

12 November 2019

Via email: [ec.ministre-minister.ec@canada.ca](mailto:ec.ministre-minister.ec@canada.ca)

cc: [ceaa.information.acee@canada.ca](mailto:ceaa.information.acee@canada.ca); [ceaa.webequie.acee@canada.ca](mailto:ceaa.webequie.acee@canada.ca) and [ceaa.MartenFalls.acee@canada.ca](mailto:ceaa.MartenFalls.acee@canada.ca)

**Re: Formal Request for a Regional Assessment with respect to Marten Falls Community Access Road Project (Reference number: 80184) and Webequie Supply Road (Reference number: 80183).**

Dear Minister:

Please consider this letter as our formal **request to conduct a regional assessment** for the Ring of Fire region of northern Ontario.

We are submitting this request in our capacity as scientists with Wildlife Conservation Society (WCS) Canada with 15 years of experience in the region of question (see **Our Expertise** below). We are engaged in the individual projects assessments of Marten Falls Community Access Road Project (MFCARP) (Reference number: 80184) and Webequie Supply Road (WSRP) (Reference number: 80183).

The Federal government has the capacity under the new *Impact Assessment Act* to assess the region broadly and can use the Ring of Fire as an effective example of the benefits of the new legislation including: addressing other risks to social-ecological systems that cannot be addressed in project-level assessment or Ontario's environmental assessment program; addressing cumulative effects; and, addressing Aboriginal and Treaty rights, claims and interests that stand to be directly and cumulatively impacted by individual projects and the larger Ring of Fire development.

- **Project-level assessment under federal and provincial legislation cannot address risks of development and climate change to the social-ecological systems in the Ring of Fire region.**

Risks associated with the region-opening potential of development in the Ring of Fire should not be left to the current project-level approach that excludes the consequences of current and “reasonably foreseeable future projects and impacts”.

Currently, the two individual road projects underway in the Ring of Fire, meet the need for federal impact assessment<sup>1</sup>. Both project description documents include a stated intention to facilitate additional development in the region beyond the current scope of project-level impact assessment. The potential for direct, indirect and cumulative potential impacts on social, ecological, and economic systems stemming from both the projects and subsequent regional development is therefore important.

Other reasonably foreseeable projects in the region include Noront's Eagle's Nest Project, a ferrochrome smelting facility, several all-season roads, ongoing mineral exploration, and the Wataynikaneyap Power Line Project (Phase 1 and Phase 2). These projects and their impacts may or may not receive federal attention and are not being anticipated in MFCARP and WSRP. Taken together, the MFCARP and WSRP as well as other development projects in the region raise multiple issues, in addition to their potential

---

<sup>1</sup> We understand that the Agency has not yet made a section 16 determination, but our remarks are based on the case we have already made in our correspondence to the Agency respecting both projects on August 26, 2019.

cumulative impacts, that will need to be addressed early on the development process to ensure sustainability.

WCS Canada is on the public record regarding concerns about the piecemeal approach that Ontario is taking with respect to planning in the Ring of Fire. WCS Canada has also made a case for a regional strategic assessment in the Ring of Fire<sup>2</sup>. We are also on the public record outlining our concerns about Ontario's failed approach to enabling coordination of regional impacts (i.e., infrastructure, impact assessment) and benefits (i.e., revenues, monitoring) through the Regional Framework Agreement<sup>3</sup> between nine First Nations (Matawa) and Ontario as well as the limitations of Ontario's environmental assessment program, particularly the inability of Ontario to address cumulative effects.

- **A regional assessment is justified based on the need to consider and address cumulative effects of projects in the region.**

Federal guidance states that cumulative effects assessments should consider "changes to the environment that are caused by an action in combination with other past, present and future human actions"<sup>4</sup>. Future human actions typically includes "reasonably foreseeable projects and impacts." CEAA defined reasonably foreseeable in 2016 as "the physical activity is expected to proceed, e.g. the proponent has publicly disclosed its intention to seek the necessary EA or other authorizations to proceed<sup>5</sup>."

More broadly, the multi-generational potential of the Ring of Fire mines and infrastructure has been promoted by industry, the Ontario government, and some First Nation communities, making it "foreseeable" that this region will undergo intensive development at some point. However, such claims have not been accompanied by analyses of how these projects could proceed and whether and how they will change the nature and dynamics of the social, ecological, and economic context of the region. Undertaking a regional assessment can provide a transparent means of discussing the future with all affected and interested groups and assist in identifying development trajectories, the trade-offs associated with them, and the risks to the region's social and ecological systems under current and projected future climate change.

- **The current approach cannot address impacts of development in the Ring of Fire on the rights and responsibilities of Indigenous Peoples.**

We submit that considerations of the impacts of development in the Ring of Fire on the rights of Indigenous Peoples should not be focused on "reasonable justifications for infringement" of Indigenous rights in the "public interest" in each project. Instead, a regional approach and cumulative effects framework could be an opportunity to build a relationship with First Nations with Canada and Ontario in the spirit of reconciliation and based on the federal government's support for the UN Declaration on the Rights of Indigenous People (UNDRIP) and the Calls to Action under the Truth and Reconciliation Commission<sup>6</sup>. These include the right to maintain and strengthen Indigenous relationships with the land, water, and other values (Article 25), the right to develop and control the land, water, and other values (Article 26), the right to conserve and protect the environment (Article 29), and the right to determine priorities and strategies for development and uses of the lands, waters, and other values (Article 32).

---

<sup>2</sup> Chetkiewicz, C. & Lintner, A.M. (2014) Getting it Right in Ontario's Far North: The Need for a Regional Strategic Environmental Assessment in the Ring of Fire [Wawangajing]. WCS Canada and Ecojustice, Toronto, ON. Retrieved from [http://wcscanada.org/Portals/96/Documents/RSEA\\_Report\\_WCSCanada\\_Ecojustice\\_FINAL.pdf](http://wcscanada.org/Portals/96/Documents/RSEA_Report_WCSCanada_Ecojustice_FINAL.pdf)

<sup>3</sup> [https://www.mndm.gov.on.ca/sites/default/files/rof\\_regional\\_framework\\_agreement\\_2014.pdf](https://www.mndm.gov.on.ca/sites/default/files/rof_regional_framework_agreement_2014.pdf)

<sup>4</sup> <https://www.ceaa.gc.ca/default.asp?lang=En&n=43952694-1&toc=show&offset=6>

<sup>5</sup> <https://www.ceaa-acee.gc.ca/default.asp?lang=en&n=B82352FF-1&offset=7&toc=hide>

<sup>6</sup> [http://nctr.ca/assets/reports/Calls\\_to\\_Action\\_English2.pdf](http://nctr.ca/assets/reports/Calls_to_Action_English2.pdf)

These rights manifest as responsibilities that many First Nations in the Ring of Fire region talk about in their efforts to manage, protect, and sustain the land, water, wildlife, and other values for current and future generations.

- **A joint federal-provincial regional assessment would inform strategic planning of infrastructure and development, simplify the current project-by-project approach being led by Ontario, and address First Nation concerns about cumulative effects, Indigenous rights, and consultation beyond the immediate project sites.**

A strong role for federal leadership of a regional assessment, however, should not be conditional on provincial support, even if it is strongly desirable. While jurisdiction may limit the ability of the federal government to make project *decisions* based on the results of regional assessment, there are no such limits on gathering information, assessing the information, and engaging Indigenous Peoples and the public. In this case, therefore, we strongly encourage the federal government to proceed and demonstrate the value and benefit to Ontario of a regional approach in the Ring of Fire, particularly as it relates to data collection, First Nations engagement, and cumulative effects assessment.

In the remainder of our submission, we provide specific information based on the Operational Guide: Requesting a Regional or Strategic Assessment under the *Impact Assessment Act*.

### **1. Why should a regional assessment be considered in the Ring of Fire region?**

The Ring of Fire is a mineral deposit located in the far north in Ontario at about 540 kilometers northeast of Thunder Bay and 1,000 kilometers north of Toronto, in the James Bay Lowlands (Figure 1). The Ring of Fire has been defined, somewhat arbitrarily and inconsistently, based on the presence of an approximately 5,120 square kilometre area of mineral deposits. This equates to an area roughly the size of Calgary's metropolitan area (Chong 2014).

The impacts of access and mineral development will extend beyond the two road projects currently being considered which ignore connectivity, particularly as it relates to cumulative effects, freshwater systems, and social-ecological systems within the region. However, the current focus by proponents and governments has been to narrowly scope impacts in the Ring of Fire to individual road and/or mining projects. We recommend a watershed approach that includes the Winusk, Ekwon, Attiwapiskat and Albany watersheds in order to adequately consider the impacts of current and future developments and climate change on social and ecological systems (Figure 1).

As we detail below, the region is characterized by a number of ecological, social, and economic values, many of them globally significant (see below). Taken together, these values underscore the imperative for any planning and decision-making process on land use and climate change to be able to safeguard the ecological systems that support all (not just some) First Nations, address current and future impacts on Treaty and Aboriginal rights, and enable sustainable development.

## Ecological Values

A regional approach could consider a wide range of ecological values and consider future scenarios that consider ecological integrity, natural capital, and ecosystem services as well as traditional land uses, traditional knowledge, and Aboriginal and Treaty rights that depend on healthy and functioning ecosystems. A regional approach could also consider the appropriate baseline for assessing potential local and regional cumulative impacts given current and future climate change.

- The Ring of Fire is located within a subarctic and boreal region of international importance due to its ecological intactness, integrity, and dynamic processes that shape the region (Far North Science Advisory Panel 2010, Abraham et al. 2011).
- The Ring of Fire intersects with the largest single extant block of boreal forest free from industrial development anywhere in the world (Far North Science Advisory Panel 2010).
- The Ring of Fire is located on globally significant peatlands -- the Hudson-James Bay Lowlands is the largest peatland complex in North America and the second largest in the world. Importantly, carbon stored within these intact peatlands is globally significant for their role in regulating climate given the large amounts of atmospheric carbon dioxide sequestered since deglaciation (McLaughlin & Webster 2014).
- The Ring of Fire is dominated by freshwater ecosystems that cover most of the surface area (Marshall & Jones 2011). The region contains some of the largest naturally flowing rivers remaining in the world (Dynesius & Nilsson 1994), thousands of lakes, particularly where the Ring of Fire intersects with the Boreal Shield ecozone, and the largest wetland complex in North America (Keddy et al. 2009).
- The Ring of Fire region is part of the largest area of high fish biodiversity with low human impacts within Canada (Marshall & Jones 2011). A number of these freshwater fishes are important cultural and ecological keystone species (McDermid et al. 2015a, Chetkiewicz et al., 2017).
- The boreal forests, peatlands, and wetlands that make up the Ring of Fire support migratory and boreal ecotypes of caribou (*Rangifer tarandus*), wolverine (*Gulo gulo*), polar bear (*Ursus maritimus*), and lake sturgeon (*Acipenser fulvescens*) among other. These species are of conservation concern and considered at-risk by Ontario and Canada.
- Thousands of songbirds return to nest in the boreal forest each year while the coastal wetlands along James Bay and Hudson Bay are the largest in North America and some of the most productive subarctic wetland habitats in the world (Abraham & Keddy 2005). The region is also important as a globally significant migratory flyway for waterfowl and shorebirds.
- The Ring of Fire region is also significant in the provisioning of fresh water (e.g., headwaters of major rivers as well as lakes), food (e.g., fish, wildlife, traditionally harvested plants), medicines, genetic resources, and cultural and spiritual values – all of which are recognized as important ecosystem services that extend beyond the Ring of Fire. For example, supporting services such as fish and wildlife provide the foundation for social and economic systems for First Nations and all Ontarians, while services provided by peatlands and wetlands in the Ring of Fire include climate regulation, water quantity and quality controls, and erosion controls (Far North Science Advisory Panel 2010).

