities on wildlife and habitat in the Ring of Fire region.

As the final determination of the geographical and temporal boundaries of the Regional Assessment have not yet been made, ECCC is providing all available information irrespective of dates of collection in two separate lists relating to:

- i) Potential geographical Regional Assessment boundaries recommended by ECCC for birds and species at risk in Part 2 Question 2; and
- ii) A wider geographical scope that includes the Ontario portion of the James Bay and Hudson Bay coasts and the Ontario shield to the west of the Ring of Fire region. This information is not directly relevant to the boundary proposed for migratory birds and species at risk in Part 2 Question 2, but may be relevant if the eventual boundaries of the Regional Assessment are larger than what is proposed here.

Data Sets ECCC Can Provide – See Attachments to this Response

The attached Excel file “ECCC-2023 RoF FAAR Update-WildlifeDataSetsWithinProposedBoundary.xlsx”- contains information about data sets directly relevant to the potential geographical Regional Assessment boundaries proposed for birds and species at risk in Part 2 Question 2. Figure 1 and Figure 2 shows approximate survey locations for the different data sets. Note that not all survey locations within these data sets fall within the proposed geographical boundaries.

The attached Excel file “ECCC-2023 RoF FAAR Update-AdditionalDataSets.xlsx ” contains information about available data sets that may be relevant to the Regional Assessment if the final geographical boundary is broader than that proposed in Part 2 Question 2. Figure 1 shows approximate survey locations for the different data sets. Even in the case of a broad geographical approach for the Regional Assessment, this data is expected to have limited use for the Regional Assessment beyond setting a broad context for the Far North of Ontario as a whole, due to the relatively broad scale that much of the data was collected at and the age of some of the datasets.

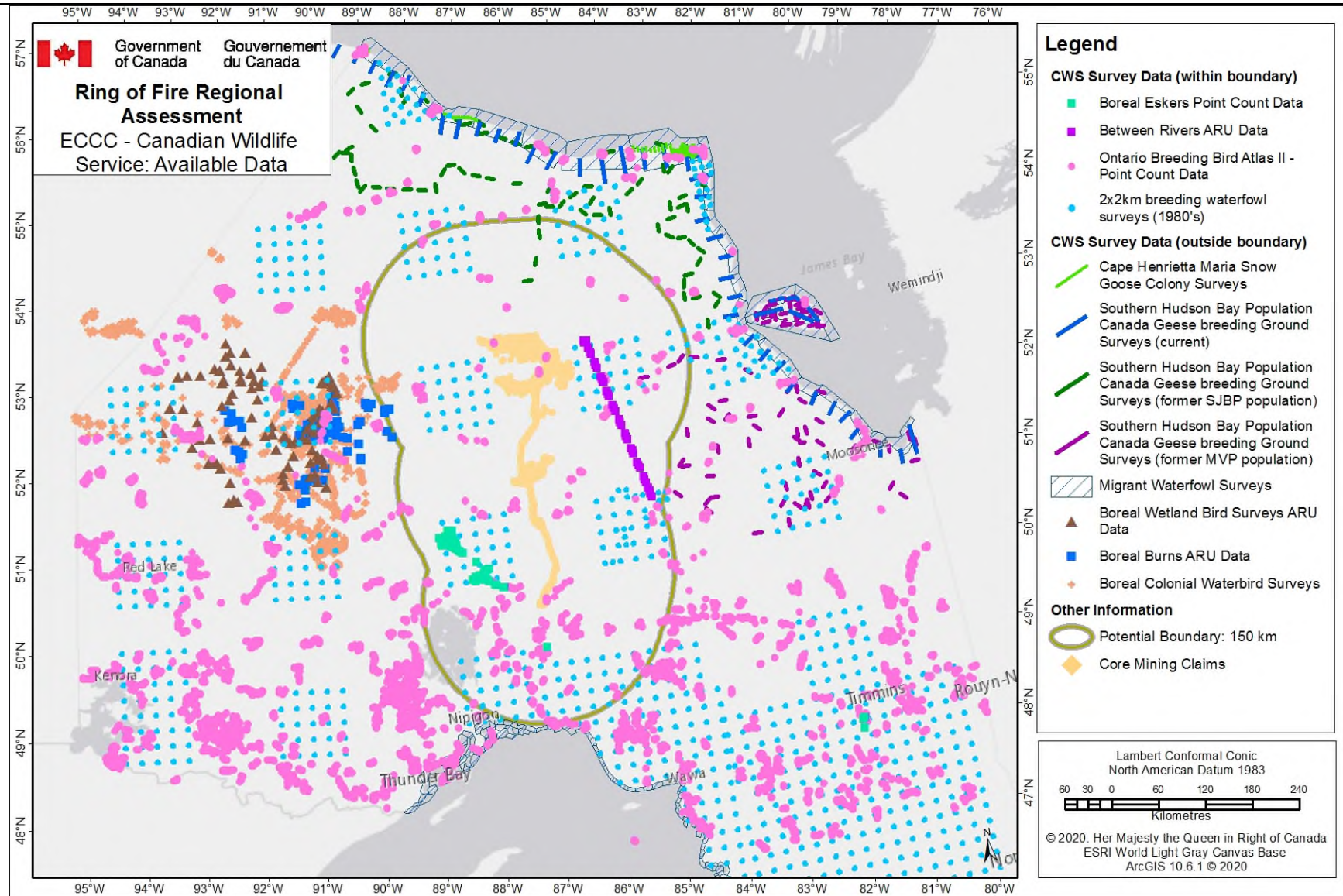


Figure 1: ECCC survey data available prior to 2021 across the Far North of Ontario. The potential 150km boundary is proposed as the potential geographic boundary for birds and non-caribou species at risk, see Part 2 Question 2 for details.

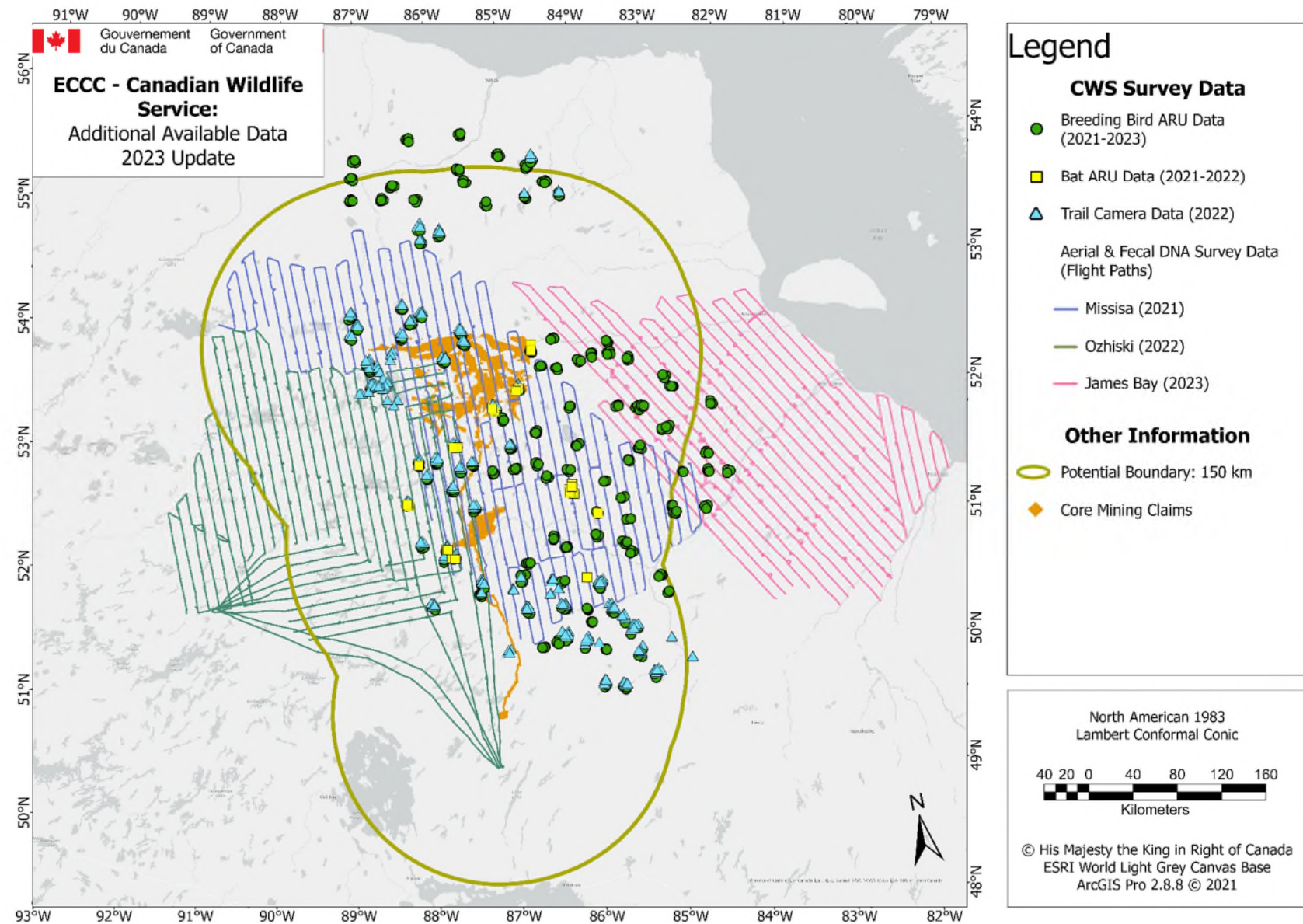


Figure 2: Additional ECCC survey data available since 2021 across the Far North of Ontario. The potential 150km boundary is proposed as the potential geographic boundary for birds and non-caribou species at risk, see Part 2 Question 2 for details.

Reports

The following list provides reports of relevance to the potential geographical Regional Assessment boundaries proposed for birds and species at risk in Part 2 Question 2.

Abraham, K.F. 2014. Waterfowl in Ontario's Boreal Region: Looking Back, Looking Forward. Report prepared for Ducks Unlimited Canada. Kingston, Ontario. 97 pp.

Baldwin, D. and Neave, E. 2013. Upland Habitat Patterns within the Boreal Shield/Hudson Plain Transition. Unpublished report. Environment Canada, Toronto, Ontario.

Cadman, M.D., Eagles, P.F.J. and Helleiner, F.M. Eds 1987. Atlas of the Breeding Birds of Ontario. University of Waterloo Press, Waterloo, Ontario. 617pp
[\[https://www.birdsontario.org/\]](https://www.birdsontario.org/)

Cadman, M.D., Sutherland, D.A., Beck, G.G., Lepage, D. and Couturier, A.R. Eds. 2007. Atlas of the Breeding Birds of Ontario, 2001-2005. Bird Studies Canada, Environment Canada, Ontario Field Ornithologists, Ontario Ministry of Natural Resources and Ontario Nature. Toronto, xxii + 706 pp.
[\[https://www.birdsontario.org/\]](https://www.birdsontario.org/)

Dyson, M., Endicott, S., Simpkins, C., Turner, J.W., Avery-Gomm, S., Johnson, C.A., Leblond, M., Neilson, E.W., Rempel, R., Wiebe, P.A., Baltzer, J.L., Stewart, F.E.C., and Hughes, J. 2022. 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. [\[https://www.biorxiv.org/content/10.1101/2022.06.01.494350v3\]](https://www.biorxiv.org/content/10.1101/2022.06.01.494350v3)

Environment and Climate Change Canada. 2023. CWS-ON Interim Report on Biodiversity in the Ring of Fire Region, V2.0. Unpublished Report. Canadian Wildlife Service – Ontario Region, Environment and Climate Change Canada. Ottawa, ON. 402 pp + appendices. Environment Canada. 2013. Bird Conservation Strategy for Bird Conservation Region 7 in Ontario: Taiga Shield and Hudson Plains. Canadian Wildlife Service, Environment Canada. Ottawa, ON. 87 pp + appendices. [\[http://nabci.net/wp-content/uploads/BCR-7-ON-FINAL-Aug-2013.pdf\]](http://nabci.net/wp-content/uploads/BCR-7-ON-FINAL-Aug-2013.pdf)

Environment Canada. 2014. Bird Conservation Strategy for Bird Conservation Region 8 in Ontario Region: Boreal Softwood Shield. Canadian Wildlife Service, Environment Canada. Ottawa, ON. 132 pp. + appendices [\[http://nabci.net/wp-content/uploads/BCR-8-ON-FINAL_11September2014.pdf\]](http://nabci.net/wp-content/uploads/BCR-8-ON-FINAL_11September2014.pdf)

Hebert, Craig. 2013. Monitoring impacts of Ring of Fire development using waterfowl. Multi-element data set. Data collected from 11 Canada Goose goslings from 2 locations on the western shore of James Bay (~70 (YAT2) and 130 km (YAT4) north of the mouth of the Attawapiskat River). Collections were done by OMNR.

