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Re: Ontario's Approach to Climate Change Adaptation (EBR Registry Number 013-1520)

Dear Ms. Jakobsen,

Thank you for the opportunity to provide comments to the Ontario Ministry of the Environment and Climate Change (MOECC) on Ontario's approach to climate change adaptation¹. I am submitting comments in my capacity as a Wildlife Conservation Society (WCS) Canada scientist specializing in wildlife ecology, conservation biology, cumulative impacts, and landscape ecology in northern Ontario.

A national organization, our research and conservation priorities in Ontario are largely focused on the Far North. WCS Canada scientists have conducted field and applied research on the impacts of climate change on freshwater fish (Chetkiewicz et al. 2012, McDermid et al. 2012, Stitt et al. 2014, Edwards et al. 2016, Chetkiewicz et al. 2017). We have provided public comments on Ontario's approach to climate change (**EBR No.: 012-3452**), including the guidance developed to assess climate change in Ontario's environmental assessment processes (**EBR No.: 012-5806**). Together with Dr. Justina Ray, I also met with MOECC staff in October 2016 and provided subsequent written feedback and recommendations on Ontario's current approaches to adaptation to support the next iteration of Ontario's climate change adaptation plan. Finally, I attended and participated in the MOECC webinar on climate change adaptation in Ontario during November 2017.

My comments are presented in three sections.

- **Section 1** focuses on concerns regarding how managed and unmanaged systems are being considered in climate change planning, both adaptation and mitigation.
- **Section 2** focuses on the current proposal, specifically actions under *Taking action to adapt to a changing climate* and their relationship to Climate Ready: Ontario's Adaptation Strategy and Action Plan (2011).
- **Section 3** addresses actions identified in the *Natural environment and agriculture* and *Land use planning* sections under *How we are already protecting people in Ontario*.

¹ <https://www.ontario.ca/page/how-were-adapting-climate-change>

Section 1. Addressing climate change adaptation in management.

Recommendation 1. Ontario should consider natural and unmanaged and managed systems in a more integrated fashion and to develop a consistent framework for both climate change mitigation and adaptation strategies.

While MOECC has developed separate plans for mitigation and adaptation, they are in reality interconnected in the effort to address climate change. The current emphasis on reducing emissions and creating pathways for offsetting greenhouse gas (GHG) emissions to meet provincial targets and contribute to Canada's international commitments on climate change e.g., mitigation, is critical. However, adaptation and mitigation planning should be integrated since pathways and actions that conserve carbon are highly relevant from an adaptation perspective.

Forests, for example, act as carbon sinks, but they also reduce flood levels, control soil erosion (adaptation in response to increased precipitation) (Expert Panel on Climate Change Adaptation 2009). In other words, the loss of a tonne of carbon sink potential can have the same impact as a tonne of GHG emissions. Ontario has large carbon stores in the unmanaged systems represented by the intact forests and wetlands (peatlands) in the Far North, a good portion of which will eventually convert from unmanaged to managed lands², through community based land use planning processes being led by Ontario's Ministry of Natural Resources and Forestry (MNRF). Any approach to adaptation planning should consider proactively how these areas will be included in Ontario's carbon budget and the next iteration of the adaptation strategy and plan is a great opportunity to do so more explicitly.

Ontario's plans, programs, and policies must be based on a long-term perspective that addresses both managed and natural ecosystems, as integral components with values beyond the substitutive carbon stores they possess. This approach promotes management focused on adaptive capacity (*sensu* resilience) in both managed and natural systems (Moen et al. 2014, Bradshaw et al. 2015) along with international, national, and provincial efforts to reduce emissions. Where mitigation is being considered through increased sequestration rather than emissions reductions (e.g., with Ontario's emerging "forest carbon policy" that would be delivered exclusively through forest management³), assumptions and uncertainties need to be made clear. Likewise, risks to the carbon storage must be considered more proactively than they are at present. In northern Ontario, for example, addressing adaptation will require reducing net deforestation from logging (Bradshaw et al. 2009), better long-term harvest rotations (Warkentin and Bradshaw 2012), managing fire and insect outbreaks more effectively, and limiting the development of roads and other infrastructure into remote forested and carbon-rich regions (Colombo and Parker 2005, Laurance et al., 2014). Finally, both managed and natural and unmanaged systems have other values besides carbon, including biodiversity, freshwater, and cultural values some of which are recognized as Aboriginal and Treaty rights for First Nations.