## Social Values

A regional approach with all First Nations, including the Matawa and Mushkegowuk Tribal Councils, as well as others that have an interest in the Ring of Fire developments (e.g., human health and well-being), would enable a governance and decision-making structure that is more equitable than has occurred to date. This approach may more effectively meet the recurring consultation requirements of the duty to consult and accommodate. A tripartite agreement with federal, provincial, and First Nation governments could also provide clarity on roles and responsibilities and consultation.

- The Ring of Fire region is a homeland for *Anishnabeg* and *Omushkegowuk Inninowuk* Nations who have lived on the land for millennia. Through their own systems of knowledge and worldview, they have maintained and cultivated relationships with the land, water, and wildlife. Their relationships with the federal and provincial governments are shaped by Treaty No. 9 (Long 2010). First Nations have long maintained that they did not give up rights and title to the lands in the far north, including the Ring of Fire region. As such, communities resent unilateral decisions made by government and industries about their homelands.
- Many First Nations will be affected directly, indirectly, and cumulatively by the proposed developments in the Ring of Fire. Climate change may also exacerbate these impacts on Treaty and Aboriginal rights. The duty to consult and accommodate is a minimum expectation emerging from the jurisprudence under Section 35 of the *Constitution Act, 1982* and the Crown's duty to deal honourably with First Nations when these rights are affected.
- Under the previous Ontario government, the nine Matawa First Nations and the Ontario Government, specifically the Ministry of Northern Development and Mines (MNDM), negotiated the Regional Framework Agreement<sup>7</sup> for developing the Ring of Fire. This community-based negotiation process considered regional monitoring, infrastructure, revenue sharing and enhanced First Nation participation in impact assessment. Under the current government, there is support for some communities in the Ring of Fire, however, the current approach is not acceptable to all Matawa communities. For example, Neskantaga First Nation and Eabametoong First Nation – have stated clearly that they do not accept the current environmental assessment processes for the Webequie Supply Road and Marten Fall Community Access Road Projects<sup>8</sup>.
- First Nation communities downstream from the Ring of Fire -- including Weenusk, Kashechewan, Fort Albany, and Attawapiskat First Nations – are equally important in decision-making about the Ring of Fire given the developments are located in the headwaters of the Winusk, Attawapiskat, and Albany Rivers (Figure 1). To date, these communities have had limited involvement in planning and negotiations in the Ring of Fire. At the same time, requests from the Mushkegowuk Tribal Council to the Ontario government for a regional approach to land use planning were not supported.
- Land use planning in the Ring of Fire region is incomplete. Under the previous government, Ontario led a community-based land use planning process mandated by the *Far North Act, 2010*. Interested First Nation communities have engaged with Ontario to negotiate an area of interest for planning and develop a subsequent Terms of Reference and Land Use Plan identifying areas or 'zones' where activities are desirable and compatible, considering: traditional use;

---

<sup>7</sup> [https://www.mndm.gov.on.ca/sites/default/files/rof\\_regional\\_framework\\_agreement\\_2014.pdf](https://www.mndm.gov.on.ca/sites/default/files/rof_regional_framework_agreement_2014.pdf)

<sup>8</sup> <https://www.northernontariobusiness.com/industry-news/mining/start-of-environmental-process-for-ring-of-fire-roads-anger-isolated-first-nations-941955>

conservation; protection needs/interests; and economic development opportunities. Planning zones include: Dedicated Protected Areas, Enhanced Management Areas, and General Use. Plans include a vision and set of objectives for planning as well as consultation and direction on land use. Four of nine Matawa communities region have developed approved Terms of Reference (Constance Lake, Eabametoong, Marten Falls, Webequie). The current government proposed to complete land use planning processes with these communities by December 31, 2020 while “winding down” land use planning with Weenusk First Nation and Kashechewan First Nation<sup>9</sup>. Under the *Far North Act, 2010*, regional issues such as cumulative effects, biodiversity, climate change, Treaty and Aboriginal rights, and freshwater were never integrated in community-based land use plans.

## Economic Values

A regional approach could consider a wide range of reasonable “Alternatives” and “Alternative Methods” for development in the Ring of Fire, including infrastructure for roads and transmission, mines, regional water management, and construction staging and locations. These could be considered through the establishment of a regional cumulative effects assessment and development of future land use and climate change scenarios created with First Nations.

- The Ring of Fire is a world-class mineral resource that was discovered in 2007 by a team of mining executives and prospecting geologists. The deposits of chromite, nickel and copper<sup>10</sup> in the Ring of Fire have been touted as the “oilsands of the north”<sup>11</sup>. The Ontario Chamber of Commerce (2015) estimated roughly \$25 billion in “economic activity” over the next three decades, but there has been no analysis to date of the potential economic return of extracting minerals from these deposits. Ontario’s Ministry of Energy, Northern Development, and Mines claims on its website that the Ring of Fire represents “one of the most promising mineral development opportunities in Ontario in over a century”<sup>12</sup>. However, there is no evidence for global demand, nor a proven investment case given the social, ecological, and economic challenges of remote access as well as the availability of chromite elsewhere in the world<sup>13</sup>.
- Currently, Noront Resources holds 85% of all claims within the Ring of Fire making it the largest claim holder<sup>14</sup> in the Ring of Fire. Noront has stated publicly on numerous occasions its plans to develop the Eagles Nest nickel mine first<sup>15</sup>, followed by chromite mines. In May 2019, the company announced Sault Ste. Marie will be the future home for a new ferrochrome processing plant<sup>16</sup>.

## Industrial use vs. community use roads

A regional approach could explicitly consider the long-term economic, social, and ecological costs of maintaining winter and all-weather roads across wetland and peatland complexes and discontinuous

---

<sup>9</sup> <https://ero.ontario.ca/notice/013-4734>

<sup>10</sup> <http://www.lop.parl.gc.ca/Content/LOP/ResearchPublications/2014-17-e.htm>

<sup>11</sup> [http://www.huffingtonpost.ca/2013/04/26/ring-of-fire-ontario-tony-clement\\_n\\_3159644.html](http://www.huffingtonpost.ca/2013/04/26/ring-of-fire-ontario-tony-clement_n_3159644.html)

<sup>12</sup> <https://www.mndm.gov.on.ca/en/ring-fire#targetText=The%20Ring%20of%20Fire%20is,of%20nickel%2C%20copper%20and%20platinum.>

<sup>13</sup> <https://www.theglobeandmail.com/business/article-the-road-to-nowhere-why-everything-youve-heard-about-the-ring-of/>

<sup>14</sup> [http://norontresources.com/?pressreleases&permitting\\_technical=1](http://norontresources.com/?pressreleases&permitting_technical=1)

<sup>15</sup> <https://ceaa-acee.gc.ca/050/evaluations/proj/63925?culture=en-CA>

<sup>16</sup> <https://www.sootoday.com/local-news/breaking-sault-ste-marie-lands-ferrochrome-processing-facility-1427493>

permafrost throughout the Ring of Fire region. This approach could consider multiple scenarios of road combinations, economic projections, and climate change projections for the region.

- The far north region in Ontario is notable for its lack of established all-season infrastructure. The majority of First Nation communities in the far north of Ontario have no direct all-season road or rail connections<sup>17</sup>. Ontario's 3,200-km winter road network consists of unpaved, un-graveled routes constructed annually by First Nation communities over frozen earth, wetlands, lakes, and rivers, allowing vehicles weighing up to tens of thousands of kilograms to travel over the frozen terrain.
- Construction and upgrading of winter roads is occurring in some areas in part because of the changes in climate that are affecting winter road longevity and viability (e.g., Hori et al. 2018). For example, the Northern Ontario Resources Trail (NORT) road was extended to North Caribou Lake First Nation in 2017<sup>18</sup> and bridge repairs continue along this route<sup>19</sup>. Any road extension is subject to a feasibility study, in addition to Band Chief and Band Council request and approval. The locations, designs and timing of implementation of new all-season roads require “balanced” consideration of the benefits of providing year-round over-land access to remote communities and resource sites relative to implementation costs and potential negative environmental and social impacts. The complexity of these kinds of decisions and impacts lends support for a regional approach as an alternative to the current piecemeal approach that may not require public consultation or expert advice.
- While First Nations have expressed interests in all-season roads for nearly two decades in the far north, it was not until the mineral discoveries and subsequent mining proposals for the Ring of Fire, that Ontario seriously considered infrastructure beyond winter roads. Without all-season roads, these deposits are essentially “stranded”. In the Ring of Fire, the non-profit Ring of Fire Infrastructure Development Corporation (RIFDC)<sup>20</sup> was created in 2014 to coordinate infrastructure development. However, even with a \$1 billion commitment by Ontario in 2014 to develop an all-season transportation corridor to access remote deposits in the Ring of Fire<sup>21</sup>, no road has been successfully developed to date. Over the years, propositions to access the Ring of Fire mineral resources have included:
  - a north-south road and railroad;
  - an east-west road and slurry pipeline;
  - a blend of east-west and north-south routes<sup>22</sup>; and

---

<sup>17</sup> Highway 599 is one of the few paved highways in the region, extending from Highway 17 at Ignace northward to Pickle Lake. North of Pickle Lake is the Northern Ontario Resources Trail (NORT) or Pickle Lake Road, which is a gravel road extending about another 200 km northward from Pickle Lake to North Caribou First Nation (Weagamow Lake). Similarly, a gravel road (known as both the NORT and Nungesser Road) extends north from Red Lake about 100 km, where a 33-km winter road then connects to Pikangikum First Nation. The other all-season ground transportation infrastructure is the rail line that connects the municipality of Moosonee to Cochrane.