Johnson, C.C., Sutherland, G.D., Neave, E., Leblond, M., Kirby, P., Superbie, C. and McLoughlin, P.D. 2020. Science to inform policy: Linking population dynamics to habitat for a threatened species in Canada. *Journal of Applied Ecology* 57:1314-1327.

Lukina, A.O., Boutin, C., Rowland, O., and Carpenter, D.J. 2016. Evaluating trivalent chromium toxicity on wild terrestrial and wetland plants. *Chemosphere* 162 (2016): 355-364. Research conducted in collaboration with Nibinamik First Nation and Carleton University.

Spatialworks. 2016. Mapping and assessment of the web of conservation lands in the boreal softwood shield. Unpublished report prepared on contract to Canadian Wildlife Service – Ontario region.

Thompson, L.M., Klutsch, C.F.C., Manseau, M., Wilson, P.J. 2019. Spatial differences in genetic diversity and northward migration suggest genetic erosion along the boreal caribou southern range limit and continued range retraction. *Ecology and Evolution* 9:7030-7046

The following list provides reports that may be relevant if the Regional Assessment geographical boundaries proposed for birds and species at risk in Part 2 Question 2 if they are adopted:

Badzinski, S. 2013. Sea Duck Joint Venture. Annual Project Summary for Endorsed Projects. FY 2013. Unpublished report. [<https://seaduckjv.org/wp-content/uploads/2014/11/SDJV-PR82-Badzinski-annrpt-FY13.pdf>]

Brook, R., Brown, G. and Badzinski, S. 2018. 2018 Preliminary spring survey results for Interior Canada Geese. Unpublished Report.

Brook, R.W., Abraham, K.F., Middel, K.R. and Ross, R.K. 2012. Abundance and habitat selection of breeding scoters (*Melanitta* spp.) in Ontario's Hudson Bay Lowlands. *Canadian Field-Naturalist* 126(1): 20–27.

Friis, C. 2019. James Bay Shorebird Project. Unpublished report. [<https://static1.squarespace.com/static/58908d5a37c5811e7fce78e0/t/5fda2d6f3dbb5a0dfe6037e7/1608134014600/Report2019.pdf>]

Hudson Bay Project. 2019. The Hudson Bay Project: 2019 Annual Progress Report. 46 pp.

Lamb, J.S., Paton, P.W.C., Osenkowski, J.E., Badzinski, S.S., Berlin, A.M., Bowman, T., Dwyer, C, Fara, L.J., Gilliland, S.G., Kenow, K., Lepage, C., Mallory, M.L., Olsen, G.H., Perry, M.C., Petrie, S.A., Savard, J.P.L., Savoy, L., Schummer, M., Spiegel C.S., and McWilliams S.R. 2019. Spatially explicit network analysis reveals multi-species annual cycle movement patterns of sea ducks. *Ecological Applications* 00(00):e01919. 10.1002/eap.1919

Lamb, J.S., Paton, P.W.C., Osenkowski, J.E., Badzinski, S.S., Berlin, A.M., Bowman, T., Dwyer, C, Fara, L.J., Gilliland, S.G., Kenow, K., Lepage, C., Mallory, M.L., Olsen, G.H., Perry, M.C., Petrie, S.A., Savard, J.P.L., Savoy, L., Schummer, M., Spiegel C.S., and McWilliams S.R. 2020. Assessing year-round habitat use by migratory sea ducks in a multi-species context reveals seasonal variation in habitat selection and partitioning. *Ecography* 43: 1–18

Ross, R.K. 1984. Use of the James Bay and Hudson Bay coasts of Ontario by dabbling ducks. Environment Canada, Canadian Wildlife Service. Occasional Paper Number 54: 63-69

Ross, R.K. 1982. Duck distribution along the James and Hudson Bay coasts of Ontario. *Le Naturaliste canadien* 109: 927-932
Sea Duck Joint Venture. 2015. Atlantic and Great Lakes sea duck migration study: progress report June 2015. Unpublished report. [<https://seaduckjv.org/science-resources/atlantic-and-great-lakes-sea-duck-migration-study/>]

U.S. Fish and Wildlife Service. 2019. Waterfowl population status, 2019. U.S. Department of the Interior, Washington, D.C. USA [<https://www.fws.gov/migratorybirds/pdf/surveys-and-data/Population-status/Waterfowl/WaterfowlPopulationStatusReport19.pdf>]

		<p>OPEN SCIENCE AND DATA PLATFORM CONTENT COLLECTION</p> <p>ECCC co-leads the Open Science and Data Platform (https://osdp-psdo.canada.ca/dp/en), a website that provides a single window to access data and scientific knowledge relevant to understanding cumulative effects from existing federal, provincial, and territorial on-line databases and registries, including publications from federal government scientists. This diverse content may be of value to the Ring of Fire Regional Assessment. In particular, the Platform contains a Content Collection dedicated to the Ring of Fire region, titled “Resources to Understand Cumulative Effects in Northern Ontario” (https://osdp-psdo.canada.ca/dp/en/search/metadata/NRCAN-ROF-1-5F183851-3814-4352-85B8-D292EDC2CCA1),” and five Content Collections on the secondary watersheds in the region:</p> <ul style="list-style-type: none"> • Attawapiskat watershed: https://osdp-psdo.canada.ca/dp/en/search/metadata/NRCAN-ROF-1-2C82DC9C-FB7D-4B75-ACE6-E69F57B0EB45 • Ekwan watershed: 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-1-0FFAED78-7DC7-4B7A-96D5-088F5C091D93 • Lower Albany watershed: 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-1-8E6A891E-6170-44B8-85E7-820D57179B1E • Upper Albany watershed: 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 • Winisk watershed: 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 <p>Each Content Collection connects users to data within the main cumulative effects themes, including air, water, climate and biodiversity.</p>
4.	<p>Policies, Programs or Initiatives: List and summarize the past, current and planned policies, programs or initiatives of your department or agency that may be relevant to the regional assessment. Include an outline of related funding initiatives in this response and provide information on geographic locations, next steps and timing for the program/initiative</p>	<p>AIR</p> <p>The Air Quality Management System is a comprehensive approach for reducing air pollution in Canada and is the product of unprecedented collaboration by the federal, provincial and territorial governments and stakeholders. Air zones are a place-based approach to manage local air quality. Provinces and territories will delineate and manage air zones within their boundaries with the goal to drive continuous improvements in air quality and to prevent the Canadian Ambient Air Quality Standards (CAAQS) from being exceeded. Air management is guided by an Air Zone Management Framework to ensure proactive measures are taken to protect air quality in accordance with the principles of continuous improvement and keeping clean areas clean. (https://ccme.ca/en/air-quality-report).</p> <p>CLIMATE</p> <p>Atmospheric Monitoring</p> <p>Currently ECCC has automatic Reference Climate Stations at Peawanuck, Ogoki Post, Weagamow Lake, Big Trout Lake, Lansdowne House and Moosonee. These “Atmospheric Monitoring” sites observe air temperature, humidity, precipitation accumulation, precipitation intensity, snow depth, air pressure, and</p>

wind speed and direction. A plan to expand the network to include at least 6 new stations is under review due to funding. Possible locations are Deer Lake, Muskrat Dam, Fort Severn, Ogoki/Marten Falls, Webequie and Fort Albany.

ECCC Climate information is available at <http://climate.weather.gc.ca/> or through the Ontario Climate Services office http://climate.weather.gc.ca/contactus/climate_services_e.html.

Official weather warnings and forecasts are available at <http://weather.gc.ca/> and real-time weather observations are available in XML format on the ECCC datamart at <http://dd.weather.ec.gc.ca/observations/swob-ml/>

WATER

Hydrometric Monitoring by the National Hydrometric Service (conducted in partnership with the province of Ontario)

Water Survey Ontario collects and transmits continuous water level data and computes discharge data at hydrometric stations across Northern Ontario. Some stations have longer histories than others do. Gauges are funded by both ECCC and MNRF, primarily, within the Canada-Ontario Agreement on Hydrometric Monitoring. The program is subject to resource availability, and this is verified on a yearly basis. Water quality data is usually not collected, but sampling has in recent years become a funded activity by MNRF/MOEE for 5 stations in the Ring of Fire area during the “open-water” (non-winter) months. Funding for this water quality activity is verified on an annual basis by the Administrators of the Canada-Ontario Agreement on Hydrometric Monitoring. Management of Surface water flow activities is guided by national standards of the hydrometric program within the National Hydrologic Service, and additionally by the Ontario Hydrometric Program Coordinators Committee (OHPCC, both ECCC and MNRF representatives are the co-leads). The OHPCC meets 4-6 times/year to ensure efficient operations of hydrometric stations, and to discuss operational issues and general discussions, including the topics of network planning and new gauge installation. National Standards for the work of Hydrometric Program can be found in the WSC Operational Library: https://drive.google.com/drive/folders/1cPFXTu3qBNZXm9fvHo6_5_whFlvmO1fq

Additional information about the NHP can be found here: <https://www.canada.ca/en/environment-climate-change/services/water-overview/quantity/monitoring/survey/hydrometric-program-national-partnership.html>

ECCC has assisted with baseline water quality sample collection at the 5 hydrometric sites in the Ring of Fire area for 2017-2019 (04FC013, 04FC001, 04FC002, 04FB001 04EA001). Samples were analysed by MOECC. Water quality sampling was not completed in 2020, 2021 or 2022, but was completed once in 2023.

ECCC-Water Survey has assisted with site selection, and actively completes hydrometric data collection and computations for 20 stations in the Far North. Stations are funded by ECCC and MNRF. One Water Flow monitoring station was installed during initial discussions of the Ring of Fire and continues to be operated and funded directly by MSC within the area considered to be “Ring of Fire” (Hydrometric Station 04FC003). Water quality data is usually not collected, but sampling has in recent years become a funded activity by MOEE at five of these stations within the Ring of Fire area, during the “open-water” (non-winter) months.

Archived data is available to the public on-line (<https://wateroffice.eg.gc.ca>), and provisional data is available on-line for web-scraping in a “Data Mart” section. A preliminary release of drainage basin polygons associated with monitoring stations is also available through the same website.

GREENHOUSE GASES

The Strategic Assessment of Climate Change (SACC), published in October 2020, outlines information that the proponent should provide during the impact assessment process on GHG emissions, impacts on carbon sinks, impact on federal emissions reduction efforts and global GHG emissions, GHG mitigation measures, including Best Available Technologies/Best Available Practices (BAT/BEP), and climate change resilience; the circumstances in which an upstream GHG assessment would be required; and the circumstances in which a credible plan for achieving net-zero GHG emissions by 2050 would be required. The SACC will enable consistent, predictable, efficient, and transparent consideration of climate change throughout federal impact assessments. More details are provided in the draft Technical Guide Related to the Strategic Assessment of Climate Change: Guidance on quantification of net GHG emissions, impact on carbon sinks, mitigation measures, net-zero plan and upstream GHG assessment, published in August 2021.