One suggestion to address this recommendation includes a gap analysis of current climate change actions by MOECC (and MNRF) to identify missing aspects (e.g., climate change impacts that cannot be addressed through mitigation or adaptation actions). A key concern is that the managed forest both in the

² Canada (and Ontario) has chosen an area-based approach to define managed and unmanaged lands: <http://www.nrcan.gc.ca/forests/climate-change/carbon-accounting/13111>

³ Ontario's Crown Forests: Opportunities to Enhance Carbon Storage? A Discussion Paper. EBR 012-8685 (<http://www.ebr.gov.on.ca/ERS-WEB-External/displaynoticecontent.do?noticeId=MTMwMTQw&statusId=MTk3MjE1&language=en>)

Area of Undertaking (AOU) and the unmanaged systems, mainly in the Far North, are not adequately represented in Plan 2011 and need to be in the next iteration. In *Climate Ready: Ontario's Adaptation Strategy and Action Plan (2011)*⁴ (Plan 2011), the few places where the Far North is mentioned ("protecting and sustainably managing" carbon stores in the Far North), there are no details and a reliance on MNRF-led processes, including the Far North Land Use Strategy and Ontario's Wetlands Conservation Strategy.

Recommendation 2. MOECC should require more explicit climate change adaptation targets from the FNLUS and the Wetlands Conservation Strategy.

Far North Land Use Strategy and Climate Change

WCS Canada has provided consistent input on the evolution of the Far North Land Use Strategy (FNLUS) since its inception in 2014 (**EBR No: 012-0598**). To date, the FNLUS offers no clear means for addressing climate change or conserving carbon-rich peatlands and wetlands and their carbon stocks in Ontario's Far North. While promoted as technical guidance, the *advice* provided in the draft FNLUS offers no clear means to address climate change in the Far North nor can it ensure conservation of peatlands and wetlands and their carbon stocks in particular. Most of the language is tentative and not very practical in terms of describing *how* community based land use planning teams could address climate change, including maintaining carbon stocks and flows, and considering implications of their planning decisions about development, protection, and general use in the face of climate change. While the emphasis on carbon function and maintenance is highly relevant to Ontario's current and potential actions in addressing climate change, the current draft is not linked to Ontario's provincial goals for addressing climate change.

Ontario's Wetlands Conservation Strategy

WCS Canada has provided comments on the emerging Ontario's Wetlands Conservation Strategy (**EBR No.: 012-4464, EBR No.: 012-7675**). In November 2016, WCS Canada co-authored a letter to then Minister of the MNRF (Minister McGarry) with recommendations that would improve the draft Strategy in order to deliver on Premier Kathleen Wynne's pledge to reverse wetland loss in Ontario by 2025⁵.

Our assessment of the current Strategy is that it remains unacceptably weak in terms of restoring ecosystem functions where wetlands have been damaged and destroyed, provides no consideration for protection of intact wetlands and peatlands, particularly in the Far North, and offers little or no direction on how climate change will be incorporated into wetland conservation and land-use planning that affects wetlands.

Recommendation 3. Provide the public with a "report card" on what was actually accomplished vis-à-vis the 37 actions as well as how actions were prioritized, monitored and assessed within various ministries and agencies.

Overall, it is challenging for interested parties, like WCS Canada, to track and evaluate how successful Ontario, specifically MOECC, is in delivering climate change actions associated with adaptation. Ontario's approach has emerged over time based on a number of documents which few defined targets, measures of success, or timeframes including:

⁴ <https://www.ontario.ca/document/climate-ready-adaptation-strategy-and-action-plan-2011-2014-0>

⁵ Premier Kathleen Wynne. June 9, 2014. Open Letter to Ducks Unlimited Canada (du_barrie@ducks.ca).

- Adapting to Climate Change in Ontario: Report of the Expert Panel on Climate Change Adaptation (2009)⁶. The Panel assembled to provide advice on measures to support understanding of climate change and preparation for impacts across 17 ministries and provincial agencies. The report includes 59 recommendations to help Ontario understand climate change impacts, reduce risks and take advantage of beneficial opportunities resulting from climate change.
- Climate Ready: Ontario's Adaptation Strategy and Action Plan (2011) was a response to the Panel's report and outlined 37 actions to be taken by 10 ministries during 2011-2014.
- Ontario's Climate Change Strategy (2015)⁷ and Climate Change Action Plan (2016)⁸ included a commitment to develop a climate change information and service organization and identified policies and programs to achieve near- and long-term emission reductions and intended level of investment, and to develop a strategy for adaptation by the end of 2017.
- Cap and Trade Program (2016)⁹ including the Quantification, Reporting and Verification of Greenhouse Gas (GHG) Emissions Regulation (2017)¹⁰. This program includes 223 major GHG emitting facilities in the province and includes about 82% of GHGs in the province. This program is enabled by the *Climate Change Mitigation and Low-carbon Economy Act, 2016*.¹¹