<sup>18</sup> <https://www.ontario.ca/page/ministers-order-construction-all-weather-road>

<sup>19</sup> <http://www.mto.gov.on.ca/english/highway-bridges/pdfs/northern-highways-program-2017-2021.pdf>

<sup>20</sup> <https://www.mndm.gov.on.ca/en/ring-fire-secretariat/transportation-infrastructure>

<sup>21</sup> <https://www.theglobeandmail.com/report-on-business/industry-news/energy-and-resources/ontario-pledges-1-billion-for-ring-of-fire/article18316210/>

<sup>22</sup> <http://kwgresources.com/ring-of-fire-engineering-east-west-alternate-all-season-road-system/>

- a railroad, road, and seaport connection through Mushkegowuk traditional homelands<sup>23</sup>.
- The cost of developing the critical road link and infrastructure in the Ring of Fire area was estimated at over \$2.25 billion in 2013<sup>24</sup>. PDAC (2016) suggest that strategic infrastructure investments made in remote areas like the Ring of Fire could also decrease costs of exploration, assuming deposits are of a high enough grade and value, likely leading to more exploration activity and more discoveries that would offset infrastructure costs in the long-term).
- Specific proposed routes for industrial development in the Ring of Fire purport to provide various benefits to First Nations in terms of improved services, access, and connectivity to provincial roads that would reduce or eliminate the need or reliance on winter roads and expensive air travel. In 2016, four First Nation communities in the Ring of Fire (Webequie, Eabametoong, Neskantaga, Nibinamik) received a combined \$785,000 from the federal and provincial governments to conduct the All-Season Community Road Study (ASCRS). This process happened outside of the Regional Framework Agreement, did not include Marten Falls First Nation, and the report was never publicly released. According to newspaper reports, the roads considered by the community explicitly excluded industrial uses<sup>25</sup> with a preferred corridor/road that did not connect to the McFaulds Lake area due to unresolved issues and concerns expressed by some participating First Nations about mining development in the Ring of Fire area. The current project description for the WSRP identifies a “preferred route” for a road to the Ring of Fire.
- Having abandoned the Regional Framework Agreement, Ontario has been working through bilateral agreements with Webequie First Nation<sup>26</sup> and Marten Falls First Nation<sup>27</sup> since 2017. These two communities are currently the proponents for two multi-use roads that may ultimately enable mine development in the Ring of Fire. While Webequie and Marten Falls are coordinating information sessions and providing information about their projects to other Matawa communities, Eabametoong First Nation, Neskantaga First Nation, and Nibinamik First Nation have raised concerns about this approach Ontario is taking. Work on the road projects was initiated in 2018 as individual impact assessments under Ontario’s environmental assessment process, with Ontario providing financial and administrative support.
- Current project descriptions for the proposed road projects (MFCARP and WSRP) focus on multi-use roads to the Ring of Fire<sup>28</sup> and document the extent of federal and provincial engagement to date in developing roads to the Ring of Fire for industrial development by capitalizing on the interests of communities for all-season access to their communities. The Marten Falls and Webequie projects represent two segments of an eventual all-season access road, the middle segment of which (ca. 250 km) has no identified proponent at present although it has been identified by Noront Resources as likely Phase 2 of the MFCARP<sup>29</sup>. Multi-use roads together with a lack of outcomes on infrastructure based on the Regional Framework Agreement and the All-

<sup>23</sup> <https://www.northernpolicy.ca/upload/documents/publications/commentaries-new/millette-commitee-ring-of-fire-en.pdf>

<sup>24</sup> <https://www.theglobeandmail.com/business/article-the-road-to-nowhere-why-everything-youve-heard-about-the-ring-of/>

<sup>25</sup> <https://www.cbc.ca/news/canada/thunder-bay/ring-of-fire-road-study-1.3730976>

<sup>26</sup> <https://ceaa-acee.gc.ca/050/evaluations/proj/80183?culture=en-CA>

<sup>27</sup> <https://ceaa-acee.gc.ca/050/evaluations/proj/80184?culture=en-CA>

<sup>28</sup> <https://www.cbc.ca/news/canada/thunder-bay/ring-of-fire-road-premature-1.4261877>

<sup>29</sup> <http://norontresources.com/wp-content/uploads/2019/04/2018-Noront-Annual-Report.pdf>



Season Community Service Corridor Study, highlight the need for a strategic and regional approach to industrial and community roads in the Ring of Fire.

- Finally, a changing climate in northern Ontario (e.g., McDermid et al. 2015b) has important implications for both current winter road safety and longevity. The *Draft 2041 Northern Ontario Multimodal Transportation Strategy*<sup>30</sup> developed under the previous Ontario government, included a stated intention to enhance the quality of winter roads and lengthen the operating season, as well as collaboratively pursuing the expansion of the all-season road network with interested First Nation communities.
- 2. Is large-scale development, including potential designated projects under the Act, expected in the next 5–10 years in the region?**

Yes. These individual projects include:

- **Webequie Supply Road Project, Reference Number 80183**<sup>31</sup>. The project description clearly states the expectation that this single project will ultimately be part of an all-season road connection between the McFaulds Lake area and the provincial highway system to “ensure/maximize the viability of mine developments”. Moreover, “it is in this scenario that the potential positive and negative cumulative effects of the Project on Indigenous communities would likely be realized or felt to the fullest” (page 41 of the WSRP Description). As such, the Project already anticipates the likelihood of broader cumulative effects given existing and reasonably foreseeable future projects.
  - The WSRP identifies a relatively low Annual Average Daily Traffic volume of less than 500 vehicles. The design standards for the WSRP with respect to vertical curvature, maximum grade and minimum road shoulder width will adhere to those established by the Ministry of Transportation of Ontario for provincial highways. The design speed for the WSRP is 100 km/h, with an anticipated posted speed limit of 80 km/h.
  - The construction and commissioning of the WSRP is expected to occur within an approximately 30-month period.
- **Marten Falls Community Access Road Project, Reference Number 80184**<sup>32</sup>. The project description clearly states the expectation that there will ultimately be an all-season road connection between the Ring of Fire and the provincial highway system through the MFCARP. Similarly, the project description states that “it is in this scenario that the potential positive and negative cumulative effects of the Project on Indigenous communities would likely be realized or felt to the fullest” (page 41 of the MFCARP Description). As such, the Project already anticipates the likelihood of broader cumulative effects given existing and reasonably foreseeable future projects.
  - The MFCARP identifies an approximately 140 to 250 km, two-lane gravel all-season road on a new right-of-way (ROW) that is approximately 100 metres (m) wide. The proposed designed speed limit of 80 km/hour.

---

<sup>30</sup> <http://www.mto.gov.on.ca/english/highway-bridges/northern-ontario-multimodal.shtml>

<sup>31</sup> <https://ceaa-acee.gc.ca/050/evaluations/proj/80183?culture=en-CA>

<sup>32</sup> <https://ceaa-acee.gc.ca/050/evaluations/proj/80184?culture=en-CA>

- **Noront's Eagle's Nest Project, Reference Number 63925**<sup>33</sup>. Noront's Eagle's Nest Project is not currently under federal assessment. The initial project description (2012) included a transportation corridor that anticipated twelve (35 tonne capacity) trucks would transport ore and nickel concentrate to a trans-load facility each day with additional trucks delivering supplies to the mine site and to dispose of solid waste to licensed off-site facilities.
    - In addition to the Eagle's Nest nickel mine, Noront Resources Ltd. has also made numerous public statements about its intention to eventually develop chromite deposits including Blackbird and possibly Black Thor. As a possible scenario for industrial use of the road for transporting chromite ore, Cliffs Chromite Project presented a basecase of 50 to 100 truckloads of concentrate leaving the site each day during full production. Roads developed for nickel, and potentially chromite ore, need to be considered in a cumulative effects assessment.
  - **Wataynikaneyap Power Transmission Project (Phase 1 and Phase 2)**<sup>34</sup>. The Wataynikaneyap Power Transmission Project is a First Nations-led project to build approximately 1,800 kilometres of transmission lines in northwestern Ontario to connect remote First Nations communities to the Ontario power grid.
    - The project will reinforce the existing transmission grid to Pickle Lake (Phase 1) and expand grid service north of Pickle Lake and Red Lake to ultimately connect 17 First Nations communities (Phase 2).
    - To date, this Project has received only a provincial assessment. Because the Ontario process does not consider cumulative effects, Phase 1 of the Project did not scope in Phase 2 even though the Project's description as well as Ontario's *Long Term Energy Plan* which stipulates that Phase 2 depends on Phase 1. Importantly, this Project could support energy transmission for the Ring of Fire<sup>35</sup>.
  - **Ongoing exploration.** The area contains deposits of nickel, copper, platinum, palladium, zinc, diamonds, vanadium, and potentially gold. Although the economic returns are speculative, spending on exploration activities in the Ring of Fire total more than \$278 million<sup>36</sup>. There are currently approximately 11,000 active mining claim units held by 19 companies and individuals, covering roughly 2,471 square kilometres in the Ring of Fire.
  - **Other all-season and winter road upgrade projects.** In addition to the construction and upgrading of winter roads described above, other all season roads are also being considered. For example, the Mushkegowuk Council has recently completed the All-Season Road Pre-Feasibility Study<sup>37</sup>. As with winter road upgrades, these road projects may or may not be subject to impact assessment under Ontario's process and may not enjoy public input and review. These projects should inform and be informed by a regional assessment, particularly in consideration of the cumulative effects of roads.
- 3. Are there environmentally or otherwise sensitive areas or components located in the region that might be affected by development?**

<sup>33</sup> <https://ceaa-acee.gc.ca/050/evaluations/proj/63925?culture=en-CA>

<sup>34</sup> <https://www.ontario.ca/page/new-transmission-line-pickle-lake>

<sup>35</sup> <http://www.noma.on.ca/upload/documents/mining-readiness-strategy.pdf>

<sup>36</sup> <https://www.mndm.gov.on.ca/en/ring-fire>

<sup>37</sup> [https://www.mushkegowuk.com/?page\\_id=3577](https://www.mushkegowuk.com/?page_id=3577)

- The Ring of Fire intersects with the largest single extant block of boreal forest free from industrial development anywhere in the world (Far North Science Advisory Panel 2010).
- The Ring of Fire is dominated by intact, large freshwater ecosystems that cover most of the surface area including some of the largest naturally flowing rivers remaining in the world, including the Winusk, Ekwan, Attawapiskat and Albany Rivers (Marshall & Jones 2011).
- The Ring of Fire is located on globally significant peatlands that play a significant role in regulating climate given the large amounts of atmospheric carbon dioxide sequestered since deglaciation (McLaughlin & Webster 2014).
- The Ring of Fire region is part of the largest area of high fish biodiversity with low human impacts within Canada (Marshall & Jones 2011). A number of these freshwater fishes are important cultural and ecological keystone species to which First Nations have Aboriginal and Treaty rights, including lake sturgeon, lake whitefish, brook trout, and walleye (McDermid et al. 2015a, Chetkiewicz et al. 2017).
- The boreal forests, peatlands, and wetlands that make up the Ring of Fire support populations of species at risk including migratory and boreal ecotypes of caribou<sup>38</sup>, wolverine<sup>39</sup>, the Southern Hudson Bay subpopulation of polar bears<sup>40</sup>, and the Southern Hudson-James Bay populations of lake sturgeon<sup>41</sup>.
- The Ring of Fire is an important nursery for migratory boreal birds and also connected to a globally significant migratory flyway for waterfowl and shorebirds along the James Bay and Hudson Bay coasts (Far North Science Advisory Panel 2010).
- The Ring of Fire region is significant in the provisioning of fresh water (e.g., headwaters of major rivers as well as lakes), food (e.g., fish, wildlife, traditionally harvested plants), medicines, genetic resources, cultural and spiritual values – all of which are recognized as important ecosystem services that extend beyond the Ring of Fire. For example, supporting services such as fish and wildlife provide the foundation for social and economic systems for First Nations and all Ontarians, while services provided by peatlands and wetlands in the Ring of Fire include climate regulation, water quantity and quality controls, and erosion controls (Far North Science Advisory Panel 2010).
- Areas identified by First Nation communities as Dedicated Protected Areas under Ontario's *Far North Act, 2010*. Currently, the Ontario government has proposed to continue joint-planning with four Matawa communities - Marten Falls, Webequie, Eabametoong, and Constance First Nations - until December 2020<sup>42</sup>. These areas should inform impact assessment. In addition, Dedicated Protected Areas identified by Weenusk First Nation and Kashechewan should inform impact assessment.

