PETITION

TO THE WORLD HERITAGE COMMITTEE

Requesting Inclusion of Wood Buffalo National Park on the List of World Heritage in Danger

December 2014

MIKISEW CREE
FIRST NATION

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Mikisew would like to acknowledge the Environmental Law Centre at
the University of Victoria for its support in making this petition possible.

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the firelight group

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and organizations supporting its Petition.

Cover: WBNP photo courtesy Paul Zizska/zizka.ca; whooping crane
courtesy Klaus Nigge/Parks Canada; oil sands courtesy Peter Mettler.

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WBNP PHOTO COURTESY PAUL ZIZSKA / ZIZKA.CA

NOTICE OF PETITION

To: The World Heritage Committee
c/o The Secretariat, World Heritage Centre
United Nations Educational, Scientific, and Cultural Organization
7 Place Fontenoy, 75352, Paris 07 SP, France

The Mikisew Cree First Nation requests the Secretariat and members of the Intergovernmental Committee for the Protection of the Cultural and Natural Heritage of Outstanding Universal Value (World Heritage Committee) list Wood Buffalo National Park on the List of World Heritage in Danger pursuant to its authority under Article 11, paragraph 4 of the *Convention Concerning the Protection of the World Cultural and Natural Heritage*.

Petitioner:

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EXECUTIVE SUMMARY

The Peace–Athabasca Delta, with its unique and unsurpassed hydrological system, was considered the foundational element underpinning the Wood Buffalo National Park's designation as a World Heritage Site in 1983.

PHOTO CLIFF WALLIS, COURTESY COTTONWOOD CONSULTANTS LTD.

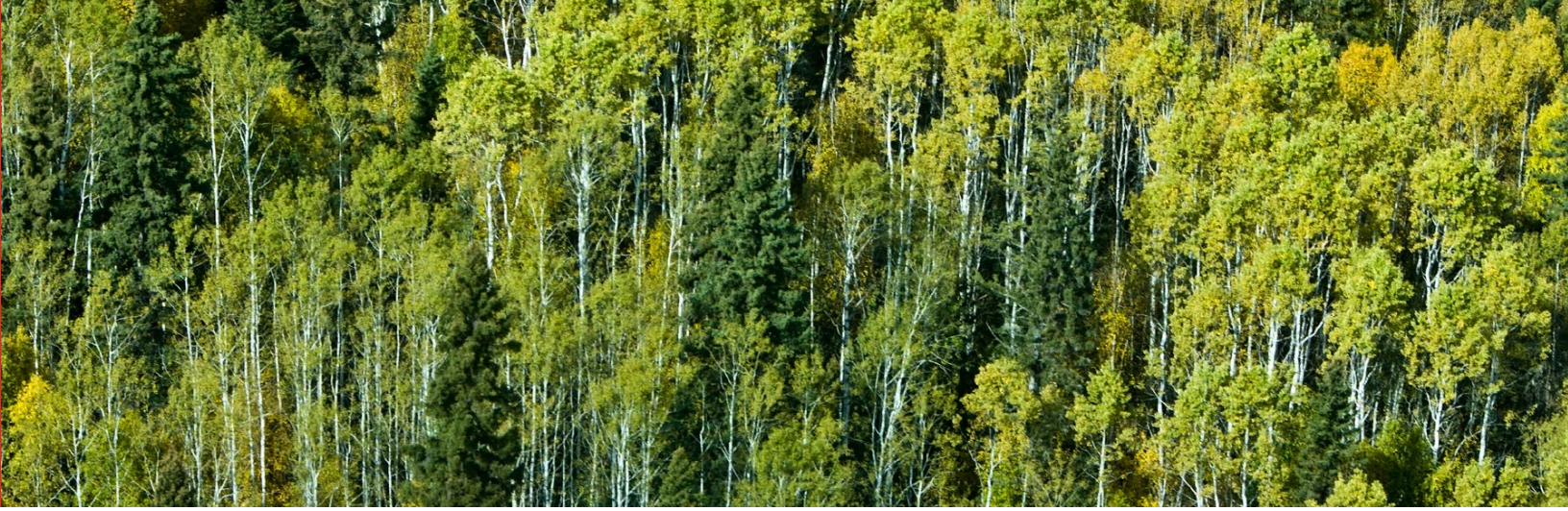
Given the many serious and immediate threats to UNESCO site #256, the Wood Buffalo National Park ("WBNP"), the Petitioner requests that this UNESCO site be added to the List of World Heritage in Danger.