Links:

- Strategic Assessment of Climate Change: <https://www.strategicassessmentclimatechange.ca/16736/widgets/65686/documents/40846>
- Draft Technical Guide Related to the Strategic Assessment of Climate Change: Guidance on quantification of net GHG emissions, impact on carbon sinks, mitigation measures, net-zero plan and upstream GHG assessment: <https://www.strategicassessmentclimatechange.ca/24391/widgets/98155/documents/62220>

WILDLIFE/HABITAT

Data-collection initiatives

ECCC is in the early stages of conducting field surveys that will significantly improve understanding of wildlife in the Ring of Fire region, focused on valued components under ECCC's mandate. All upcoming projects are subject to resource availability and approvals. Brief project descriptions are provided below. Data and results from the surveys identified below are detailed in the CWS-ON Interim Report on Biodiversity in the Ring of Fire Region, V2.0 and the attached excel file "ECCC-2023 RoF FAAR Update-WildlifeDataSetsWithinProposedBoundary.xlsx" and are available upon request.

Waterfowl and Waterbird Surveys

Helicopter surveys focused on waterfowl (ducks, geese and swans) and other water birds (gulls, terns, loons, etc.) have been initiated to collect baseline information on their abundance, distribution and habitat use/association within the Ring of Fire region. Surveys occurred in spring (mid/late May to early June) in 2022 and 2023. The purpose of these surveys is to provide new and updated data for survey plots surrounding the Ring of Fire mining claims area and planned road corridors. Additional surveys are planned for 2024 - 2026.

Terrestrial bird Surveys

Fieldwork completed to-date has targeted the most extreme baseline data gaps for terrestrial birds in the area of the Ring of Fire mining claims. ECCC deployed 469 autonomous recording units (ARUs) using a spatially balanced and habitat representative hierarchical survey design in May 2021, and in March, May, and June 2022 (Figure 3). ARUs collect data on vocal wildlife including singing and calling birds and frogs as well as wolves. During fieldwork, ECCC also collected habitat photos, peat depth measures, peat cores and environmental DNA (eDNA) samples to improve site habitat classification and contribute to other research in the region. The ARUs collected recordings throughout the breeding season and were retrieved in October 2021, September 2022, and September 2023. Data collected will provide abundance and occurrence information that will enable ECCC to improve the accuracy of models of

baseline conditions and impact scenarios. Planned future work will include additional surveys in the Ring of Fire region, with a focus on filling critical gaps in data coverage for baseline data in the region.

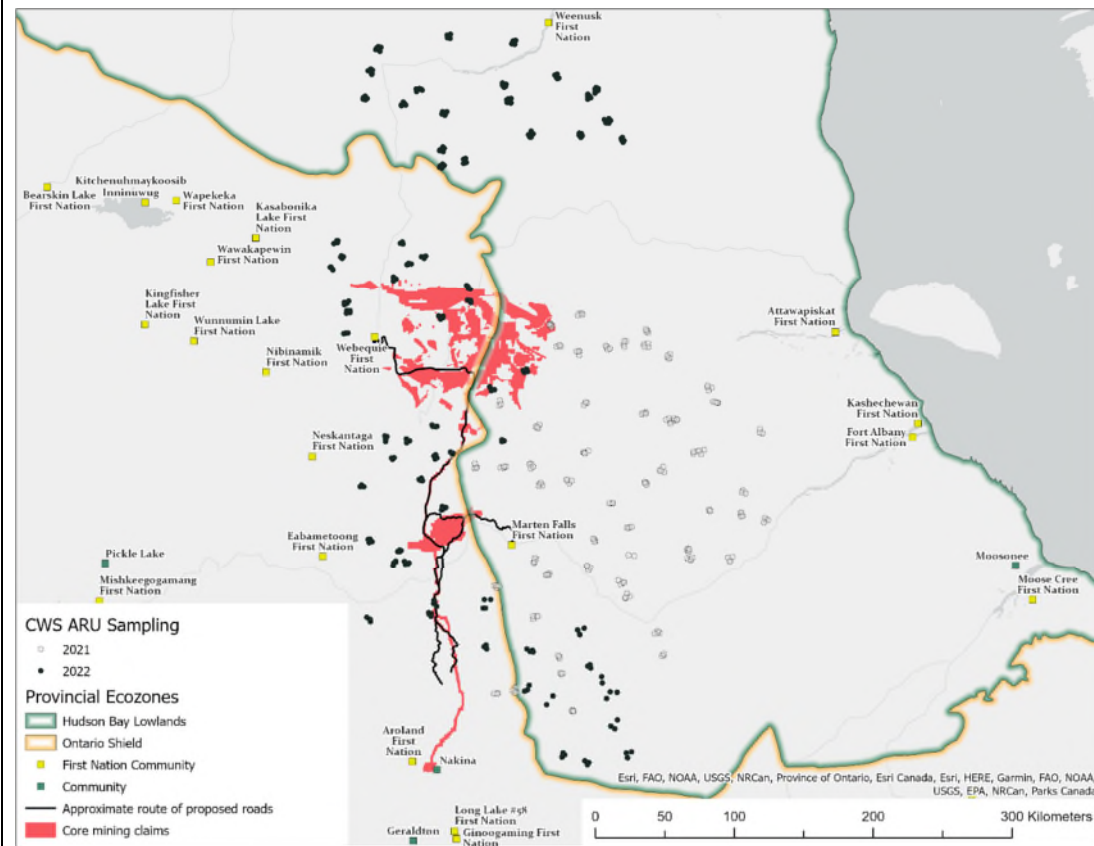


Figure 3: Sampled ARU locations from ECCC acoustic surveys, with ARU deployment in 2021 (grey) and 2022 (black). Mining claims shown in red shading and nearby communities with yellow squares.

Caribou Fecal DNA Surveys

ECCC's Canadian Wildlife Service in collaboration with ECCC's Science and Technology Branch Wildlife and Landscape Science Directorate, conducted systematic aerial distribution surveys across the provincial Missisa, Osiski and James Bay boreal caribou ranges in February/March 2021, 2022 and 2023. A contractor conducted aerial fixed-wing distribution surveys followed by the collection of caribou fecal pellets. The collected caribou fecal pellets will be analysed by ECCC in partnership with Trent University. The lab analysis will include DNA profiling of individual caribou, and additional data including reproductive and stress hormones. This analysis will yield insights including caribou abundance, landscape connectivity, demographic structure (i.e., boreal caribou and the eastern migratory caribou population, dispersal, pregnancy rate, and stress levels. Additional surveys following the same method will be conducted in February/March 2024 in Nipigon and Pagwachuan boreal caribou ranges.

Species at Risk Bat Surveys

Opportunistic acoustic surveys for bats were carried out in the Hudson Bay Lowlands and Ontario Shield in summer 2021 and 2022, as part of a wider acoustic survey targeting birds. The information collected updates knowledge on the occurrence of bats in the southwestern portion of the James Bay Lowlands ecozone and the Ontario shield ecozone. ECCC plans to deploy additional bat ARUs in March 2024 near the Ring of Fire mining crescent as part of upcoming remote monitoring equipment deployment.

Species at Risk Bees

ECCC partnered with Four Rivers Environmental Services Group to pilot pollinator trapping in the Ring of Fire region in 2021. Four Rivers will continue with opportunistic deployment of blue vane traps during their fieldwork activities to survey bumblebees in Ontario's Far North.

Caribou Predator Surveys

Predation is a major contributing factor to population declines of caribou. Human development in previously undeveloped areas, such as the Ring of Fire region, can potentially increase predation risk to caribou by wolves and other predators. The collection of baseline predator data will be used to better understand predation risk to caribou populations in Ontario's Far North. ECCC has partnered with researchers from Wilfrid Laurier University and NRCan's Canadian Forestry Service for the deployment of trail cameras in conjunction with ARUs being deployed for terrestrial birds. 273 trail cameras and 267 ARUs were deployed by ECCC staff and contractors in 2022 in the Big Trout Lake ecoregion, the James Bay Lowlands ecoregion, and the Northern Taiga ecoregion, and retrieved in September 2022, March 2023, and September 2023. Additional cameras will be deployed in March 2024 near the Ring of Fire mining crescent as part of the upcoming remote monitoring equipment deployment.

Wolves are challenging to study due to their low population density and large home ranges. Acoustic surveys provide a highly cost-effective alternative technique to visual surveys and studies suggest that ARUs can detect wolf howls up to 4.6 km away. A portion of the ARUs deployed during terrestrial bird surveys in 2019 and 2021 have been re-analyzed to identify wolf howls, which can provide information on wolf occurrences and minimum animal counts, both of which provide valuable data on relative caribou predation risk. Further analysis of this data is planned for 2023/24.

Relevant G&C agreements from 20-21 to 23-24

Directed G&Cs have been entered into with four Indigenous communities and organizations in the Ring of Fire region. Projects have covered a range of objectives including collection and compilation of Indigenous Traditional Knowledge (ITK) and values related to biodiversity, and wildlife surveys. All funding agreements support the goals of capacity building and building knowledge held by the communities, which will be available to support their participation in the Ring of Fire Regional Assessment. Conversations with Indigenous groups in the Ring of Fire region to discuss potential G&Cs for 24-25 are ongoing. Note that the terms and conditions of many funding contribution agreements with Indigenous recipients stipulate that all intellectual property rights created in association with the project remain the property of the recipient and as such can only be released or shared by the recipient.

Additional wildlife-related policies, programs and initiatives

The attached Excel file "ECCC-2023 RoF FAAR Update-Wildlife related funding.xlsx" lists ECCC G&C agreements from 2007-2008 to 2023-2024, relevant to the Ring of Fire region, and associated reports.

The following list provides ECCC wildlife-related policies, programs and initiatives active in 2023-2024, that may be of relevance to the Ring of Fire region. G&C funding opportunities are available for some of these programs and initiatives:

Cumulative Effects – Funding available through G&C opportunities to:

- Build capacity and engage Indigenous communities to advance the use and integration of Indigenous Knowledge and participation in Regional Assessments; and,
- Continue to support clear and transparent evidence-based decision making in the Impact Assessment process by developing Open Data tools to effectively manage and enhance access to user-friendly biodiversity information.

Habitat Conservation and Protection Programs, Policies and Initiatives

Through the following programs, policies, and initiatives, ECCC will continue to support efforts of partners and Indigenous Peoples to: restore, conserve, connect and protect habitat, in particular contributing to the federal government’s commitments to protecting 25% of Canada’s land and ocean by 2025 and working towards 30% by 2030; and to help manage priority habitats, including ECCC’s Protected Areas, and promote their value to Canadians.