<sup>38</sup> [https://www.registrelep-sararegistry.gc.ca/virtual\\_sara/files/plans/rs\\_boreal\\_caribou\\_revised\\_0811\\_eng.pdf](https://www.registrelep-sararegistry.gc.ca/virtual_sara/files/plans/rs_boreal_caribou_revised_0811_eng.pdf)

<sup>39</sup> [https://www.sararegistry.gc.ca/virtual\\_sara/files/cosewic/sr\\_Wolverine\\_2014\\_e.pdf](https://www.sararegistry.gc.ca/virtual_sara/files/cosewic/sr_Wolverine_2014_e.pdf)

<sup>40</sup> <https://www.ontario.ca/page/polar-bear-recovery-strategy>

<sup>41</sup> [https://www.sararegistry.gc.ca/virtual\\_sara/files/cosewic/sr\\_Lake\\_Sturgeon\\_0807\\_e.pdf](https://www.sararegistry.gc.ca/virtual_sara/files/cosewic/sr_Lake_Sturgeon_0807_e.pdf)

<sup>42</sup> <https://ero.ontario.ca/notice/013-4734>

- Areas identified as potential Indigenous Protected and Conserved Areas (IPCAs)<sup>43</sup> by First Nation communities, including those being supported by the federal government under the Pathway to Target 1 processes and funding (e.g., Kitchenumaykoosib Inninuwug, Moose Cree First Nation).
  - Areas identified through traditional land use, language, and other culturally-appropriate methods as being important for First Nations for cultural and spiritual reasons, including village sites, navigable waters, and portage routes.
  - Existing Ontario protected areas and conservation reserves.
- 4. Does current and future development in the region have the potential to cause adverse effects, including cumulative effects, that fall within federal jurisdiction?**

The Ring of Fire is in the heart of a globally, nationally, and locally significant region. Key characteristics include a high level of ecological integrity (Far North Science Advisory Panel 2010, Abraham et al. 2011). In general, the cumulative effects of natural resource development activities over space and time on these ecosystems, coupled with the uncertainties related to climate change, have not been adequately examined in the published literature, and therefore critical information gaps remain (Gunn & Noble 2011). As such, we recommend a precautionary approach to new developments in regions like the Ring of Fire and a regional assessment could be one tool to support this approach.

Effects that fall within federal jurisdiction include:

- **Potential changes to the environment that occur outside of Canada due to climate change.** Climate change is a cumulative effect that warrants multi-scaled consideration beyond project-level assessment (Doelle 2016) and the *Impact Assessment Act* requires decision makers to consider the extent to which an assessed project will “hinder or contribute to meeting Canada’s environmental obligations and climate change commitments” (section 63e).
  - Climate change will affect the economic context for roads and mines in the north, as well as safety and liability for maintenance of these and other developments in the Ring of Fire into the future<sup>44</sup>. Given that current roads and mines are planned in areas with relatively short fire-return regimes, it is anticipated that climate change will increase the size, return rate, and impact of wildfire with consequences for protecting and maintaining new and current infrastructure as well as the social and ecological systems that define the boreal (Johnson & Miyanishi 2012, Price et al. 2013).
  - Roads and mines will also contribute to the local impacts of permafrost thaw while adding to sector outputs of greenhouse gas emissions that are supposed to be managed through Ontario and Canadian commitments to reducing the impact of climate change. Climate change may also exacerbate mercury mobilization and the production of methylmercury in northern aquatic systems through permafrost melt and increased primary productivity in waterbodies (Brazeau et al. 2013).
  - Both the WSRP and MFCARP compares potential greenhouse gas emissions with that of provincial, national and global emissions and interpret the inevitably small emission volume to be inconsequential. A meaningful assessment at an appropriate scale (and not narrowly scoped to individual projects) would consider impacts relative to internationally-recognized climate change significance thresholds, which have already

---

<sup>43</sup> <https://bit.ly/2GVU0TU>

<sup>44</sup> <http://projects.thestar.com/climate-change-canada/ontario-ring-of-fire/>

been exceeded. Furthermore, there is no indication in current project descriptions in the Ring of Fire that the proponents will consider the potential release of carbon dioxide and methane from stored carbon in peatlands or the impacts of mines and additional exploration activity facilitated by the roads. As such, a cumulative effects assessment is needed to determine how projects in the Ring of Fire contributes to GHG emissions in terms of impacts.

- Ontario has produced guidance<sup>45</sup> on considering climate change in impact assessment at the provincial level, but Ontario’s impact assessment program does not contemplate climate change explicitly nor is it tied to a provincial or federal climate test. The key questions in a climate test are: 1) Is this project helping or hindering Canada’s ability to meet its climate commitments; 2) What is the scale at which it is helping or hindering; and 3) Are we downloading the problem elsewhere?
- **Potential changes to the environment that** could affect Indigenous Peoples, including the health, social or economic conditions of Indigenous Peoples in the Ring of Fire.
  - Mines, mineral exploration, and roads will impact hunting, fishing, and trapping practices by affecting wildlife movement patterns, distribution, and abundance at multiple scales including through the introduction of invasive species, overharvesting and poaching, increased accessibility to Indigenous and non-Indigenous people, and mobilization of contaminants into freshwater systems.
  - Mines and mineral exploration can yield significant opportunities for First Nation communities in the form of jobs, training, and access to better services such as education and health. However, because minerals are non-renewable, experience demonstrates that such developments can contribute to social, economic, and ecological problems for communities if not conceived, designed and managed as “bridges” to a sustainable future (Gibson 2014). Atlin and Gibson (2017) noted the need for a shift in impact assessment processes in the Ring of Fire to require “positive contributions to sustainability” as well as avoidance of adverse effects.
  - First Nation communities will be disproportionately affected by political decisions that are now being addressed through project-level impact assessment processes. For example, when the Framework Agreement did not deliver fast enough on an agreed-upon route to open up mining in the Ring of Fire, the Ontario government moved to work only with “mining-ready” communities<sup>46</sup>, namely Webequie and Marten Falls. It is difficult as an outsider to understand the internal dynamics among the communities themselves, but in our experience, many communities share their homelands in the Ring of Fire region and have overlapping territories, enjoy strong kinship ties among communities, share and manage fish and wildlife within and among communities, and maintain language and cultural ties and values<sup>47</sup>. Regional assessment can provide an opportunity to consider a governance structure that enables First Nation communities

---

<sup>45</sup> <https://www.ontario.ca/page/considering-climate-change-environmental-assessment-process>

<sup>46</sup> <https://www.northernontariobusiness.com/industry-news/mining/lack-of-consultation-on-ring-of-fire-development-frustrates-first-nation-communities-1117466>

<sup>47</sup> Most of the communities function under the Band Council governance model imposed by the *Indian Act* and cannot be relied upon to speak for the community, particularly on controversial matters such as mines whose lifespan goes beyond the typical political cycles of Band Council membership.

to consider mutual concerns and overlapping issues such as impacts on hunting, fishing, and trapping, economic development, and monitoring.

- Both Marten Falls and Webequie are the proponents in Ontario's process. Although the project description is not explicit about this, Ontario may be in a conflict of interest as both the regulator and financial supporter of the proponents. In addition, Marten Falls First Nation is a shareholder in Noront Resources<sup>48</sup>. Regional assessment could supply independent oversight, opportunities to consider expert advice, and critical information to the individual projects, and increase transparency about possible futures, interests, and concerns for all communities impacted by these projects.
- The Ring of Fire is located in the upper reaches of several major watersheds that outlet to the highly sensitive and ecologically important James Bay and Hudson Bay coastal ecosystems within the homelands of a number of Mushkegowuk communities. This heightens the potential for cumulative social and ecological effects to occur outside of areas scoped by the individual projects. To date, these communities have not been adequately engaged in the Ring of Fire assessment processes by Ontario, although they are listed in individual project descriptions as communities to be consulted. Regional assessment could inform the cumulative social, ecological, and economic effects of known and anticipated projects, including roads and mines.
- **Potential adverse environmental effects on federal lands.** According to the current project descriptions, a maximum of 5% of the MCARP is to be located on Marten Falls First Nation reserve lands, which are under federal jurisdiction, with 47.27 hectares potentially intersected for route Alternatives 1 and 4 and 0.42 hectares of Marten Falls First Nation reserve land potentially intersected by route Alternatives 2 and 3. Seventeen kilometres of the road corridor in the WSRP intersect reserve lands of Webequie First Nation, which are under federal jurisdiction. There is a reasonable chance that future roads and developments will fall on federal land in the region.
- **Potential adverse environmental effects on water quality.** In general, transportation and future mineral development has the potential to cause significant regional environmental impacts, which tend to be just as important as the more direct and local impacts with which current project-level assessments of these projects is preoccupied, albeit superficially at this point (e.g., Johnson et al., in revision).
  - Direct impacts will include the creation of physical barriers to animal movement, habitat fragmentation including stream habitats that are critical for spawning and movement, alteration of soil properties leading to sedimentation as well as surface water flows, and increased access through otherwise inhospitable terrain for invasive species, as well as predators, and hunters and anglers. These changes in turn alter interspecies dynamics and affect the abundance and distribution of species, some of which are directly tied to Aboriginal and Treaty rights of First Nations in the region.
  - Current road proposals consider the use of the eskers or other glacial deposits for the locally-sourced gravel as construction material for road building. These materials are suspected to be a source of chromium and, potentially, other metals naturally abundant in the region, to northern rivers and lakes (Dyer & Handley 2013). Consequently,

---

<sup>48</sup> <http://norontresources.com/noront-issues-shares-to-marten-falls-and-aroland-first-nations-extends-warrants-and-issues-interest-shares-4/>

development activities that depend on the use of these tills and eskers with potentially high chromium or other elements of human health concern require baseline monitoring and should be considered carefully in impact assessment. There is also the potential that mobilizing metals into the water that accumulate in fish will impact the rights of First Nations given the importance of freshwater fish as a food source for communities in northern Ontario. Eskers are also important ecologically and culturally. Eskers contribute substantially to regional biodiversity, for instance as travel routes for caribou, and as den sites for wolves in a landscape dominated by exposed bedrock and permafrost (Johnson et al. 2005). Eskers are also important in understanding past and current Indigenous land use. Specifically, eskers contain micro-habitats of food and medicines in contrast to other areas. As such, these features are important and valued components for addressing First Nation values (i.e., Cultural Heritage values).