In addition, some ministries, notably MNRF, have also developed their own strategies and action plans for addressing adaptation and mitigation. MNRF is the primary ministry responsible for managing 87% of the provincial land base and conserving Ontario's fish, wildlife, and ecosystem services in both managed and unmanaged systems. MNRF also has significant responsibility in decision making about land use and its interactions with climate change and planning for the future of species, ecosystems, and landscapes in managed and unmanaged systems alike. As such, MNRF plays an essential role in addressing both the impacts (e.g., mitigation) and adaptation of ecological and human communities to climate change. WCS Canada scientists provided comments on MNRF's climate change plan (**EBR No.: 012-9499**). Since 2009, the Environmental Commissioner of Ontario has been mandated with reporting annually on the progress of activities in Ontario to reduce emissions of GHG, and to reduce the use or make more efficient use of electricity, natural gas, propane, oil and transportation fuels.

Section 2. Taking action to adapt to a changing climate

In 2011, Ontario's first Adaptation Strategy and Action Plan (Plan 2011) identified 37 actions spread across multiple ministries and agencies. In this section, I focus on those identified in the current proposal.

⁶ <http://www.climateontario.ca/doc/publications/ExpertPanel-AdaptingInOntario.pdf>

⁷ <https://www.ontario.ca/page/climate-change-strategy>

⁸ <https://www.ontario.ca/page/climate-change-action-plan>

⁹ <https://www.ontario.ca/page/cap-and-trade>

¹⁰ <https://www.ontario.ca/laws/regulation/160144>

¹¹ <https://www.ontario.ca/laws/statute/16c07>

Mainstreaming Adaptation (Action 1) vs. A whole-of-government approach

Recommendation 4. Identify and provide more quantitative and time-bound actions for each provincial ministry, including measures of success, targets and timelines within the next iteration of the adaptation plan.

Recommendation 5. Provide more explicit focus on the actions of the Ministry for Northern Development and Mines (MNDM) and the Ministry of Energy as they relate to climate change adaptation, particularly in Ontario's Far North.

Plan 2011 provided a vague commitment from MNDM to “strengthen the winter road network (Action 11)”. MNDM already manages the winter road program in the Far North and I am aware that many communities in the Far North are upgrading and realigning their winter roads through Class EA processes that are not subject to public review or cumulative effects assessment. More importantly, MNDM plays a key role in facilitating and supporting new mineral exploration, mines, and new roads, particularly in the Far North and their role within negotiations associated with the Regional Framework Agreement with Matawa First Nations¹². The impact of climate change on mining and new all-weather roads and infrastructure as well as the impacts of mining on GHG emissions and carbon budgets, particularly in the carbon-rich peatlands in Ontario's Far North, are important aspects of MNDM's role that is currently absent in Ontario's approach to climate change adaptation. MNDM should have more explicit obligations and measurable actions regarding climate change, particularly in the Far North.

Plan 2011 did not even include any formal actions for the Ministry of Energy. In the current document, connecting remote First Nation communities to the grid is a priority in the ***how we are already protecting the people of Ontario*** section of the current proposal. WCS Canada scientists are engaged in reviewing the individual EA for **Phase 1 of the New Transmission Line to Pickle Lake** and noted the emphasis in the project on mitigation but not adaptation. While this project has been identified as a priority in Ontario's *Long Term Energy Plan*¹³, a more useful approach to addressing climate change adaptation and mitigation in Ontario would include a sector-based climate change risk assessment or strategic environmental assessment with all Ontario energy agencies and distribution companies. As with MNDM, the Ministry of Energy should have more explicit obligations and measurable actions regarding climate change adaptation in Ontario.

It remains unclear how MOECC addresses climate change (both mitigation and adaptation) and its cumulative effects on the environment in its decision making about new industrial development as it relates to work being facilitated and prioritized by other ministries including MNDM and the Ministry of Energy. While MOECC has partially delivered on Action 8 in Plan 2011 by developing the **Guide: Consideration of Climate Change in Environmental Assessment in Ontario** it remains unenforceable, has limited application and content, and ignores the limitations of the Ontario *Environmental Assessment Act* and current EA practice in Ontario when it comes to addressing cumulative effects.