- *Convention on Wetlands of International Importance (Ramsar Convention)* - To lessen the loss of wetlands and to ensure their conservation and sustainable wise use for future generations. Canadian conservation-based stakeholders work together to designate and effectively manage Ramsar sites. Two Ramsar sites occur in the vicinity of the Ring of Fire region; Polar Bear Provincial Park and Southern James Bay.
- *Federal Policy on Wetland Conservation (FPWC)* - To promote the conservation of Canada’s wetlands to sustain their ecological and socio-economic functions, now and in the future. The FPWC advocates wetland conservation through the full range of federal decisions and responsibilities. Cabinet directed that the FPWC be applied to all policies, plans, programs, projects, and activities carried out by the federal government. This policy commits federal departments to the goal of no net loss of wetland functions in the following three situations:
 - On federal lands and waters,
 - In areas affected by the implementation of federal programs where the continuing loss or degradation of wetlands has reached critical levels, and
 - Where federal activities affect wetlands designated as ecologically or socio-economically important to a region. Due to local circumstances where wetland losses have been severe, in some areas no further loss of any remaining wetland area may be deemed essential.
 - Within these three situations no further loss of wetland area may be required where wetland losses have been severe
- *Protected Areas* - To designate and effectively manage a network of marine and terrestrial National Wildlife Areas (NWAs) and Migratory Bird Sanctuaries (MBSs) for the benefit of migratory birds and species at risk. Co-management of sites is sought where possible. Three MBSs occur in the vicinity of the Ring of Fire region; Hannah Bay MBS, Akimiski Island MBS and Moose River MBS.
- *Indigenous Protected and Conserved Areas & other PCA Protected Areas* - To expand Canada’s network of protected and conserved areas, including Indigenous protected and conserved areas to contribute to Canada Target 1 of conserving 25% of Canada’s terrestrial and inland water areas by 2025
- *Indigenous Guardians Pilot Program* - To support Indigenous Peoples in exercising their responsibilities in protecting and conserving ecosystems, developing and maintaining sustainable economies, and continuing the profound connections between Canadian landscape and Indigenous culture

- *North American Waterfowl Management Plan (NAWMP)* - To conserve and restore wetlands, associated uplands and other key habitats for waterfowl and other wildlife populations through the Habitat Joint Ventures partnerships. The Ring of Fire region is part of the Eastern Habitat Joint Venture.
- *Nature Smart Climate Solutions Fund (NSCSF) – Indigenous-led Natural Climate Solutions* – To support on-the-ground Indigenous-led ecological restoration/conservation/protection efforts on lands (wetlands, grasslands and forests), waters, and biodiversity to reduce and capture greenhouse gas emissions. It will also support the documentation of Indigenous knowledge on wetlands and identify important wetlands to Indigenous communities.
- *Omushkego Wahkohtowin Project Finance for Permanence (PFP)* – will advance reconciliation and nature protection by supporting Indigenous-led partnerships in conservation, and support progress towards Canada’s target to protect 25% of lands and oceans by 2025 and 30% by 2030, and co-benefits.

Species at Risk Program

Continue to advance delivery of the Pan Canadian Approach to Transforming Species at Risk (SAR) Conservation in Canada and Indigenous-led species at risk conservation, with increased focus on projects delivering on the ground action with multi-species benefits.

- *Aboriginal Fund for Species at Risk (AFSAR)* - To support the development of Indigenous capacity to participate actively in the implementation of the Species at Risk Act. AFSAR also supports projects that will prevent species, other than species at risk, from becoming a conservation concern. Past and current AFSAR projects are shown in attached file [ECCC-2023 RoF FAAR Update-Wildlife related funding.xlsx].
- *Pan-Canadian Approach to Transforming Species at Risk Conservation in Canada* – In collaboration with the provinces and territories, the Pan-Canadian approach focuses on conservation of multiple species and ecosystems. Conservation efforts are concentrated on the following three priorities across Canada:
 - Priority species: Priority species have special meaning for Indigenous Peoples and most Canadians. Delivering conservation outcomes for targeted priority species can have significant co-benefits for other species at risk, wildlife in general, and related biodiversity values. Six federal, provincial and territorial shared priority species have been identified of which one, boreal caribou, occurs in the Ring of Fire region.
 - Priority places: Priority places are selected to have significant biodiversity, concentrations of species at risk, and opportunities to advance conservation efforts. There are two types of priority places; federal-provincial-territorial priority places and community-nominated priority places. There are currently no priority places in northern Ontario.
 - Priority sectors and threats: The pan-Canadian approach to species at risk requires collaborative action with partners and stakeholders to implement mitigation measures and to identify opportunities to improve conservation outcomes for species at risk. Key sectors identified under the pan-Canadian approach include agriculture, forestry, and urban development. Key threats include invasive alien species, wildlife disease, and illegal wildlife trade.
- *Indigenous Partnerships* - To support First Nations, Inuit, and Métis efforts to conserve species at risk in a manner that recognizes and enables Indigenous peoples’ leadership in the management of lands and resources.
The program provides directed funding to Indigenous partners for:
 - Building capacity to lead the design and implementation of conservation measures for species at risk and their habitat that consider existing and future interests of partner communities;
 - Negotiating and implementing agreements with interested First Nations, Inuit, and Métis that support Indigenous-led conservation of at-risk species;
 - Supporting the meaningful participation of First Nations, Inuit, and Métis in the implementation of the *Species at Risk Act*.

		<ul style="list-style-type: none"> • <i>Habitat Stewardship Program</i> - To support projects that contribute directly to the recovery objectives and population goals of species at risk listed on Schedule 1 of the <i>Species at Risk Act</i> and prevent others from becoming a conservation concern. <p><u>Migratory Birds and Other Wildlife Programs</u></p> <p>Domestic monitoring, conservation action, and management initiatives for migratory birds and other wildlife to deliver evidence-based products that directly support the Pan Canadian Approach to Species at Risk, including listing/recovery, climate change, priority sectors, priority species, conservation planning/action, and Indigenous engagement.</p> <ul style="list-style-type: none"> • <i>NAWMP – Species Wildlife Health</i> - To support projects that are focused on migratory game birds that are important from a North American Waterfowl Management Plan perspective. • <i>Wildlife Health</i> - To provide country-wide surveillance and support across the country in relation to wildlife health. Projects aim to support: <ul style="list-style-type: none"> • Health and threat monitoring (e.g. parasites, pathogens and diseases, including White-nose syndrome), • Assessment of information about these wildlife health issues, • Knowledge mobilization, and • Program management. • <i>Powley</i> - To provide funding to Métis organizations to gather information on their harvest of migratory birds and be able to participate in cooperative migratory bird conservation and management. • <i>Bird Monitoring and Conservation</i> - To support migratory bird conservation by engaging organizations (especially environmental non-government Organizations and universities, but also other levels of government) in delivery of various projects related to monitoring, management, and conservation of migratory birds. <p><u>Operational Framework for Use of Conservation Allowances</u></p> <p>This framework sets the parameters, based on existing legislated authorities, practice and policy, for how and when conservation allowances should be used or recommended by Environment Canada. Conservation allowances are the third step of the mitigation hierarchy, a three-step approach that first examines options to avoid and minimize environmental impacts. The framework applies where Environment Canada has a role related to the review or approval of proposed land- or resource-use activities, including those that occur on federal lands or waters, projects, or activities that are subject to federal legislation, actions that would affect Aboriginal and/or treaty rights, or when Environment Canada has environmental protection or conservation objectives that would be affected by the proposed activity.</p>
5.	Outline any additional responsibilities, information or knowledge and any partners or collaborations that have not been specified, above.	The Accord for the Protection of Species at Risk and the Canada-Ontario Agreement on Species at Risk, outline how the federal and Ontario provincial government cooperate on conservation and protection of species at risk.
PART 2	To contribute to the design of the regional assessment process and development of the terms of reference, please provide information or advice in relation to the items below.	
1.	Potential outcomes of the regional assessment	In the absence of details on the design and objectives of the regional assessment, ECCC can provide the following high-level suggestions on potential outcomes. ECCC expects to be able to provide more specific advice on potential outcomes once more details on the scope of the regional assessment have been determined in conjunction with the Province of Ontario.

		<p>Inventory and assessment of the current state of knowledge of the environment in the Ring of Fire area</p> <ul style="list-style-type: none"> • This could include wildlife and habitats, including species at risk such as Caribou and migratory birds, air and water quality, etc. • Analysis to identify priority data gaps, the information required to fill them, and the parties to be involved (i.e. federal, provincial, Indigenous groups, other) <p>A cumulative effects model to determine future cumulative effects based on development scenarios, factoring in climate change considerations</p> <ul style="list-style-type: none"> • Developing guidance and frameworks for decision makers in relation to future project impact assessments <p>Guidance and frameworks to inform decision makers in areas of respective jurisdiction in relation to future Impact Assessments (IA) in the Ring of Fire area</p> <ul style="list-style-type: none"> • This could include standard considerations for inclusion in future Tailored Impact Statement Guidelines including as it relates to valued ecological components, effects to be addressed, types of information to be collected, approaches for data collection, etc. <p>Establishment of standard mitigation to guide future planning and project development</p> <ul style="list-style-type: none"> • This may include the identification of areas of high ecological value where there could be implications for development (e.g. unique mitigation measures) or opportunities for offsetting.
2.	<p>Relevant geographic and temporal boundaries</p>	<p>Geographic and temporal boundaries will vary depending on the valued component being considered and the activities and projects being scoped into the assessment. ECCC can provide more detailed advice on appropriate geographic and temporal boundaries once more information on the scope of the regional assessment becomes available. In the interim ECCC offers the following comments for consideration.</p> <p>AIR</p> <p>The geographic boundaries of the assessment should include the Air Zone 1 airshed, as defined under the Canadian Council of Ministers of the Environment Air Quality Management System. To assist in managing air quality at local level, provinces and territories have defined smaller geographic areas called air zones that divide their jurisdiction and that have unique air quality characteristics. These characteristics may include pollutant sources, topography, meteorological patterns, population density and other potential factors that influence ambient air concentrations. Air Zone 1 is an area with limited pollution from either point or non-point source or transboundary influence, where the management activities focus on maintaining good air quality.</p> <p>CLIMATE CHANGE</p> <p>Given the potential for changes in future climate in the study area, there is also the potential for climate change to alter environmental conditions relevant to future projects in the study area (such as due to changes in precipitation or extreme events). Ideally, the temporal boundaries of the Regional Assessment should extend over the time-period for which potential project activities may occur in the area (e.g. to end of century).</p> <p>WILDLIFE</p> <p>The boundaries of the Regional Assessment should be defined with respect to the specific questions to be asked by the Regional Assessment committee, and with an understanding of the types, locations and life span of the developments to be included in the Regional Assessment, as well as the valued components to be considered, and what scales are relevant (e.g. watershed, wildlife range, etc.). As this information becomes available, the following advice should be revisited and updated.</p>

At present, it is not clear which portion of the currently planned development will be included in the scope of the Regional Assessment. ECCC recommends it include, at a minimum, the main crescent of mining claims known as the Ring of Fire, the proposed Webequie Supply Road, Northern Link Road and Marten Falls Community Access Road (including route alternatives), and the associated N-S mining claims as shown in Figure 5. Any other upcoming potential developments should also be considered for inclusion in the scope of the future development considered by the Regional Assessment.

Geographical boundaries

ECCC's recommendation related to geographical boundaries is defined by ECCC's mandate to consider migratory birds, species at risk, and their habitats, particularly wetlands. ECCC recognizes that the eventual spatial extent of the Regional Assessment may be larger than what is defined by ECCC's mandate. However, it is understood that geographic boundaries relevant to particular VCs can be a subset of the total spatial scope of the Regional Assessment. As such, ECCC recommends the following considerations for identifying geographical boundaries for i) boreal caribou, ii) eastern migratory caribou and iii) migratory birds and other species at risk.