- Methylmercury contamination is already an issue throughout northern Ontario, including in fish and lake sediments (Tang et al. 2013, Brazeau et al. 2013, Lescord et al. 2019). Mercury is a ubiquitous contaminant that is emitted through natural and anthropogenic processes. Due to its stability in the atmosphere, it can be carried great distances from original sources, such as coal fired power plants (Driscoll et al. 2013), to the remote lakes and rivers such as in the far north. In aquatic environments and under the right conditions, mercury can be converted into methylmercury, which is a toxic form of mercury that readily accumulates in fish, and in the animals and people that eat fish. The conversion of mercury into methylmercury is affected by many things, including water chemistry and surrounding landscape characteristics. Changes to the water table, such as road building, mine development (sinking shafts, building pits), and flooding of land often associated with hydropower facilities (Hall et al. 2005), can directly or indirectly alter methylmercury formation and accumulation into fish (Webster et al. 2015). Therefore, while these developments may not release mercury during extraction, building of roads, or processing activities and their potential indirect effects on existing mercury (including mercury mobilization and/or methylation), must be considered and monitored. Furthermore, current or historical point-source mercury inputs (e.g., chlor-alkali and pulp mill complexes, gold and mercury mine tailings) can also contribute to regional mercury levels.
- In the longer term, both construction of roads and anticipated mines will generate tailings and waste rock piles that may discharge metals and other contaminants into water bodies and through runoff and leachate seepage. Chromite mining may mobilize both forms of chromium, with trivalent chromium in the ore and waste rock potentially oxidizing to harmful hexavalent chromium as dust (Beukes et al. 2017). In a dust form, hexavalent chromium may be more broadly distributed through water, air, and land-based processes. Hexavalent chromium is a priority substance regulated by the *Canadian Environmental Protection Act, 1999* and measurement of baseline levels should be established and communicated to the public and First Nations in the Ring of Fire and downstream, before mining occurs. Future developments may enhance methylation of mercury known to be of concern in communities for human health reasons as well as potential impacts on fish and wildlife that depend on waterbodies exposed to land use change.
- **Potential adverse environmental effects on fish and fish habitat.** The multiple water crossings and potential effects on significant wetlands indicates a need for *Fisheries Act* authorization. For

example, the MCARP notes 15-47 large and small river crossings (page 26) and 15-50 bridges with significant bridges required for the Albany River and, with some alternatives, the Ogoki River. For the WSRP, we counted at least 54 water crossings in mapping the route. Other issues related to fish and fish habitat include:

- Direct and indirect impacts from transportation and transmission infrastructure including increased access for fishing, fish passage restriction at culverts (i.e., stream crossings) and water withdrawals (i.e., ice road creation) and sedimentation (Robertson et al. 2006, Cott et al. 2015).
- Direct and indirect impacts from mining including turbidity and potentially harmful compounds that leach or are discharged from tailings and effluent during mining operations (Brandt et al. 2013, Kreutzweiser et al. 2013).
- Increased levels of fishing, including recreational, commercial, and subsistence fisheries. The low productivity of cold-water fisheries in the Ring of Fire region makes fish populations susceptible to overfishing even at low levels of fishing (Gunn & Sein 2000). Human settlement and roads both serve as proxies for fishing pressure (Hunt & Lester 2009, Hunt et al. 2009).
- Contaminants, specifically, chromium, arsenic, and mercury are already elevated in fish across the Ring of Fire region (Tang et al. 2013, Lescord et al. *in review*). Processes such as impact assessment and land use planning generally result in decisions about the location, intensity, and extent of new industries in the Ring of Fire. However, proponents may or may not be able to monitor these effects carefully enough (e.g., chromium and arsenic speciation in water and fish) requiring greater oversight and commitment to testing. Projects such as roads, mines, and hydropower facilities might also further increase methylmercury levels. As such, human health impacts need to be considered due to bioaccumulation in large-bodied and predatory fish that people catch and eat, particularly First Nations (Tang et al. 2013, Webster et al. 2015).
- Chetkiewicz et al. (2017) examined the potential cumulative impacts of development and climate change on populations of walleye (*Sander vitreus*), lake whitefish (*Coregonus clupeaformis*), lake sturgeon, and brook trout (*Salvelinus fontinalis*) in the Arctic drainage basin in Ontario. This study first assessed the most current status of fish populations across the Arctic drainage basin (as of 2014), including the Ring of Fire. We used a modelling approach to assess the likely impacts of climate change and either a low-growth or a high-growth development scenario on fish populations over a 50-year period, to 2064. Developments that were considered in the low-growth and high-growth development scenarios included mining, forestry, hydropower, and the increase in roads and other linear features such as transmission associated with these industrial developments. Although a detailed mining scenario was developed, experts considered impacts to fish viability to be minimal relative to other stressors such as dams, climate change, and fishing. We considered this a limitation in being able to develop dose response curves for individual and multiple mining impacts on fish population health.
  - For current scenarios, walleye, lake sturgeon, lake whitefish, and sea-run brook trout populations were at very low risk (i.e., Fish Sustainability Index > 4) in the Ring of Fire region.
  - The modelling simulations in Chetkiewicz et al. (2017) forecasted that if development proceeds with a ‘business-as-usual’ approach, lake sturgeon and



sea-run brook trout populations in the Ring of Fire will be at high risk by 2064 (i.e., Fish Sustainability Index < 1.5). Populations of walleye will be at moderate risk while lake whitefish will be at low risk in the Ring of Fire region by 2064 (Chetkiewicz et al. 2017).

- The results of these models emphasize the importance of considering cumulative effects at broad scales, and suggest that in order to maintain sustainable and abundant freshwater fish populations for communities in the Ring of Fire, and downstream of the Ring of Fire, it will be necessary to protect key watersheds, while also managing cumulative impacts across watersheds and the broader region.
  - **Potential adverse effects on migratory birds.** This can include removal of nesting habitat, habitat fragmentation, increased disturbance, and increased edge effects, particularly in upland habitats on higher ground, favoured for transportation routing. Species in the Ring of Fire that may be impacted include: Canada Warbler, Common Nighthawk, Whip-poor-will, Olive-sided flycatcher, and Rusty Blackbird. The Ring of Fire lies within the Atlantic and Mississippi Flyways meaning a large number of migratory birds, including waterfowl, pass through the area.
  - **Potential adverse effects on species at risk.** The boreal forests, peatlands, and wetlands provide a stronghold for species, some of which are in decline in Ontario and across Canada including species designated at risk such as migratory and boreal ecotypes of caribou, wolverine, polar bear, and lake sturgeon.
  - WCS Canada surveys have shown that the ecotone between the Hudson-James Bay Lowlands and Boreal Shield where the Ring of Fire is located is disproportionately important for wolverine and to sedentary and migratory ecotypes of caribou (Poley et al. 2014). For example, the Missisa Range (caribou) largely represents the transition between the James Bay Lowlands and the Ontario Shield ecozones<sup>49</sup>.
  - The Missisa Range contains higher amounts of peatland systems in the east and a more aggressive fire regime in the west. The Integrated Range Assessment by Ontario's Ministry of Natural Resources and Forestry in 2014 concluded that risk to caribou ranges remaining sustainable was "intermediate" in the Missisa Range<sup>49</sup>. A cumulative effects assessment would need to consider current and potential impacts from development and fire on caribou. The relatively poor condition of caribou ranges within the Area of Undertaking, where timber management is the chief driver of disturbance, underscores the need for proactive consideration of caribou populations in the far north, particularly in the context of growth-inducing development into this sensitive region.
5. **Does development in the region have the potential to cause adverse impacts on the rights of Indigenous Peoples?**

Indigenous Peoples are founding nations of Canada. Their rights are closely related to nationhood. As such, both Ontario and Canada's commitment to nation-to-nation relationships is significant. Indigenous Peoples hold Inherent rights, Aboriginal Rights and Treaty Rights. Indigenous Peoples frame these rights as responsibilities to take care of the land, waters, wildlife and other values as obligations to manage, protect, and sustain their communities and relationships for future generations.

---

<sup>49</sup> <https://www.ontario.ca/page/state-woodland-caribou-resource-report-part-2>

Section 35(1) in the *Constitution Act, 1982* recognizes and affirms the inherent right of Indigenous Peoples to engage in traditional activities including hunting, fishing, trapping, berry picking, the use of trees, plants, and wildlife and water for sustenance, social, spiritual and ceremonial purposes. These rights also include the right to self-determination and self-government and the right to participate in decisions that have the potential to affect the community and the land, waters, and other values. Where a government is contemplating undertaking or authorizing an activity that could impair the exercise of an Aboriginal right, it is bound to consult affected Aboriginal groups with a view to obtaining their approval and consent. The struggle by Indigenous Peoples in Canada for legal recognition of these rights has been long and difficult (Borrows & Coyle 2017).

Constitutional rights create real duties and imposes on governments, a fiduciary obligation to identify, define, and protect these rights where they may be threatened by resource development. Where this approval is not secured, government action that impairs a recognized aboriginal right is only legally justified in three situations:

- where it is necessary for conservation or resource management reasons (e.g., fishing catch quotas);
- public safety (e.g., restrictions on hunting); or
- other compelling public policy objectives.

In this current era of reconciliation, there is evidence of what some may call progress in the relationship between Indigenous Peoples and governments. In northern Ontario, this may include the fact that some First Nation communities have engaged in resource revenue sharing agreements with government<sup>50</sup>, have developed impact benefit agreements with resource companies (Siebenmorgen & Bradshaw 2011), and have engaged in joint ventures with corporations<sup>51</sup>. For those Indigenous Peoples asserting rights and jurisdiction in the Ring of Fire region, these kinds of approaches do not go far enough.

Yet in the Ring of Fire region, we have seen little or no evidence of how Canada and Ontario will honour their obligations under Treaty No. 9 and Section 35 of the *Constitution Act, 1982*. In addition, infrastructure and revenue sharing in the Ring of Fire were two of the objectives considered in the Regional Framework Agreement<sup>52</sup> between the Ontario Government and nine Matawa First Nations on whose territory the mineral claims, mining proposals, and road projects are located. Other objectives in the Agreement included revenue sharing, environmental assessment, and monitoring<sup>53</sup>. Ontario invested close to \$5-million a year negotiating with Matawa First Nations yet progress is uncertain. The current provincial government has committed funding to working with First Nations engaged with the WSRP and MCARP<sup>54</sup>.