Overall, we have provided consistent feedback to MNDM, MNRF, and MOECC that strategic (e.g., sectoral) and regional planning approaches, particularly in intact and globally significant regions like Ontario's Far North, is an important tool for systematically addressing climate change adaptation and mitigation actions. The provincial climate change risk assessment, being considered in the current

¹² https://www.mndm.gov.on.ca/sites/default/files/rof_regional_framework_agreement_2014.pdf

¹³ <https://www.ontario.ca/page/ontarios-long-term-energy-plan>

proposal, could be developed as a strategic and regional planning process and product. However, it remains unclear, how the outcomes of the risk assessment will be addressed without a legislative basis for doing so. It is also unclear how the risk assessment will integrate mitigation as well as adaptation.

Creating an Adaptation Directorate (Action 2) vs. a New Climate Change Organization

Action 1 in Plan 2011 identified the establishment of a Climate Change Adaptation Directorate to address governance and accountability for delivering the climate change adaptation plan. Actions included: reporting annually to the public on actions contained within the plan; develop a risk-management framework to guide decision making; act as a one-window resource for the public and the Ontario government to connect experts and provide needed information; and undertake or co-ordinate province-wide economic and climate impact studies.

In the current document, the emphasis is on a not-for-profit institution that would offer a range of climate services to enhance understanding and management of climate risks and opportunities, enable effective adaptation action and decision-making, and support a climate services market in Ontario. Potential categories of services include: climate science and information, particularly regional climate projections and scenarios; adaptation planning and solutions, including demonstration and pilot projects as well as direct programming services; and, capacity building, engagement, and public awareness, including trainings, tutorials, webinars and other outreach efforts. It is envisioned that the organization will be independent of government with a board of directors and a core set of staff.

Overall, a new Climate Change Organization seems like an efficient way for MOECC to ensure Ontario sectors, municipalities, Indigenous communities, provincial ministries and agencies, and the public have access to climate data, analysis and services and programs through a “one-stop online platform”. In general, we are supportive of this approach. In the absence of detail, we have the following initial concerns:

- **Sustainability.** How will this institution will sustain itself? We anticipate a “fee-for-service” model will be inevitable making it difficult for the general public, NGO, and Indigenous communities with limited resources to access the materials. In addition, most of the provincial research (e.g., Varrin et al. 2007, Dove-Thompson et al. 2011, Gleeson et al. 2011, Lalonde et al. 2012, Chu & Fischer 2012, Furrer et al. 2014) has been developed with public funding.
- **Private sector engagement.** How will information obtained through the private sector be made available through this organization?
- **Duplication of effort.** How will this institution work alongside other institutions such as the Ontario Centre for Climate Impacts and Adaptation Resources (OCCIAR).

We also encourage more programmatic interaction with Ouranos¹⁴, particularly for the northern environment, as Ontario develops this organization.

¹⁴ <https://www.ouranos.ca/en/programs/>

Section 3. How we are already protecting the people of Ontario

Natural environment and agriculture

Recommendation 6. Prioritize the completion of the carbon land use inventory, including natural and unmanaged systems, and support the first critical first step of independent (and transparent) scientific review of the methodology and approach for developing this inventory.

Under Goal 2 in Plan 2011, a number of actions focused on “taking reasonable and practical measures to increase climate resilience of ecosystems” where resilience is defined as “an ecosystem’s ... ability to absorb disturbances related to climate change while retaining the same basic structure and ways of functioning” (IPCC 2007). Ontario has focused on four main areas in terms of adaptation: biodiversity, forest management, Great Lakes, and Lake Simcoe.

Beyond an inventory of all of Ontario’s actions in these areas, it is important to understand how well these elements are being addressed in the climate change adaptation plan moving forward. Concerns with the current approach include:

- A reliance on Ontario’s Biodiversity Strategy to address climate change. While there are targets in the broader strategy acknowledging provincial mitigation targets (Ontario Biodiversity Council 2011), the government’s own commitments to conserving biodiversity are weak¹⁵.
- How completed vulnerability assessments (e.g., Chu 2015) are being incorporated into planning and decision making.
- Clarifying how actions in Ontario’s *Climate Change Action Plan*, specifically, “Understand and enhance carbon storage in natural systems” is relevant to climate change adaptation actions in both managed and unmanaged and natural systems.

Recommendation 7. Consider more explicitly other strategies for addressing climate change adaptation in managed and unmanaged systems.