Boreal Caribou

Caribou in this area are generally widespread, and the Ring of Fire mining claim crescent and the mining claims along the planned North-South road corridor overlap the border with four boreal caribou provincial ranges; Missisa, Ozhiski, Nipigon and Pagwachuan. In addition, collaring data demonstrates movement of boreal caribou between the Missisa range and the James Bay range to the east as well as the Swan range to the northwest. The boundary between the Missisa and James Bay ranges was delineated by the province of Ontario for logistical purposes (i.e., to select an area of reasonable size to survey), and does not reflect any major ecological pattern. In addition, the James Bay range is hydrologically downstream of the mining crescent, and therefore potentially at risk of downstream impacts of development. Boreal caribou rely directly and indirectly on the entire range, and move over large distances both within and between ranges to complete their lifecycle. As the Missisa, Ozhiski, Nipigon and Pagwachuan provincial ranges are likely to be directly affected by development, and the caribou in the James Bay range will potentially be impacted by downstream effects, and due to the regular movement of boreal caribou within and between these ranges, ECCC recommends the full extent of the following five ranges, Missisa, Ozhiski, Nipigon, Pagwachuan and James Bay be considered as the spatial extent for the boreal caribou under the Regional Assessment.

Impacts of disturbance for boreal caribou persist for at least 40 years (https://www.registrelep-sararegistry.gc.ca/virtual_sara/files/ri_boreal_caribou_science_0811_eng.pdf). A reasonable temporal boundary for assessment of cumulative effects would be 40 years after the life cycle of proposed projects.

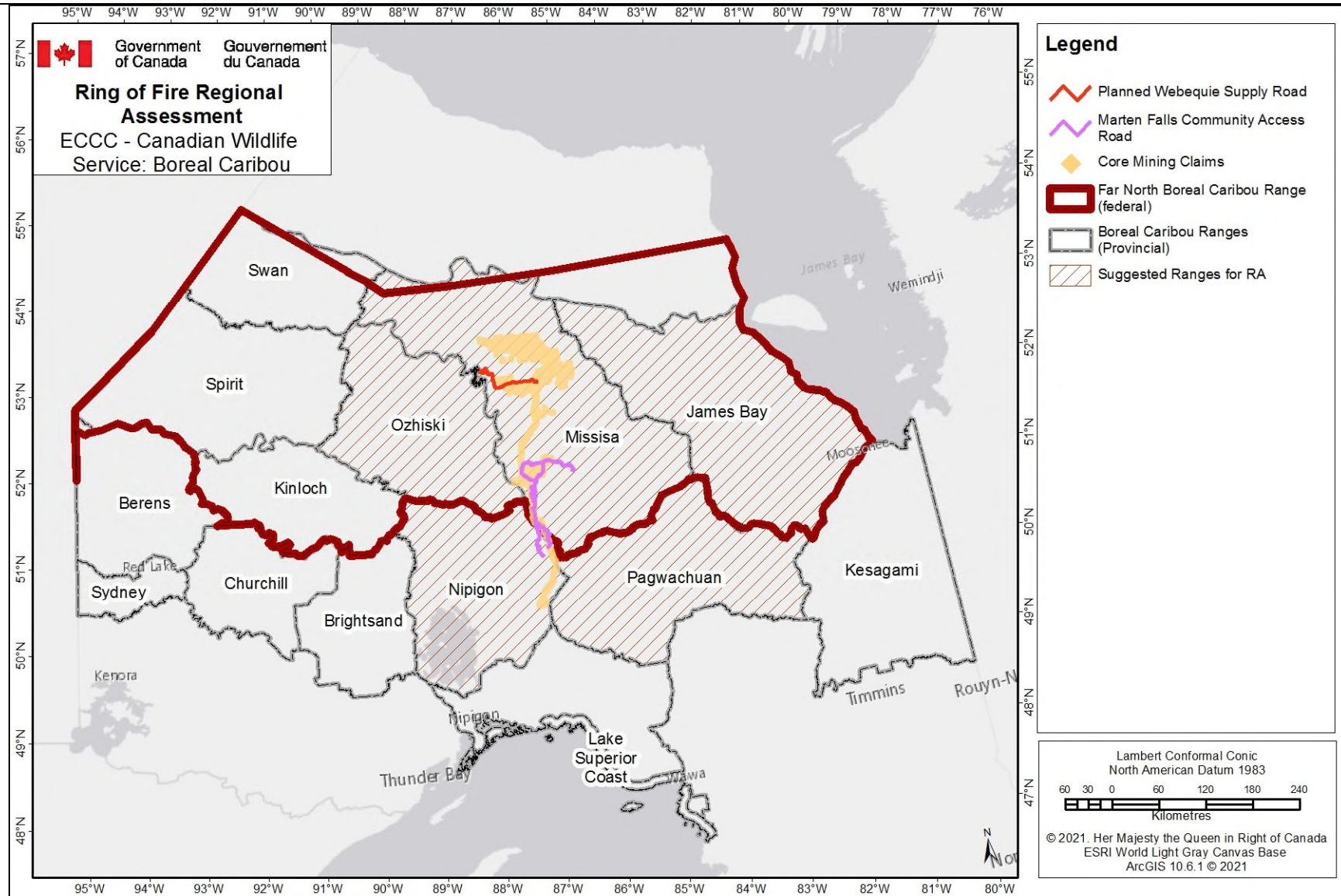


Figure 4. Boreal Caribou Ranges in Far Northern Ontario, highlighting suggested ranges to be considered in the Regional Assessment.

Eastern Migratory Caribou

The eastern migratory caribou in Ontario form part of the Southern Hudson Bay herd, which extends from Cape Henrietta Maria west across the Ontario-Manitoba border. Within this range, caribou move from the coast to spend the winter inland, and return to the coast for the summer, where they breed and calve. Therefore, eastern migratory caribou's range overlaps with the Ring of Fire mining claims and the boreal caribou ranges every winter. Data collected by ECCC through winter caribou surveys and radio-collaring data shared with ECCC confirms the presence of eastern migratory caribou in the Ring of Fire region in winter. Similar to boreal caribou, eastern migratory caribou rely directly or indirectly on the entire range to complete their lifecycles, and there is no recognized ecological subdivision of the Southern Hudson Bay herd, suitable for the purposes of the Regional Assessment. Therefore, ECCC recommends that the Ontario portion of the Southern Hudson Bay range of eastern migratory caribou be used as the spatial extent for eastern migratory caribou under the Regional Assessment.

Migratory birds and non-caribou species at risk

With respect to ECCC's mandate for migratory birds, and non-caribou species at risk and their habitats, ECCC's goal is to provide considerations for defining a spatial extent that serves each of the following purposes:

- Reflection of the extent and expected pathways of anticipated effects
- Provide an ecologically defensible context for future projects related to development in the Ring of Fire region, both individually and collectively
- Identification of existing datasets with respect to their known direct relevance to the Regional Assessment and/or to project assessments.

ECCC's suggested approach is to define a boundary informed by an analysis of the extent of anticipated effects of development and ecologically relevant land cover. Figure 5 is offered as an illustration of potential spatial boundaries in relation to the distribution and abundance of birds and non-caribou species at risk. This illustration is not intended to represent the mandates of other Ring of Fire partners on these species (e.g. water- or air-driven toxicological effects on birds and other wildlife). The map shows the Ring of Fire mining claim crescent, mining claims along the planned road corridors, and three potential boundaries at 50, 100 and 150 km from the mining claims shown. The final application of this approach is likely to result in different boundaries for different groups or species, depending on scale (for example different boundaries might be needed for wolverine compared to Yellow-banded Bumble Bee). Nevertheless, ECCC does not anticipate that it would be necessary to define a boundary much larger than the largest 150 km boundary presented as an example in Figure 5.

With respect to existing datasets, the largest of the illustrated boundaries was used to approximate those that might be expected to have direct relevance to the Regional Assessment, and to identify datasets that may be helpful in addressing particular objectives and questions (some of which may be led by other Regional Assessment partners) (see response to part 1 Question 3).

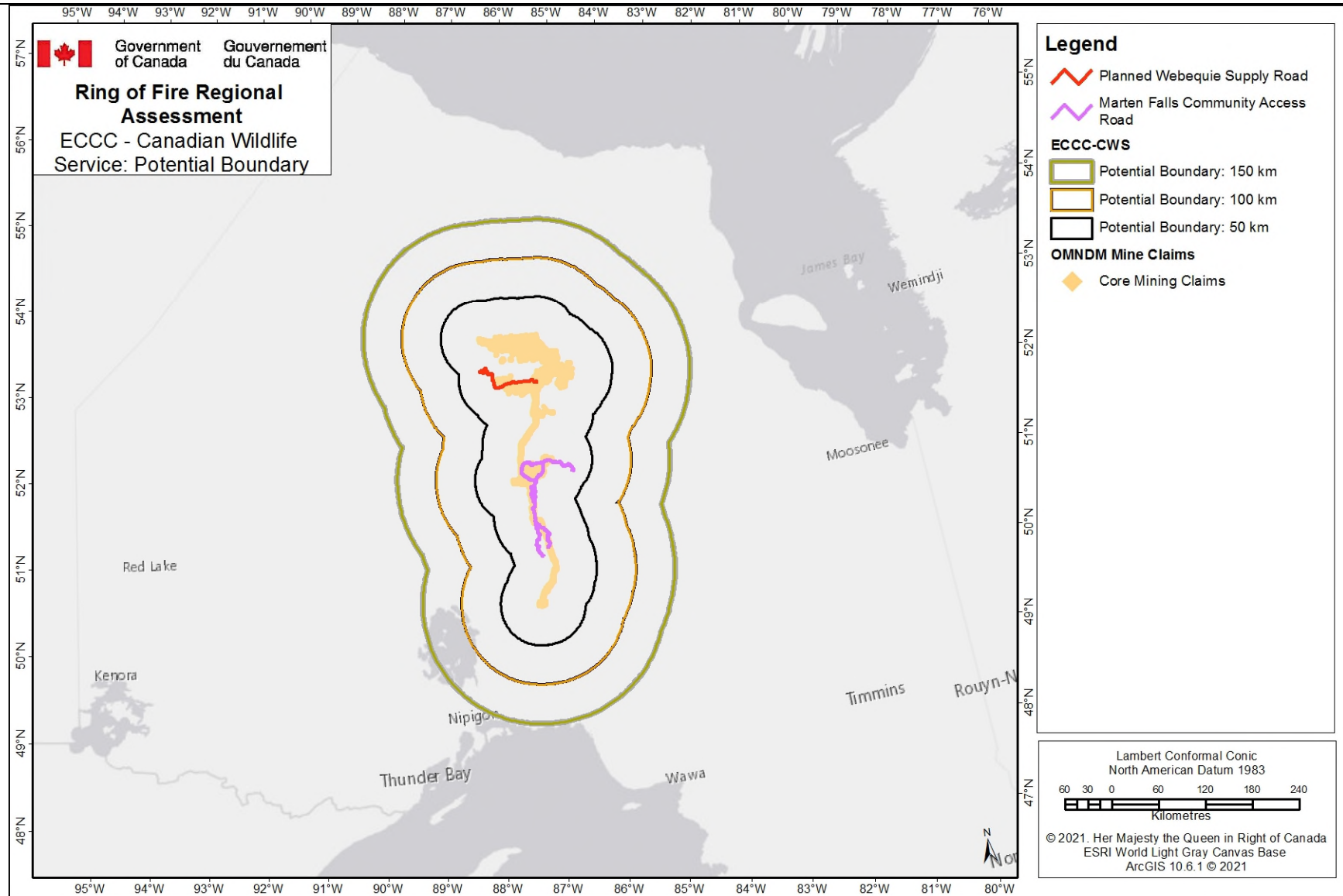


Figure 5: Map shows Ring of Fire mining claims, planned Webequie Supply Road and Marten Falls Community Access Road and three potential boundaries at 50, 100 and 150km from the claims. This map is intended as an illustration of potential spatial boundaries, not a final product; analysis will be used to define the final boundary relevant to migratory birds and non-caribou species at risk.