The failure of the Regional Framework Agreement between Ontario and Matawa First Nations is one indicator of the challenges that are fundamentally about how jurisdiction, consent, and consensus is considered in development as opposed to framing the issue as being just about addressing the interests of “mining-“ or “road-ready” communities. First Nation communities often approach impact assessment as part of a larger vision or understanding of the land and their roles and responsibilities beyond the scope and scale of single projects (Booth & Skelton 2011). More recently, Chief Achneepineskum of

---

<sup>50</sup> <https://www.cbc.ca/news/canada/thunder-bay/ontario-first-nations-resource-revenue-sharing-1.4646576>

<sup>51</sup> <https://www.fivenations.ca/index.php/about8/history-of-fnei>; <https://www.wataypower.ca/ownership/partnership>

<sup>52</sup> [https://www.mndm.gov.on.ca/sites/default/files/rof\\_regional\\_framework\\_agreement\\_2014.pdf](https://www.mndm.gov.on.ca/sites/default/files/rof_regional_framework_agreement_2014.pdf)

<sup>53</sup> Ontario has developed an approach for long term environmental monitoring as described in Rempel et al. (2016).

<sup>54</sup> <https://www.theglobeandmail.com/opinion/editorials/article-why-its-time-to-cool-the-hype-about-the-ring-of-fire/>

Marten Falls First Nation challenged the notion that the Ontario government could do business with some First Nations while leaving others out when it comes to large-scaled development in the Ring of Fire that also affects them<sup>55</sup>.

A number of impacts on Indigenous Peoples' rights in the Ring of Fire region are anticipated at various spatial and temporal scales including impacts on:

- Hunting, fishing, and gathering of traditional or medicinal plants and the use of wood and water through increased Indigenous and non-Indigenous accessibility to previously remote areas leading to potential overharvest and poaching, introduction of invasive and non-native species, mobilization of contaminants within aquatic systems, habitat loss and fragmentation;
- Cultural and historical sites defined by First Nations (e.g., Hamilton 2000). Traditional land use studies can also provide baseline data as well as identify areas that are important to First Nations for cultural and spiritual values. In some cases, current use and occupancy is not a sufficient indication of the significance of an area or region to First Nation communities (e.g., Noble 2016).

Aboriginal and Treaty rights are vulnerable to adverse impacts from resource development including industrial forestry, mining and energy developments, infrastructure, and water projects. Land (2014) describes the current situation as an “escalating drift ... towards more litigation arising from conflicts over Aboriginal consultation ... and this will inevitably lead to more project delays and more economic risks and losses for the Crown, industry and Aboriginal groups”. We suggest that under the prevailing project-by-project approach, the nature of these threats may not be readily apparent and a broader regional approach in the Ring of Fire should be used, before approving projects to proceed. The ability to develop a comprehensive cumulative effects assessment to consider how Ring of Fire activities will impact on the current and future potential of First Nations to benefit from the exercise of their rights in the region is critical. Under the current law in Ontario, there is no legal obligation for the provincial government to engage in an analysis of this type.

First Nations in northern Ontario will be faced with the daunting task of addressing the impacts of developments in a *post-hoc* way after multiple individual project decisions have been made and approved, without their consent, across their traditional territories. Similar experiences have occurred with First Nations living in the oilsands region as well as multiple developments as was the case of Blueberry River First Nations v. British Columbia, 2015. In these cases, the courts have been forced to determine to what extent Treaty rights have been impacted. In addition, business as usual has led to the escalation of tensions among Indigenous Peoples, resource companies, and the government reflected in blockades, protests, and litigation, including in northern Ontario<sup>56,57</sup>.

We submit that considerations of the impacts of development in the Ring of Fire on the rights of Indigenous Peoples should not be focused on “reasonable justifications for infringement” of Indigenous rights in the “public interest” in each project. Instead, a regional approach and cumulative effects framework could be an opportunity to build a relationship with First Nations with Canada and Ontario in

---

<sup>55</sup> <https://www.theglobeandmail.com/business/article-the-road-to-nowhere-why-everything-youve-heard-about-the-ring-of/>

<sup>56</sup> <https://www.kobo.com/ca/en/ebook/no-means-no-the-kitchenuhmaykoosib-inninuwig-and-the-fight-for-resource-sovereignty>

<sup>57</sup> <https://www.tandfonline.com/doi/abs/10.3152/146155109X465931>

the spirit of reconciliation and based on support for the UN Declaration on the Rights of Indigenous People (UNDRIP) and the Calls to Action under the Truth and Reconciliation Commission<sup>58</sup>.

**Other considerations include:**

- Fulfilling Canada’s commitment to reconciliation with Indigenous Peoples. A regional approach could support Canada’s commitments to Indigenous Peoples under UNDRIP and the TRC Calls to Action as well as address the practice of consent in relation to decisions about land and water use within a regional context.
- The projects take place on reserve lands that are under federal jurisdiction. Given the anticipated levels of road use based on current Project Descriptions as well as potential mines and more speculative exploration, ambient air quality, emissions, noise and dust, and safety for community members also sharing the road would be of concern on federal reserve lands.
- Ontario has no tools to address regional and cumulative impacts on the social and ecological systems in northern Ontario, including Aboriginal and Treaty rights. Ontario’s *Environmental Assessment Act* (EAA) requires formal public review and modernization. The legislation does not mention cumulative effects and does not require private sector projects like mines to be subjected to individual impact assessment. Ontario’s impact assessment does not align with the federal *Impact Assessment Act* (e.g. participant funding, cumulative effects, climate change considerations, Indigenous rights and interests, etc.). Although the Ontario government recently requested public comments on proposals to modernize the EAA (ERO No. 013-5101, ERO No. 013-5102), there is no sign of any intention on their part to strengthen the legislation in this fashion.
- Need for land and community well-being values. A commitment to a regional approach would enable all First Nation communities to develop their land use values and priorities before project-level impact assessment and therefore enable more meaningful participation in impact assessment (e.g., not solely focused on information gathering).
- More equitable participation in impact assessment. The Ring of Fire is already a controversial and divisive issue for First Nations. A regional approach could support more open and public debate about the projects. In addition, First Nations need to be able to understand, engage with, and challenge the dominant and technical discourse of impact assessment (O’Faircheallaigh 2007). A regional approach could provide more equity in terms of learning, engagement, and funding for First Nations than current project-level approaches do.
- The valuation of traditional knowledge. A regional approach could enable First Nation communities to engage in impact assessment without their traditional knowledge being dismissed, ignored, or taken out of context by project-level approaches.

**6. How would the regional assessment inform future federal impact assessments?**

Current project-level assessment and approval processes at the federal level are ill-designed to address cumulative effects and broad alternatives associated with multiple mines and roads or other industrial projects (Duinker & Greig 2006, Duinker et al. 2013, Sinclair et al. 2017). If the Ring of Fire is to be developed, new projects such as roads and mines that qualify for federal assessment will need to be planned, reviewed and approved in ways that ensure they collectively contribute to a sustainable future.

---

<sup>58</sup> [http://nctr.ca/assets/reports/Calls\\_to\\_Action\\_English2.pdf](http://nctr.ca/assets/reports/Calls_to_Action_English2.pdf)

The *Impact Assessment Act* requires decision makers to consider the extent to which an assessed project will “contribute to sustainability” (section 63(a)). This requires a shift from the way projects were previously assessed by the federal government and requires a focus on well-being, multigenerational impacts, and producing positive outcomes and not just less bad ones<sup>59</sup>. For example, at present the potential economic return of mining chromite or any other metals has yet to be analyzed, let alone considered relative to potential impacts, including cumulative impacts, and the extent to which the projects would therefore hinder or contribute to Canada’s global environmental commitments (e.g., climate change and biodiversity). A regional assessment could explicitly consider how the two current projects contribute to regional sustainability and develop criteria, with First Nations, to consider more transparently and explicitly any trade-offs during the assessment. Future assessments of any new industrial projects, especially those that are facilitated by the two current projects, will benefit more effective regional planning and other strategic level efforts inform the determination of sustainability and to provide attention to the cumulative regional effects of multiple mining projects, associated infrastructure and other past, current and anticipated activities. As such, a regional assessment would provide a more relevant context and more authoritative guidance on how the individual project could contribute to sustainability.

In general, there is an excellent case for regional-scale planning and impact assessment, including informing section 63(a) determinations as well as cumulative effects assessment, to be the responsibility of governments and not something that any individual mine or road proponent and/or First Nation community can reasonably be expected to deliver in project-based assessment and approval processes.

As a member of the Environmental Planning and Assessment Caucus<sup>60</sup>, one of us co-wrote the regional and strategic chapter of a report to the Minister in May 2017, in which we stated the following:

*Regional Impact Assessments (RIAs) ...are decision-support tools and participatory processes that address sustainability at a regional scale. RIAs can provide a framework for the finer-scale consideration of individual projects and land-use planning decisions. Regional assessments would be undertaken to consider all impacts, benefits, risks and uncertainties of existing human activities within a defined geographic region. Additionally, an RIA considers a range of plausible scenarios of future human activities in the region and quantifies cumulative impacts for these, thereby providing a sense of the range of possibilities for what might happen in the future and how much stress these would place on selected indicators (e.g., valued ecosystem components or VECs) of sustainability.*

*RIA ...processes gather information and draw conclusions about VECs and the impacts different human activities have on the VECs, and both tend to avoid final conclusions about which activities should be allowed.*

*It is important to consider how RIAs...differ from planning (e.g., land use planning). A land-use planning process will generally define zones that classify the type of development allowed on a parcel of land and develop a plan that establishes where and how land uses occur within a particular area.*

*Regional....assessments, on the other hand, will focus on evaluating the implications for sustainability of various future scenarios (including the compatibility of various human activities and their effect on the resilience of ecosystems and VECs). Of course, participating jurisdictions with planning jurisdictions would also benefit from the results of RIAs for their planning processes, but this would not be the role of the federal government outside federal lands and marine areas.*

---

<sup>59</sup> <https://policyoptions.irpp.org/magazines/october-2019/assessment-law-is-still-too-vague-to-achieve-lasting-green-goals/>

<sup>60</sup> <https://rcen.ca/caucus/environmental-planning-and-assessment>

As such in this particular case, a regional assessment could address the following:

- Inform section 63 determinations for individual federally-assessed projects, particularly with respect to their contribution to sustainability and to meeting Canada's environmental and climate change obligations;
- Include the cumulative effects of multiple undertakings in the past, present and plausible futures through the development of multiple future alternate regional scenarios, considering sustainability objectives for the region to be determined by First Nations, governments, scientists, and stakeholders;
- Consider longer time scales than any typical mining project through the use of scenarios to explore the nature and potential implications of plausible and desirable futures, alternative pathways, and planning options for the Ring of Fire;
- Provide credibility to processes with First Nations and the public by establishing an open process for elaborating and evaluating regional alternatives and providing a basis for decisions in light of relative contribution to sustainability;
- Evaluate broad alternatives beyond the usually feasible range of project assessments (e.g., alternative infrastructure options);
- Increase the efficiency implementing project-level assessments in the future, by not burdening them with larger issues that are impossible to address and improve clarity on what types of projects are most appropriate, and attract better projects as a consequence;
- Provide a clear and accountable assignment of cumulative effects management responsibilities and expectations, including provisions for monitoring, effective responses and public reporting; and
- Serve as a model for future federally-led regional assessments in similar northern areas of Canada, especially where new areas are being opened for resource development.