In general, natural systems (genes, species, ecosystems, biomes) are evolving to address current conditions and can adapt to a range of variation in processes occurring at various temporal and spatial scales. Managers typically monitor and measure these systems using metrics such as population numbers or habitat loss to assess how well these systems are doing in the face of change, including land use and climate change. In addition, studies of past periods of climate change and their effects on species and ecosystems help us understand what may happen in the future. While nothing can be done to prevent these systems from being exposed to climate change, some proactive adaptation strategies, as well as adaptive management measures to increase the ability of ecosystems and threatened species to adapt are possible. The following are a fairly standard set of strategies to address adaptation in natural systems in response to climate change. There is no “one size fits all approach” and more specific approaches may be needed depending on whether the system is freshwater, terrestrial, or marine and the regional landscape context in which it is embedded. In general, these strategies that can be applied at different scales to: reduce threats including climate change and cumulative effects; enhance adaptive capacity of species and systems; engage people; and improve our knowledge.

¹⁵ http://ontariobiodiversitycouncil.ca/wp-content/uploads/MNR_BIION_accessibility_EN_Final.pdf

Some of these strategies include:

- **Proactively conserving and expanding protected areas and other effective means of conservation.**

In the near north and southern portions of Ontario, landscapes are already quite fragmented. Actions here will include identifying and maintaining a more systematic approach to developing a well-connected network of conservation areas to enable mobile species to move in response to climate change, some areas will require a focus on restoration, while some existing areas could be expanded. In the Far North, this includes valuing sufficiently large intact ecosystems and processes for a variety of systems and species. On the latter, a growing body of research supports the maintenance of large intact systems for the purpose of enabling adaptive capacity in species and the ecosystems in which they function (Watson et al. 2013, Eigenbrod et al. 2014, Martin and Watson 2016). Protecting these intact regions may be more effective in providing adaptation options than trying to restore or recreate them after they have been damaged or fragmented by land use for example (Hodgson et al. 2009). More explicit actions may be more relevant depending on whether the focus is terrestrial, freshwater, or marine.

- **Reduction of non-climate stressors**

Reducing existing direct threats associated with development or other land uses such as habitat degradation and fragmentation, invasive species, pollution, and overexploitation can help fish, wildlife, plants, and ecosystems better cope with the additional stresses caused by a changing climate. An important action enabling species to adapt to a changing climate is to reduce the negative impacts of existing stressors. A number of these stressors are things that decision makers can deliberately control through management, regulations, and policy (e.g., over-harvesting, habitat loss, fragmentation, invasive species in some cases, development approvals).

- **Manage species and habitats to protect ecosystem services**

Incorporating climate change information into fish, wildlife, and plant management efforts, including the assessment of new projects, is essential to safeguarding species and valued ecosystem services. Currently, there seems to be no comprehensive or integrated approach to consider climate change in species and habitat conservation and management in Ontario, particularly in the Far North, and these efforts appear to be siloed in practice.

Recommendation 8. Provide more substantive information about the “Northern Ontario climate change impact study”.

The current proposal includes a section on the **Far North and Indigenous communities**. I am aware, mainly through personal communications with Dr. David Pearson, of some of these efforts with Indigenous communities, particularly in Ontario’s Far North. We are supportive of this work and the collection of information using Traditional Knowledge (TK) and scientific information.

The key concern is that current infrastructure on First Nations reserves (a federal responsibility) such as drinking water, housing, and roads are already in a dismal condition across the north. Provincial and federal money and efforts spent trying to “adapt” this already decrepit infrastructure to climate change

seems questionable given the broader social challenges facing northern First Nations communities. Given federal commitments to reconciliation and addressing Indigenous rights in Canada (e.g., United Nations Declaration on the Rights of Indigenous People (UNDRIP)), it would be useful to understand the provincial commitment to infrastructure given climate change and the current context of reconciliation.

It is also unclear how the investment in community based climate change adaptation planning is being integrated with ongoing community based land use planning led by MNRF. It is not clear how this work is being integrated with concurrent environmental assessments (e.g., roads in the Ring of Fire, Phase 1 and 2 of the Wataynikaneyap transmission line). The current adaptation plan should include more specific information and/or a link to the goals and objectives of the “Northern Ontario climate change impact study”.

Thank you for this opportunity to provide feedback. As always, I would be pleased to engage in any discussions regarding these recommendations and comments. You may reach me at 807-285-9125 or cchetkiewicz@wcs.org to do so.

Yours sincerely,



Cheryl Chetkiewicz, Ph.D.
Conservation Scientist

cc: Environmental Commissioner of Ontario

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