3.	<p>Factors to be considered in the regional assessment</p>	<p>AIR and WATER</p> <p>Mining</p> <p>The construction, operation, and decommissioning of mines can result in adverse effects on air and water quality. Mining operations, processing (crushing and milling), and activities associated with combustion (including transportation) can result in the emission of contaminants such as sulphur oxides (SO_x), nitrogen oxides (NO_x), polycyclic aromatic hydrocarbons (PAHs), volatile organic compounds (VOCs), particulate matter (PM_{2.5}, PM₁₀ and PM), carbon monoxide (CO) and metals. Activities that cause a physical disturbance to land and ore material, such as earth moving, land clearing, blasting, crushing, and transportation, can also introduce particulate matter (e.g., dust and soot) to the surrounding region. The emission of these air contaminants can result in local or regional degradation of ambient air quality, with potential impacts on human health as well as on sensitive ecosystem receptors. Furthermore, emissions of air contaminants may add cumulatively to the emissions from other activities, contributing to degradation of air quality in the region.</p> <p>When contaminants settle out of the air in the surrounding environment, their deposition may result in adverse impacts to terrestrial and aquatic ecosystems. For example, metals and polycyclic aromatic hydrocarbons (PAHs) emissions from mining activities may result in elevated concentrations of these contaminants in water, soil, flora, and fauna. Emissions of NO_x and sulphur dioxide (SO₂) may also lead to acidification and potential exceedance of ecosystems' critical loads. Air contaminant emissions can result in contamination of nearby land and waterbodies, and may affect plants, wildlife, and fish and fish habitat.</p> <p>The activities linked to the construction, operation, and decommissioning of mining projects can have adverse effects on the quality of groundwater and surface water, as well as on the hydrological regimes of watercourses and water bodies. Contaminants may enter waterbodies through wastewater discharge, seepage, or spills resulting in adverse effects on water quality.</p> <p>A mine project may include exposure of potentially metal-leaching rock to air and water. Interaction between water, air and the exposed rock could then lead to the leaching of metals into the receiving environment and water body, resulting in adverse effects on water quality.</p> <p>Mining operations can expose rock that contain soluble minerals. When water passes over or through them, these minerals can dissolve in water and result in highly saline runoff; this runoff drains into water bodies thereby altering salinity levels and resulting in adverse effects on water quality.</p> <p>Surface water quantity could change by alteration of surface flows, potentially affecting water quality. Furthermore, the production of process-affected water has the potential for contaminants to enter groundwater through seepage from the tailings disposal areas, contaminants that could transport to surface waters downstream. The effectiveness of closure plans for mines can affect long-term surface water quality.</p> <p>Mining projects may result in adverse effects to surface water quality through "drawdown" of the water table – that is, a lowering of the water table underground. Water table drawdown can happen because of construction of open pits, underground mines as well as through pumping out groundwater that seeps into an open pit or underground mine. It can also happen due to removal of water from constructed wells for water-intensive operational processes in the mine. The "drawdown" of a water table can have an impact on surface water quality by reducing the quantity of groundwater available to recharge surface water bodies. This, in turn, could reduce the total volumes of water in nearby lakes or rivers and potentially increase the concentration of contaminants in those water bodies, thereby resulting in adverse effects on water quality.</p>
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Road and Rail

Projects that involve rail traffic and projects which will result in an increase in demand for rail traffic as a direct result of the project (e.g., mining projects where product will be transported by rail) have the potential to adversely affect air quality. More specifically, the combustion of fossil fuels to power the rail engines can result in the emission of air contaminants such as sulphur oxides (SO_x), nitrogen oxides (NO_x), volatile organic compounds (VOCs), carbon monoxide (CO) and fine particulate matter (PM_{2.5}). When some contaminants settle out of the air in the surrounding environment, their deposition may result in acidification and potential exceedance of ecosystems' critical loads. The emission of these air contaminants can result in local or regional degradation of ambient air quality, with potential impacts on human health as well as sensitive ecosystem receptors.

Projects that involve on-road vehicles and mobile off-road machines for construction, operation and decommissioning, or that lead to an increase in road traffic (e.g. hauling of material by truck from mine to shipping terminal), have the potential to adversely affect air quality. More specifically, the combustion of fossil fuels can result in the emission of air contaminants such as sulphur oxides (SO_x), nitrogen oxides (NO_x), volatile organic compounds (VOCs), and fine particulate matter (PM_{2.5}). When some contaminants settle out of the air in the surrounding environment, their deposition may result in acidification and potential exceedance of ecosystems' critical loads. The emission of these air pollutants can result in local or regional degradation of ambient air quality, with potential impacts on human health as well as sensitive ecosystem receptors.

Pipelines, Transmission Lines, and other Linear projects

Activities related to the construction, operation, closure and/or dismantling of pipelines for fuel could have adverse effects on air and water quality. The combustion associated with these activities, such as the use of engines (road, off-road, stationary) or the operation of compressor stations, cause the emission of contaminants such as particulate matter (PM, PM₁₀ and PM_{2.5}), nitrogen oxides (NO_x), and sulphur oxides (SO_x). These activities can also be the source of the emission of other potentially hazardous substances, such as volatile organic compounds (VOCs), hydrogen sulphide (H₂S), polycyclic aromatic hydrocarbons (PAHs), and carbon monoxide (CO). The emission of these air pollutants can lead to local or regional degradation of ambient air quality that is likely to have negative effects on human health as well as on sensitive receptors in the ecosystem. These activities could also adversely affect the quality of surface and groundwater, as well as the hydrological regime of rivers and water bodies. Various activities, in particular the crossings of watercourses during the construction of the gas pipeline, hydrostatic tests, construction and maintenance of access roads, the excavation or reworking of soils, sediments, or rock, as well as drilling and blasting, could release harmful substances into nearby streams and waterbodies. Stormwater runoff, acid rock drainage and metal leaching, wastewater discharge, as well as groundwater resurgences could also affect surface and groundwater quality. Activities that physically disturb the soil or rock, such as earthworks, land clearing, blasting and transport, can produce dust (particulates). These emissions could lead to a degradation of air quality as well as the deposition of contaminants in terrestrial and aquatic environments.

Activities related to the construction, operation, closure and dismantling of transmission lines could have negative effects on air and water quality. Dust (particulates) can be released into the atmosphere leading to a degradation of air quality as well as the deposition of contaminants in terrestrial and aquatic environments. Clearing land, establishing hard surfaces, and discharging wastewaters into surface water and groundwater could impact water quality.

Construction Activities

Activities related to construction include transportation (use of vehicles), land clearing and demolition, and chemicals usage. These can lead to emissions of particulate matter (PM, PM₁₀ and PM_{2.5}), volatile organic compounds (VOCs), and other substances affecting air quality as well as the deposition of contaminants in terrestrial and aquatic environments. Pollutants from construction activities can seep into groundwater or discharge into surface water.

ENVIRONMENTAL EMERGENCIES

Spills preparedness is a necessary component for various project types that poses a risk of accidental spills or releases to the environment. It is usually based on a risk analysis that is derived from an assessment of the likelihood of a spill incident and its potential consequences. Components of such an analysis would normally include:

- Qualitative assessment of potential worst-case accident scenarios and their potential consequence impacts, including likely environmental receptors and pathways
- Quantitative assessment of potential alternative accident scenarios, including spill frequency and volume estimates
- Mitigation strategies (passive and active) to limit or contain such impacts
- Integrity management plans for critical infrastructure and safety equipment

Emergency Management Plans need to reflect a consideration of all potential accidents and malfunctions and must take into account regional conditions and environmental sensitivities. On the assumption that a catastrophic incident is likely to occur during the lifespan of a project, ECCC recommends that proponents commit to certain mitigation strategies, contingency plans and response capabilities commensurate with their project's environmental risks. These include, but are not limited to:

- Spill Contingency and Emergency Response systems and measures based on "worst-case" scenarios, and higher-probability but lower-consequence "alternative" accident scenarios
- Training programs and annual exercise regimes
- Staff certification and continuous improvement programs
- Environmental sensitivity research and mapping
- Contaminant fate & behaviour trajectory modelling and atmospheric transport & dispersion modelling through all seasons of the year
- Spill counter-measures testing and practice
- Contractual arrangements with certified Response Organizations
- Multi-organizational mutual aid agreements for response
- Community awareness and education initiatives
- Community emergency notification and communications procedures
- Spill research and development programs
- Follow-up monitoring for recovery

ECCC generally recommends that environmental emergency prevention, preparedness, response and recovery plans, reflect a consideration of applicable standards and best practices including the following:

- Canada Standards Association (CSA) *Emergency Planning for Industry* (third edition of CAN/CSA-Z731-03). <http://shop.csa.ca/en/canada/injury-prevention/z731-03-r2014/invt/27019912003>
- Canadian Standards Association (CSA). *Designing for the Environment* (CAN/CSA-Z762-95). Toronto: CSA, 1995; 2011. <http://shop.csa.ca/en/canada/design-for-the-environment/z762-95-r2011/invt/27002291995>.

- Canadian Standards Association (CSA). *Guideline for Pollution Prevention, Environmental Technology: A CSA Information Product* (General Instruction No. 1, Z754-94). Toronto: CSA, 1994. <http://shop.csa.ca/en/canada/environmental-management-systems/z754-94-r2001/inv/27001861994>
- *2016 Emergency Response Guidebook* (ERG2016) accessible at <http://www.tc.gc.ca/eng/canutec/guide-menu-227.htm>
- Council for Reducing Major Industrial Accidents/Conseil pour la reduction des accidents industriels majeurs (CRAIM) *Risk Management Guide for Major Industrial Accidents* (2002 edition) accessible at: <https://www.craim.ca/guides/>
- Environment and Climate Change Canada. *A Field Guide to Oil Spill Response on Marine Shorelines*. March 2010. <http://publications.gc.ca/site/eng/366655/publication.html>

GREENHOUSE GASSES

Existing and future activities within the Ring of Fire region may hinder or contribute to the Government of Canada’s ability to meet its commitments in respect of climate change.

Factors 22(1)(i) of *the Impact Assessment Act* requires that the assessment of a designated project assesses the extent to which the effects of the designated project hinder or contribute to the Government of Canada’s ability to meet its commitments in respect of climate change such as the Paris Agreement, Canada’s 2030 target and Canada’s goal of net-zero emissions by 2050.

As such, the regional assessment should consider GHG emissions, impacts on carbon sinks and mitigation measures as per the guidance provided in the Strategic Assessment of Climate Change (SACC) (revised October 2020).

CLIMATE CHANGE

In general, climate change may alter the likelihood or magnitude of sudden weather events such as extreme precipitation that can contribute to flooding, as well as contribute to longer-term changes such as sea level rise, permafrost thaw and changes to migration patterns. Changes related to warming are already evident in many parts of Canada, and are projected to continue in the future with further warming. If not properly considered, such changes may cause issues such as equipment failures that can threaten the environment, human health and safety, interrupt essential services, disrupt economic activity, and incur high costs for recovery and replacement.

Potential climate changes in the Ring of Fire area, such as possible changes in mean and extreme precipitation and temperature and related environmental conditions, may alter baseline conditions. Consideration of potential climate change effects, including implications for climate sensitive aspects of future project design and associated effects on the environment, is therefore of relevance for those projects where climate over the project lifetime is projected to be different from past and current climate in the area. The regional assessment should provide information on how climate may change in the Ring of Fire study area.