In closing, we provide evidence for the need for a regional assessment and outline why it would provide a more relevant social and ecological scope for considering current and future projects, particularly when considering cumulative effects. We also suggest that a regional assessment would support consultation with all affected First Nations and provide a forum for concerns and solutions, as well as create the opportunity to address the intersection between rights and responsibilities, sustainability, and visions for the future in the region.

We are available to answer any questions regarding our submission. Please feel free to contact us below.

<Original signed by>

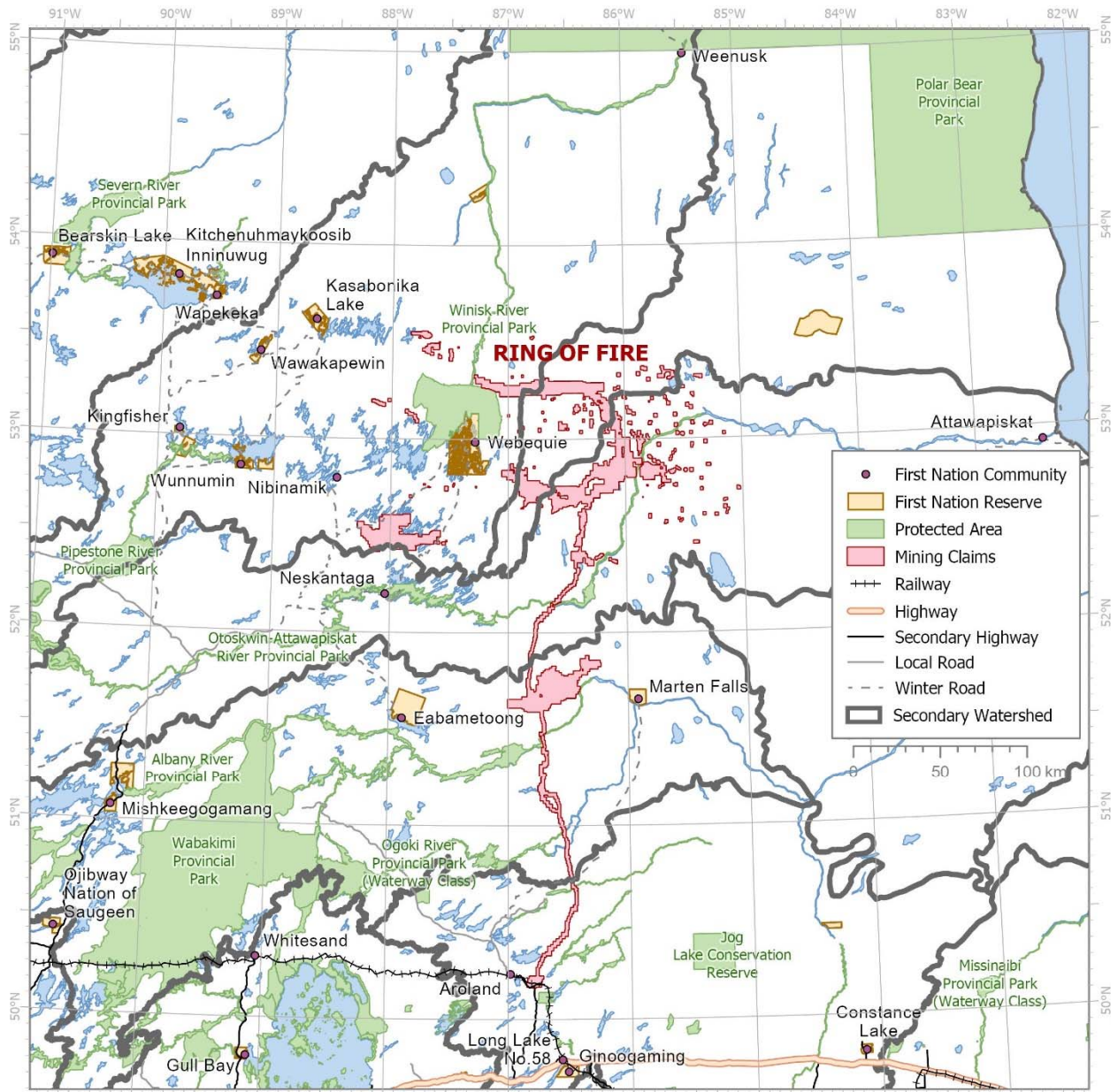
Cheryl Chetkiewicz, Ph.D.  
Conservation Scientist  
[cchetkiewicz@wcs.org](mailto:cchetkiewicz@wcs.org)  
780-860-5130

<Original signed by>

Justina Ray, Ph.D.  
President and Senior scientist  
jray@wcs.org  
416-850-9038 x 22

<Original signed by>

Matthew Scrafford, Ph.D.  
Associate Conservation Scientist and Lead for Ontario's Northern Boreal  
mscrafford@wcs.org  
807-925-9126



© WCS Canada / M. Southee  
Date: October-29-19

Projection: NAD83 MNR Lambert.  
Data Sources: Mining Claims - Ontario Ministry of Energy, Northern Development and Mines; Canvec 1M - Natural Resources Canada; Canadian Protected and Conserved Areas - Environment and Climate Change Canada.

Figure 1. Current mineral claims associated with the Ring of Fire, including the existing infrastructure and communities. For the purpose of this submission, the boundaries of the secondary watersheds provide the relevant ecological and social scope for regional assessment.



## References:

- Abraham, K. F. and C. J. Keddy. 2005. The Hudson Bay Lowland. Pages 118-148 in L. H. Fraser and P. A. Keddy, editors. *The World's Largest Wetlands: Ecology and Conservation*. Cambridge University Press, New York.
- Abraham, K. F., L. M. McKinnon, Z. Jumean, S. M. Tully, L. R. Walton, and H. M. Stewart. 2011. Hudson Plains Ecozone Status and Trends Assessment. Canadian Councils of Resource Ministers, Ottawa, ON. Retrieved from: <http://www.ontla.on.ca/library/repository/mon/27005/314871.pdf>
- Atlin, C. and R. Gibson. 2017. Lasting regional gains from non-renewable resource extraction: The role of sustainability-based cumulative effects assessment and regional planning for mining development in Canada. *The Extractive Industries and Society* **4**:36-52. <http://dx.doi.org/10.1016/j.exis.2017.01.005>
- Berger, T. R. 2010. Northern Frontier, Northern Homeland Douglas & McIntyre
- Beukes, J. P., S. P. du Preez, P. G. van Zyl, D. Paktunc, T. Fabritius, M. Päätaalo, and M. Cramer. 2017. Review of Cr(VI) environmental practices in the chromite mining and smelting industry – Relevance to development of the Ring of Fire, Canada. *Journal of Cleaner Production* **165**:874-889. <http://dx.doi.org/10.1016/j.jclepro.2017.07.176>
- Booth, A. L. and N. W. Skelton. 2011. Industry and government perspectives on First Nations' participation in the British Columbia environmental assessment process. *Environmental Impact Assessment Review* **31**:216–225. <http://dx.doi.org/10.1016/j.eiar.2010.11.002>
- Borrows, J. & Coyle, M. (Eds) (2017) *The Right Relationship*. Reimagining the Implementation of Historical Treaties. University of Toronto Press, Toronto.
- Brandt, J. P., M. D. Flannigan, D. G. Maynard, I. D. Thompson, and W. J. A. Volney. 2013. An introduction to Canada's boreal zone: ecosystem processes, health, sustainability, and environmental issues. *Environmental Reviews* **21**:207-226. <http://dx.doi.org/10.1139/er-2013-0040>
- Brazeau, M. L., A. J. Poulain, A. M. Paterson, W. B. Keller, H. Sanei, and J. M. Blais. 2013. Recent changes in mercury deposition and primary productivity inferred from sediments of lakes from the Hudson Bay Lowlands, Ontario, Canada. *Environmental Pollution* **173**:52-60. <http://dx.doi.org/10.1016/j.envpol.2012.09.017>
- Carlson, M., J. Chen, S. Elgie, C. Henschel, A. Montenegro, N. Roulet, N. Scott, C. Tarnocai, and J. Wells. 2010. Maintaining the role of Canada's forests and peatlands in climate regulation. *Forestry Chronicle* **86**:434-443. <http://dx.doi.org/10.5558/tfc86434-4>
- Chetkiewicz, C.-L. B., M. Carlson, C. M. O'Connor, B. Edwards, F. M. Southee, and M. Sullivan. 2017. Assessing the Potential Cumulative Impacts of Land Use and Climate Change on Freshwater Fish in Northern Ontario. Conservation Report No. 11, Wildlife Conservation Society Canada, Toronto, Canada. Retrieved from <https://www.wcscanada.org/Publications/Conservation-Reports.aspx>
- Chong, J. (2014) *Resource Development in Canada: A Case Study on the Ring of Fire*. Retrieved from <http://publications.gc.ca/site/eng/469397/publication.html>
- Cott, P. A., A. Schein, B. W. Hanna, T. A. Johnston, D. D. MacDonald, and J. M. Gunn. 2015. Implications of linear developments on northern fishes. *Environmental Reviews* **23**:1-15. <http://dx.doi.org/10.1139/er-2014-0075>
- Doelle, M. (2016) *Integrating Climate Change into EA: Thoughts on Federal Law Reform* (October 18, 2016). <http://dx.doi.org/10.2139/ssrn.2854522>
- Driscoll, C. T., R. P. Mason, H. M. Chan, D. J. Jacob, and N. Pirrone. 2013. Mercury as a global pollutant: sources, pathways, and effects. *Environmental Science & Technology* **47**:4967-4983. <http://dx.doi.org/10.1021/es305071v>
- Duinker, P. N., E. L. Burbidge, S. R. Boardley, and L. A. Greig. 2013. Scientific dimensions of cumulative

- effects assessment: toward improvements in guidance for practice. *Environmental Reviews* **21**:40-52. <http://dx.doi.org/10.1139/er-2012-0035>
- Duinker, P. N. and L. A. Greig. 2006. The Impotence of Cumulative Effects Assessment in Canada: Ailments and Ideas for Redeployment. *Environmental Management* **37**:153-161. <http://dx.doi.org/10.1007/s00267-004-0240-5>
- Dyer, R. D. and L. A. Handley. 2013. McFaulds Lake ("Ring of Fire") area high-density lake sediment and water survey, Far North, Ontario. Summary of Field Work and Other Activities. Ontario Geological Survey, Open File Report 6290, p.32-1 to 32-17. Retrieved from: [http://www.geologyontario.mndm.gov.on.ca/mndmaccess/mndm\\_dir.asp?type=pub&id=oifr6290](http://www.geologyontario.mndm.gov.on.ca/mndmaccess/mndm_dir.asp?type=pub&id=oifr6290)
- Dynesius, M. and C. Nilsson. 1994. Fragmentation and flow regulation of river systems in the northern third of the world. *Science* **266**:753-762. <https://www.jstor.org/stable/2885540>
- Gibson, R. B. 2014. Turning Mines into Bridges: Gaining Positive Legacies from Non-Renewable Resource Projects. *Journal of Aboriginal Mining* **15**:3-8.
- Gunn, J. and B. F. Noble. 2011. Conceptual and methodological challenges to integrating SEA and cumulative effects assessment. *Environmental Impact Assessment Review* **31**:154-160. <http://dx.doi.org/10.1016/j.eiar.2009.12.003>
- Gunn, J. M. and R. Sein. 2000. Effects of forestry roads on reproductive habitat and exploitation of lake trout (*Salvelinus namaycush*) in three experimental lakes. *Canadian Journal of Fisheries and Aquatic Sciences* **57 (Suppl.)**:97-104. <https://www.nrcresearchpress.com/doi/pdf/10.1139/f00-129>
- Hall, B. D., V. L. S. Louis, K. R. Rolfhus, R. A. Bodaly, K. G. Beaty, M. J. Paterson, and K. A. P. Cherewyk. 2005. Impacts of Reservoir Creation on the Biogeochemical Cycling of Methyl Mercury and Total Mercury in Boreal Upland Forests. *Ecosystems* **8**:248-266. <https://doi.org/10.1007/s10021-003-0094-3>
- Hamilton, S. 2000. Archaeological predictive modelling in the boreal forest: No easy answers. *Canadian Journal of Archaeology* **24**:41-76.
- Hori, Y., V. Y. S. Cheng, W. A. Gough, J. Y. Jien, and L. J. S. Tsuji. 2018. Implications of projected climate change on winter road systems in Ontario's Far North, Canada. *Climatic Change* **18**:109-122. <https://doi.org/10.1007/s10584-018-2178-2>
- Hunt, L. M., R. H. Lemelin, and K. C. Saunders. 2009. Managing Forest Road Access on Public Lands: A Conceptual Model of Conflict. *Society & Natural Resources* **22**:128-142. <https://doi.org/10.1080/08941920801922604>
- Hunt, L. M. and N. P. Lester. 2009. The Effect of Forestry Roads on Access to Remote Fishing Lakes in Northern Ontario, Canada. *North American Journal of Fisheries Management* **29**:586-597. <https://doi.org/10.1577/m08-022.1>
- Johnson, C. J., M. S. Boyce, R. L. Case, H. D. Cluff, R. J. Gau, A. Gunn, and R. Mulders. 2005. Cumulative Effects of Human Developments on Arctic Wildlife. *Ecological Monographs* **160**:36. <http://www.jstor.org/stable/3830812>
- Johnson, C.J., Venter, O., Ray, J.C., & Watson, J.E.W. (In Review). The transformative yet ignored impacts of growth-inducing infrastructure.
- Johnson, E. A. and K. Miyanishi. 2012. The boreal forest as a cultural landscape. *Year in Ecology and Conservation Biology*. 151-165. <https://doi.org/10.1111/j.1749-6632.2011.06312.x>
- Keddy, P. A., L. H. Fraser, A. I. Solomeshch, J. J. Wolfgang, D. R. Campbell, M. T. K. Arroyo, and C. J. R. Alho. 2009. Wet and wonderful: The world's largest wetlands are conservation priorities. *BioScience* **59**:39-51. <http://doi.org/10.1525/bio.2009.59.1.8>
- Kreutzweiser, D., F. Beall, K. Webster, D. Thompson, and I. Creed. 2013. Impacts and prognosis of natural resource development on aquatic biodiversity in Canada's boreal zone. *Environmental*

- Reviews **21**:227-259. <http://doi.org/10.1139/er-2013-0044>
- Land, L. 2014. Creating the Perfect Storm for Conflicts over Aboriginal Rights: Critical New Developments in the Law of Aboriginal Consultation. Retrieved from <http://www.oktlaw.com/wp-content/uploads/2016/10/ljlPerfectStorm.pdf>
- Lescord, G.L., Johnston, T., Branfireun, B.A. & Gunn, J.M. (2019) Mercury bioaccumulation in relation to changing physicochemical and ecological factors across a large and undisturbed boreal watershed. Canadian Journal of Fisheries and Aquatic Sciences. <https://doi.org/10.1139/cjfas-2018-0465>
- Lescord, G.L., Johnston, T.A., Heerschap, M., Keller, W.B., O'Connor, C.M., Southee, F.M., Branfireun, B.A., Dyer, R. & Gunn, J.M. (In Review). Chromium, arsenic, selenium, and other elements of concern in fish from remote boreal lakes and rivers; drivers of variability and implications for subsistence fishers. Submitted to Environmental Pollution ENVPOL\_20194892
- Marshall, T. R. and N. E. Jones. 2011. Aquatic Ecosystems in the Far North of Ontario State of Knowledge. Ontario Ministry of Natural Resources. Retrieved from: <http://people.trentu.ca/~nicholasjones/AquaticEcosystemsoftheFarNorth2011.pdf>
- McDermid, J., D. Browne, C.-L. Chetkiewicz, and C. Chu. 2015a. Identifying a suite of surrogate freshwater fish species: a case study of conservation prioritization in Ontario's Far North, Canada. Aquatic Conservation: Marine and Freshwater Ecosystems **25**:855-873. <http://doi.org/10.1002/aqc.2557>
- McDermid, J., S. Fera, and A. Hogg. 2015b. Climate change projections for Ontario: An updated synthesis for policymakers and planners. Climate Change Research Report CCRR-44, Ontario Ministry of Natural Resources and Forestry, Science and Research Branch, Peterborough, ON. Retrieved from: [http://www.climateontario.ca/MNR\\_Publications/CCRR-44.pdf](http://www.climateontario.ca/MNR_Publications/CCRR-44.pdf)
- Noble, B. 2016. Learning to Listen: Snapshots of Aboriginal Participation in Environmental Assessment. Macdonald-Laurier Institute. Retrieved from: [http://www.macdonaldlaurier.ca/files/pdf/Noble\\_StewardshipCaseStudies\\_F\\_web.pdf](http://www.macdonaldlaurier.ca/files/pdf/Noble_StewardshipCaseStudies_F_web.pdf)
- O'Faircheallaigh, C. 2007. Environmental agreements, EIA follow-up and aboriginal participation in environmental management: The Canadian experience. Environmental Impact Assessment Review **27**:319-342. <http://doi.org/10.1016/j.eiar.2006.12.002>
- Ontario Chamber of Commerce. (2015) Beneath the surface: uncovering the economic potential of Ontario's Ring of Fire. Retrieved from: <http://www.occ.ca/portfolio/beneath-the-surface-uncovering-the-economic-potential-of-ontarios-ring-of-fire/>
- Poley, L.G., Pond, B.A., Schaefer, J.A., Brown, G.S., Ray, J.C. & Johnson, D.S. (2014) Occupancy patterns of large mammals in the Far North of Ontario under imperfect detection and spatial autocorrelation. Journal of Biogeography, **41**, 122-132.
- Price, D. T., R. I. Alfaro, K. J. Brown, M. D. Flannigan, R. A. Fleming, E. H. Hogg, M. P. Girardin, T. Lakusta, M. Johnston, D. W. McKenney, J. H. Pedlar, T. Stratton, R. N. Sturrock, I. D. Thompson, J. A. Trofymow, and L. A. Venier. 2013. Anticipating the consequences of climate change for Canada's boreal forest ecosystems. Environmental Reviews **21**:322-365. <http://doi.org/10.1139/er-2013-0042>
- Robertson, M. J., D. A. Scruton, R. S. Gregory, and K. D. Clarke. 2006. Effect of suspended sediment on freshwater fish and fish habitat. Canadian Technical Report of Fisheries and Aquatic Sciences. 2644. Retrieved from: [http://publications.gc.ca/collections/collection\\_2007/dfo-mpo/Fs97-6-2644E.pdf](http://publications.gc.ca/collections/collection_2007/dfo-mpo/Fs97-6-2644E.pdf)
- Siebenmorgen, P. and B. Bradshaw. 2011. Re-conceiving Impact and Benefit Agreements as instruments of Aboriginal community development in northern Ontario, Canada. Oil, Gas & Energy Law Intelligence (OGEL) **4** Retrieved from: [www.ogel.org/article.asp?key=3142](http://www.ogel.org/article.asp?key=3142)
- Sinclair, A. J., M. Doelle, and P. N. Duinker. 2017. Looking up, down, sideways: Reconceiving cumulative

- effects assessment as a mindset. *Environmental Impact Assessment Review* **62**:183-194. <http://dx.doi.org/10.1016/j.eiar.2016.04.007>
- Tang, R. W., T. A. Johnston, J. M. Gunn, and S. P. Bhavsar. 2013. Temporal changes in mercury concentrations of large-bodied fishes in the boreal shield ecoregion of northern Ontario, Canada. *Science of the Total Environment* **444**:409-416. <http://dx.doi.org/10.1016/j.scitotenv.2012.11.109>
- Far North Science Advisory Panel. 2010. Science for a Changing Far North. Ontario Ministry of Natural Resources. Retrieved from <http://wbn.scholarsportal.info/node/5794>
- Webster, K. L., F. D. Beall, I. F. Creed, and D. P. Kreuzweiser. 2015. Impacts and prognosis of natural resource development on water and wetlands in Canada's boreal zone. *Environmental Reviews* **23**:78-131. <http://dx.doi.org/10.1139/er-2014-0063>

## **Appendix 1. Our expertise**

We are Wildlife Conservation Society (WCS) Canada scientists conducting research on species and ecosystems to inform conservation decisions. WCS Canada is a national non-government organization that has been engaged in Ontario since 2004, with research and conservation priorities largely focused in the far north of the province.

We and our WCS colleagues are among the few scientists with continuous research presence in the region, having focused research over the years on several focal species, cumulative impacts, with implications for environmental assessment, land use planning and species recovery. We support and collaborate with a number of First Nations on research and community-based monitoring, including in the Ring of Fire area. We also partner with many academic and government researchers conducting ecological and social research in the region. We have been actively involved in the federal impact assessment (IA) reform process since it was first launched in 2016, have engaged directly with the CEAA Agency and others on multiple occasions, provided public comments, in person and in writing, throughout the process, and are highly familiar with both the *Canadian Environmental Assessment Act, 2012* (CEAA 2012) and the new *Impact Assessment Act* (IAA) as well as the significant published literature on impact assessment.

Similarly, we are very familiar with Ontario environmental assessment and land use planning laws, policies and processes; we have provided many written comments to Ontario during the past year on substantial changes being made or considered to many environmental laws, including the proposal to “modernize” Ontario’s *Environmental Assessment Act (EAA)* (ERO No. 013-5101, 013-5102).

Dr. Justina Ray was a member of the Far North Science Advisory Panel, the Ontario Wolverine Recovery Team, the Ontario Caribou Science Advisory Panel, and the Committee on the Status of Species at Risk in Ontario (COSSARO) and was co-chair for terrestrial mammals subcommittee of the Committee on the Status of Endangered Wildlife in Canada from 2008-2017.

Dr. Cheryl Chetkiewicz has conducted applied research on cumulative effects, promoted [regional and strategic impact assessment](#) in the far north, and is an active board member with Ontario Association of Impact Assessment (OAIA).

Dr. Matthew Scrafford leads WCS Canada’s Ontario program and has led the wolverine conservation program in northern Ontario since 2017.