WILDLIFE AND HABITAT

The following would be beneficial as valued components under the Regional Assessment:

- Birds, migratory birds and their habitats
- Species listed as Extirpated, Endangered, Threatened or Special Concern under SARA, and their habitats, including boreal caribou (note that this list will change over time as changes are made to the species listed under SARA)
- Species assessed as Endangered, Threatened or Special Concern by COSEWIC that may be listed under SARA in the future, and their habitats, including eastern migratory caribou (note that this list will change over time as more species are assessed/reassessed by COSEWIC)
- Wildlife of importance to Indigenous peoples (e.g. hunted species, species of cultural importance) and their habitats. Some information on these species was gathered by an Indigenous organization through a G&C and shared with ECCC. However, the information provided should not be considered a complete list. Some species identified included Bear, Moose, Muskrat, Geese and Ducks, Sandhill Crane, Ruffed Grouse, Spruce Grouse, Ptarmigan, and many plant species among others.
- Wetland function

Assessment over large areas is necessary for caribou, but may not be required for other valued ecosystem components. In cases where expected impacts may be more localized, smaller study areas may suffice. Allowing different geographic boundaries for different ecosystem components may help limit the scope of the regional assessment and prioritize resources.

Important habitat features that support migratory birds, species at risk and other wildlife in the Ring of Fire region should be considered throughout the Regional Assessment. Additional habitat features may be added to this list as understanding of wildlife habitat associations in the region grows. Water bodies, wetlands, watercourses; riparian habitat; river banks or other eroded habitats; artificial water sources; forest, tree patches, solitary trees (especially old decaying trees); forest edges and tree rows; ridges, including eskers; caves and mines; cliffs, rock outcrops, exposed bedrock, talus, and other karst topography; buildings, bridges, and other anthropogenic features, including linear features; sources of artificial lighting attracting insects; critical habitat; and any other habitat features known to be important in the area should be considered important habitat features.

The following SARA-listed migratory bird species are known to occur or are likely to occur in the Ring of Fire region:

- Bank Swallow (Threatened),
- Barn Swallow (Threatened, reassessed as Special Concern by COSEWIC),
- Canada Warbler (Threatened, reassessed Special Concern by COSEWIC),
- Common Nighthawk (Special Concern),
- Evening Grosbeak (Special Concern),
- Horned Grebe, Western population (Special Concern),
- Olive-sided Flycatcher (Special Concern),
- Rusty Blackbird (Special Concern),
- Yellow Rail (Special Concern),
- Whip-poor-will (Threatened) – likely non-breeding,
- Eastern Wood-pewee (Special Concern)

- In addition, Lesser Yellowlegs, which has been assessed Threatened by COSEWIC, also occurs in the Ring of Fire region.

Other terrestrial SARA-listed species known to occur or are likely to occur in the Ring of Fire region include:

- Little Brown Myotis (Endangered),
- Monarch (Special Concern, reassessed Endangered by COSEWIC, non-breeding),
- Northern Myotis (Endangered),
- Short-eared Owl (Special Concern, reassessed as Threatened by COSEWIC),
- Wolverine (Special Concern),
- Woodland Caribou, Boreal population (Threatened),
- Yellow-banded Bumble Bee (Special Concern).

In addition, Caribou, Eastern Migratory population (assessed Endangered by COSEWIC), Black Ash (assessed Threatened by COSEWIC), Eastern Red Bat (assessed Endangered by COSEWIC), Hoary Bat (assessed Endangered by COSEWIC), and Silver-haired Bat (assessed Endangered by COSEWIC) also occur in the Ring of Fire region.

Depending on the scope and boundaries of the regional assessment, the following additional terrestrial SARA-listed species occurring along the James Bay and Hudson Bay coasts may also need to be included:

- Buff-breasted Sandpiper (Special Concern),
- Bobolink (Threatened, reassessed as Special Concern by COSEWIC),
- Eastern Meadowlark (Threatened),
- Henslow's Sparrow (Endangered),
- Polar Bear (Special Concern),
- Red-necked Phalarope (Special Concern),
- Red Knot rufa subspecies (Endangered, recently reassessed by COSEWIC as three different designatable units:
 - Red Knot rufa subspecies (Northeastern South America wintering population) DU4, Special Concern;
 - Red Knot rufa subspecies (Southeastern USA / Gulf of Mexico / Caribbean wintering population) DU5, Endangered;
 - Red Knot rufa subspecies (Tierra del Fuego / Patagonia wintering population), DU3, Endangered)

In addition, two COSEWIC assessed species; Harris's Sparrow (Special Concern), Hudsonian Godwit (Threatened), occur along the James Bay and Hudson Bay coasts.

Caribou

Both boreal caribou (Threatened) and eastern migratory caribou (assessed by COSEWIC as Endangered) occur in the Ring of Fire region. Multiple lines of evidence based on recent surveys and data collection suggest important concentrations of boreal and eastern migratory caribou occur around the Ring of Fire mining crescent in winter. The Missisa and James Bay boreal caribou ranges are among the least disturbed ranges in Canada. Available information on the status of boreal caribou populations in these ranges comes from a 2014 provincial assessment informed by 2008-2013 data which found relatively low

survival and recruitment rates even in undisturbed areas. Available information suggests the populations may be vulnerable even though disturbance is low. Little data is available on eastern migratory caribou in this region. Baseline data collection and ongoing monitoring is necessary to assess effects of development on populations of boreal caribou and eastern migratory caribou in the region. Consideration of the cumulative effects of proposed development on boreal caribou and eastern migratory caribou behaviour may help mitigate impacts.

Wildlife and Habitat, general:

There is the potential for development in the Ring of Fire region to adversely affect species at risk and migratory birds and other wildlife through a variety of mechanisms including: mortality, habitat loss, habitat disturbance, changes in habitat connectivity, poaching, sensory disturbance and changes to ecological relationships such as predator-prey relationships, and food availability. Boreal caribou and eastern migratory caribou may be particularly vulnerable to the impacts of development as they are wide-ranging and move throughout the area to access required habitat as needed through their annual cycle. Both boreal caribou and eastern migratory caribou in the region are under-studied and the region is largely undisturbed. As a result, data regarding the local caribou populations and their expected response to Ring of Fire developments is lacking. Recently, multiple lines of evidence, including data collected by ECCC through winter caribou surveys and radio-collaring data shared with ECCC, suggest important concentrations of caribou around the Ring of Fire mining crescent. There is also the potential for adverse effects of development on wetland function including direct loss of wetlands, hydrological changes, changes in geomorphological processes, and release of harmful substances. The impacts of future development in the region are difficult to reliably predict due to the i) the complicated nature of the potential future development, including different types of development with different lifecycles overlapping in space and time, ii) the added impact of the opening up of a previously remote area with low levels of human population to increasing human use and iii) the complex ecological setting, where the proposed developments straddle two quite different ecoregions in which the impacts of development need to be predicted. In addition, the current understanding of potential impacts is limited because there is minimal development in the region from which to extrapolate impacts. Therefore, it will be important to consider the potential for and interaction of cumulative effects from many types of physical activities and/or projects that have been or will be carried out for all of the issues described below in both the shield to the west of the planned development and in the lowlands to the east. Given that our ability to predict cumulative effects in this region is constrained by limited data and limited understanding of a landscape that has received relatively little scientific attention until recently, predictions about the impacts of disturbance and climate change on wildlife and habitat in this region should be considered provisional, uncertain, and subject to change as additional data is collected. ECCC has gathered some background information and conducted some surveys on species at risk, migratory birds and wetlands that may help to inform adverse effects from development. This work is on-going and the results and data obtained to date are detailed in the CWS-ON Interim Report on Biodiversity in the Ring of Fire Region, V2.0 and the attached excel file "ECCC-2023 RoF FAAR Update-WildlifeDataSetsWithinProposedBoundary.xlsx", and are available upon request.

The following comments describe anticipated factors to be considered, but is limited by current understanding of the types of future developments (mining and all-season roads), and by understanding of impacts in this complicated region, where impacts particularly in the vast peatlands areas are difficult to predict.

Wildlife and Habitat, Mining

The activities linked to the construction, operation, and decommissioning of a mine and associated infrastructure could have negative effects on terrestrial wildlife, including migratory birds and species at risk (amphibians, arthropods, birds, lichens, terrestrial mammals, mosses, reptiles, and vascular plants) listed under SARA, and their habitat, and to wetland function.

The nature of effects to wildlife and habitat (including residences and critical habitat defined under SARA) can vary based on a number of factors, including: project location, duration, scale, and configuration; ancillary project activities (land clearing, dredging, flaring, marine shipping); existing cumulative effects; the type of habitat that may be disturbed; and sensitivity of species found in the project area. The pathway through which potential effects are conveyed will depend on the land, air, and water constituents associated with the site along with the behavioral adaptability, presence and interaction with the species limiting factor (e.g., habitat supporting staging, nesting, roosting foraging or movement) and population resilience. These factors may be accounted for and support reliable decision making if both information on effects pathways and analyses supported by sufficient data foundations can be achieved.

Wildlife and Habitat, Linear Projects

The activities linked to the construction, operation, and decommissioning of linear projects in the Ring of Fire region could have negative effects on terrestrial wildlife, including migratory birds and species at risk (amphibians, arthropods, birds, lichens, terrestrial mammals, mosses, reptiles, and vascular plants) listed on (SARA), their habitat, and wetlands. These impacts will be particularly important in this region, which currently has no all-season roads or other large linear disturbances. Fragmentation of habitat by roads can impact all wildlife, but species that move over large distances within the region during their annual cycle including caribou and Wolverine are particularly vulnerable to linear projects. In addition, all anthropogenic disturbance, including clearing of land is associated with increased predation rates on boreal caribou.

The nature of effects to wildlife and habitat (including residences and critical habitat defined under the SARA can vary based on a number of factors, including: project location, duration, scale, and configuration; ancillary project activities (land clearing, dredging, flaring, marine shipping); existing cumulative effects; the type of habitat that may be disturbed; and sensitivity of species found in the project area. The pathway through which potential effects are conveyed will depend on the land, air, and water constituents associated with the site along with the behavioral adaptability, presence and interaction with the species limiting factor (e.g., habitat supporting staging, nesting, roosting or foraging) and population resilience.

The impacts of roads, railways, and power lines in particular has the potential to be a permanent impact on the region, both in terms of the impacts on wildlife, habitats and wetlands discussed below, but also in terms of increasing the access to the region, and therefore the level of human disturbance and predator access in general.

Migratory birds and species at risk and their habitat, Mining

Exploration and construction of mines and associated infrastructure often require large-scale land clearing activities, which leads to destruction, disturbance and fragmentation of habitat (e.g., foraging, nesting, hibernating, movement), habitat avoidance, sensory disturbance, and the inadvertent disturbance and destruction of individuals, nest and eggs of migratory birds and species at risk. There is a higher risk that these effects would be more impactful for migratory birds that are also species at risk and species where habitat is sensitive to disturbance (e.g., wetlands) or where there is already a high degree of cumulative effects to habitat or individuals. Destruction and/or disturbance of habitat can have increased impacts on species at risk individuals, residence and their critical habitat, which can lead to changes in prey and predator dynamics, loss of food resources, loss of breeding areas, changes in migration or movement, and increased risk of mortality. Boreal caribou in particular can be affected by mining though a combination of direct and functional habitat loss, habitat disturbance and development of linear features directly associated with mines, such as roads and seismic lines (i.e. habitat fragmentation). In addition, all anthropogenic disturbance, including clearing of land and the development of linear features in particular, is associated with increased predation rates to boreal caribou. The effects of habitat alteration on boreal caribou can reduce the viability of local populations through the reduction of habitat quality and quantity, through reductions in habitat

connectivity and through increased predation rates. Loss of habitat connectivity within or between ranges is particularly detrimental to boreal caribou, which rely on large-scale movements between different habitat types across the region to complete their life-cycle.

The construction of mines may create new hibernation habitat for bat species at risk, specifically Little Brown Myotis and Northern Myotis. Bats using these new hibernacula would potentially be exposed to direct impacts while exploring the potential new habitat and while using mines as hibernacula, such as injury or collisions from machinery and exposure to toxic substances. Once a mine is inhabited by bats infected by White-nose syndrome, there is the possibility of spread of fungal spores to other mines via contaminated equipment, including clothing and boots of people working in the mines. Decommissioning of mines has the potential to impact bats by removing hibernacula.

The construction, operation and decommissioning of mines may impact wildlife directly and indirectly through impacts to habitat through changes in geomorphological processes (e.g., sedimentation processes, water quality and quantity). Additionally, birds that land on and/or frequent wastewater (e.g., submerged tailings in tailings ponds, pit water) have the potential to come into contact with toxic substances which can result in on- and off-site mortality. During construction, operation, maintenance and decommissioning, there is the potential for harmful substances to enter or be spilled into the receiving environment that may negatively affect wildlife. Depending on the nature of the release (e.g., toxicity, volume release, exposure pathways), effects to wildlife could be acute, chronic or both. Changes to water quality and quantity can affect migratory birds, wildlife, and their habitat.

Noise, vibrations and light from construction and operation activities may result in habitat disturbance, which can lead to avoidance of use. Boreal caribou are particularly sensitive to sensory disturbance, and show diminished use of these areas (i.e., functional habitat loss). They can also face chronic stress and negative energetic consequences from fleeing disturbances. For birds, attraction to lights at night or in poor visibility conditions during the day may cause them to collide with lit structures or their vertical support structures, resulting in injury or death. In other instances, birds can get disoriented while circling a light source, and may deplete their energy reserves and either die of exhaustion or drop to the ground where they are at risk from predation. Wildlife could be adversely affected by sensory disturbance during construction and operation, as a result of noise and vibrations from blasting and operation of machinery. Noise from construction and operation activities can result in changes of vocalizations in species that rely on vocal communication.

Migratory birds and species at risk and their habitat, Linear Projects

Individual mortality and the destruction of nests and eggs or any other structure necessary for the reproduction and survival of species of risk could occur during all project phases of linear projects, particularly during site preparation, right-of-way maintenance and project dismantling. Mortality in migratory birds and species at risk could also occur due to collisions with vehicles or infrastructure associated with roads during construction and operation. Further, creation of clearings in upland habitat could attract Eastern Whip-poor-will and Common Nighthawk, both migratory birds that are also SARA-listed (Threatened), to areas where there is vehicular traffic, thereby increasing collision risk. The direct mortality impacts of linear infrastructure are likely to be most severe for i) species that move over large areas, and are therefore more likely to encounter linear infrastructure, ii) migratory birds that are also species at risk, and species where habitat is sensitive to disturbance (e.g., wetlands) or iii) where there is already a high degree of cumulative effects to habitat or individuals.

Construction of linear projects can cause the loss, fragmentation and alteration of habitat, and can negatively impact the reproduction, migration and wintering of affected species. The fragmentation of habitat due to the combined physical presence of linear infrastructure and sensory disturbance associated with the infrastructure likely presents the potential for the largest adverse effect of linear projects on wildlife, and is independent of the size/operational use of the road. Habitat fragmentation reduces connectivity of habitat, separating populations of wildlife and impacting movement, foraging and genetic connectivity. Mammals with relatively large sizes, low reproductive rates and high mobility, such as caribou and Wolverine, are likely

to be particularly susceptible to indirect impacts of habitat fragmentation through linear infrastructure. In addition, construction of linear infrastructure can facilitate movement of predators within the boreal forest to areas not previously accessible to predators and hence can increase the abundance, distribution and hunting efficiency of species that prey on boreal caribou. Additional predation associated with linear infrastructure can be highly detrimental to boreal caribou.

Migratory birds and species at risk could be affected by sensory disturbances during the construction, operation, and decommissioning of linear projects. Some examples of potential sources of sensory disturbance include noise from various project activities, lights, vibrations from excavation and blasting work and the operation of machinery, as well as the presence of workers. The amount, duration, frequency, and timing of noise are important to understand potential effects. Sensory disturbance may make adjacent habitats unsuitable for use by wildlife and cause avoidance effects in many species. Caribou in particular avoid roads due to sensory disturbance.

Construction and operation of linear projects may have a particular adverse affect on migratory birds and species at risk in upland habitats (e.g. eskers). Upland habitats in the Ring of Fire region may provide breeding habitat for migratory birds, and maternal roosting habitat for bats (which are considered residences under SARA), and may potentially be used as travel corridors by caribou and other wildlife. Road and other linear disturbance are likely to be biased toward eskers and similar geological features, due to the presence of aggregates used in construction and maintenance, and therefore species associated with those upland habitats are likely to experience adverse effects. In this region, eskers and related features are uncommon and potentially ecologically important elements of the landscape. Development impacts to these features may therefore be disproportionate to the area affected (i.e. requirement for land use planning maps).

Import and spread of invasive plant species can occur during road construction, operation, and maintenance, and linear features are more likely to create conduits for the transport of invasive species. One example is *Phragmites australis* (European Common Reed) which could be a substantial threat to the extensive wetland habitat within the region. The spread of invasive species into habitats used by migratory birds and species at risk may pose a threat to wildlife. Linear disturbances may also have other negative effects on wildlife, particularly by facilitating the movement of predators in the area, thereby increasing predator abundance, distribution and hunting efficiency. In addition, construction of roads may also promote access to the region and increased harvesting pressure, which may affect wildlife.

Construction, operation and decommissioning of roads can also lead to the accidental release of oil or chemicals into the environment. These spills could have adverse effects if these substances make their way into the habitats frequented by migratory birds and species at risk. Salt and grit used in the operation of roads can impact migratory birds and species at risk by attracting birds and animals to roads to consume the salt or grit, and can affect adjacent habitat through changes in water quality.

Wetlands, Linear Projects

The activities linked to the construction, operation, and decommissioning of linear infrastructure could have negative effects on wetlands and their ecological functions. ECCC notes that the wetlands of this region include extensive, globally significant peatlands. Land clearing activities associated with construction of linear infrastructure have the potential to lead to direct wetland loss. Wetland function can be indirectly affected by construction, operation and maintenance and decommissioning of linear infrastructure through hydrogeological changes, and changes in geomorphological processes (e.g., sedimentation processes, water quality and quantity). Adverse effects could occur to water quality as a result of spills or oil, fuel or other chemicals and runoff or salts or grit use during roadway operation. Runoff of salt in particular has the potential to impact water quality in exposed wetlands. Construction of linear infrastructure is likely to alter existing wetland and upland hydrology (e.g. wetlands may dry up or upland areas could be

		<p>submerged) and thus to affect the quality or availability of habitat for migratory birds and species at risk. The planned roads will cross large areas of wetlands which will be permanently and unpredictably impacted by changes in hydrology both upstream and downstream of the roads, and permanently exposed to the risk of spills and changes in water quality associated with run-off. The spatial extent of these impacts is difficult to predict but has the potential to extend considerable distances.</p> <p>The activities linked to the construction, operation, and decommissioning of a linear project can contribute to the introduction and spread of invasive plant species. A linear disturbance is more likely to create introduction and dispersal pathways for invasive species like the European Common Reed. The spread of invasive species may pose a threat to wetlands and the wildlife using them both along the length of the planned infrastructure and throughout the region as the invasive species spread.</p> <p><u>Wetlands, Mining</u></p> <p>The activities linked to the construction, operation, and decommissioning of mines could have negative effects on wetlands and their ecological functions. ECCC notes that the wetlands of this region include globally significant bogs and extensive peatlands. Land clearing activities associated with construction of mines have the potential to lead to direct wetland loss. Wetland function can be indirectly affected by construction, operation, maintenance and decommissioning of mines through hydrogeological changes, and changes in geomorphological processes (e.g., sedimentation processes, water quality and quantity). Adverse effects could occur to water quality as a result of chemical spills or runoff of sediments from construction areas near waterways. Carrying out the project, particularly the activities related to construction, is likely to alter existing wetland and upland hydrology (e.g. wetlands may dry up or upland areas could be submerged) and thus to affect the quality or availability of habitat for migratory birds and species at risk. Destruction and alteration of wetland habitat is likely to cause negative effects on or harm migratory birds and species at risk that use these areas during the breeding season (including boreal caribou, yellow rail), as well as for foraging, resting and migration.</p>
	<p>Input or advice on any other aspect of the design of the regional assessment and development of the terms of reference</p>	<p>CUMULATIVE EFFECTS</p> <p>A cumulative effects assessment within a project-level assessment focuses only on those components of the environment being considered in the project assessment and where there is a residual effect after application of mitigation measures.</p> <p>Research and academic literature on best practices for regional cumulative effects initiatives identify the following common elements:</p> <ul style="list-style-type: none"> • <u>Scoping</u>: the selection of valued components and indicators of their state or condition as well as the identification of drivers (both human and natural) that would influence the valued component. Drivers could include, for example: natural variation in a population, the degree of habitat fragmentation, changes to climate, etc. • <u>Analysis</u>: modeling the relationships between the drivers and the valued components and also modeling how the drivers interact with each other. It would also include the identification of plausible scenarios for the state and interaction of the drivers and an evaluation of effects to each of the valued components under those scenarios. For example, one could model the effects to caribou in a no development, moderate development or high development scenarios. • <u>Conclusions, Mitigation and Recommendations</u>: the interpretation of the importance of the predicted effects, identification of measures to mitigate effects, and in some cases recommendations to decision-makers. • <u>Follow-up and Monitoring</u>: Most of the time, follow-up would include monitoring and a process for adaptive management.

Interim Message on Cumulative Effects

In August 2022, the Government of Canada published the interim message on cumulative effects (<https://www.canada.ca/en/services/environment/cumulative-effect/interim-messaging.html>):

- The Government of Canada recognizes that understanding, considering, and supporting the management of cumulative effects is an important issue.
- GoC recognizes that understanding, considering, and managing cumulative effects requires collaboration and partnerships.
- Cumulative effects form a complex and overarching issue ... leadership and coordination are key, particularly across the federal government, but also with other jurisdictions.
- At a minimum, this message applies to activities undergoing federal impact and environmental assessment processes; departments and agencies may choose to apply it to other processes.
- Cumulative effects can result in impacts to Indigenous rights and interests.
- The identification and understanding of cumulative effects takes place in the context of Reconciliation and the UNDRIP Act.
- The legal context of the implications of cumulative effects on Indigenous rights and interests is continuing to evolve.
- The understanding, consideration, and management of cumulative effects is evolving, and GoC approach plans to evolve with it.

Next steps from interim message:

- “The Government of Canada will continue to develop and implement a plan to explain and provide additional detail on how it will understand, consider and support the management of cumulative effects.
- Jurisdiction over cumulative effects is shared among different levels of government. The Government of Canada will look to Indigenous peoples, governments, industry, stakeholders, and the public to contribute to enhancing our shared understanding, consideration, and management of cumulative effects.”
- All Government of Canada departments and agencies are encouraged to use the interim message where relevant to ensure consistency throughout the Government of Canada’s decisions.

Approaches to Generating Science Inputs

Project IAs would benefit from an Regional Assessment that is designed in part to demonstrate, at a high level, preferred approaches to generating science inputs to decision making. As for the Regional Assessment, each project IA must evaluate existing data with respect to defined information needs, must develop a path to generate information from the analysis of data, and must identify and address data gaps in relation to their importance. As for the Regional Assessment, individual project IAs require that expertise, data and analysis be combined to generate defensible decisions (e.g. spatial and temporal boundaries). An Regional Assessment that demonstrates clarity and scientific rigour in these approaches would reinforce these qualities in the individual project IAs. The Regional Assessment should result in a framework and land use planning maps to guide development by identifying hot spot areas to avoid, ideal locations for supporting infrastructure (roads, rail, power lines, etc.), areas with important ecological features, important areas for Indigenous land use, etc.