Background on UNESCO site #256

The WBNP is a national park, the majority of which is situated in northeastern Alberta, Canada, downstream of what is known internationally as the oil sands region of Canada. The list of factors supporting the inscription of the WBNP in 1983 was extensive. Among other things, a technical review submitted at the time by the International Union for the Conservation of Nature noted that the WBNP:

- was the most important protected area within the Canadian taiga;
- supported great concentrations and diversity of migratory waterfowl;
- was the largest and most ecologically complete example of the entire Great Plains-Boreal grassland ecosystem of North America;
- contained the only breeding habitat for the endangered whooping crane;
- was the only place where the predator-prey relationship between wolves and bison continued to exist; and
- contained rare and superlative natural phenomena such as salt plains, gypsum karst and, most critically, the largest inland delta in the world, the Peace–Athabasca Delta ("PAD") with its unique and unsurpassed hydrological system.[1]

1 International Union for Conservation of Nature and Natural Resources, *World Heritage Nomination: IUCN Technical Review* (15 April 1983). Online: UNESCO, http://whc.unesco.org/archive/advisory_body_evaluation/256.pdf [*WBNP Nomination Report*]; see also United Nations Educational, Scientific and Cultural Organization (UNESCO), *Wood Buffalo National Park* (no date). Online: UNESCO, http://whc.unesco.org/en/list/256 [*WBNP UNESCO webpage*].



The Peace–Athabasca Delta (PAD), in particular, was considered the foundational element underpinning the WBNP's designation as a World Heritage Site in 1983.[2]

Overview of the immediate threats to the WBNP

When the WBNP was being inscribed thirty years ago, the nomination papers did not identify any particular immediate threat to the WBNP. Today, the situation in the WBNP has changed dramatically. The WBNP is now facing an unprecedented level of immediate threats that are converging from multiple directions.

When the WBNP was being inscribed thirty years ago, the nomination papers did not identify any particular immediate threat to the WBNP. Today, the situation in the WBNP has changed dramatically.

WBNP PHOTO COURTESY PAUL ZIZSKA / ZIZKA.CA

From the west, governments' failures to address impacts of hydro-electric regulation on the Peace River (one of two primary tributaries into the PAD) from existing dams has compromised the effectiveness of the three hydrologic recharge mechanisms that provide water to the PAD. The decline in recharge has led to a drying up of the perched basins that are unique to the WBNP along with the loss of significant wildlife habitat and biodiversity within the WBNP. Parks Canada has rated the hydrology of the Peace and Slave Rivers as poor.[3] Despite their failure to address these threats, the British Columbia and Canadian governments recently approved yet another hydro-electric dam on the Peace River that could further impact the flow cycles and recharge mechanisms of the PAD and exacerbate the effects of climate change on the WBNP.[4]

From the south, the huge industrial development of Alberta's oil sands region, all of which is upstream of the WBNP, threatens the integrity of the WBNP. New research is establishing that existing oil sands developments are releasing contaminants, disrupting migratory bird movements and removing vast quantities of water from the Athabasca River system (the other primary tributary into the PAD), all of which are deteriorating the value of the WBNP and seriously undermine many of the outstanding universal values for which the WBNP was

2 Parks Canada, *Parks Canada's Submission to the Joint Review Panel for BC Hydro's Site C Clean Energy Project, Parks Canada*: *Submission of Parks Canada Agency November 15, 2013* [*Parks Canada Report*] at 12. Online: www.ceaa.gc.ca/050/documents/p63919/96412E.pdf

3 Parks Canada, *Wood Buffalo National Park: State of the Park Report, 2010* at 28.

4 Martin Carver, *Impacts of the Proposed Site C Dam on the Hydrologic Recharge of the Peace–Athabasca Delta*, November 25, 2013, CEAR 1814 ["Carver Report"] at 78.

New research is establishing that oil sands developments are releasing contaminants, disrupting migratory bird movements and removing vast quantities of water from the Athabasca River system.

PHOTO COURTESY
PETER METTLER

established to protect. Now, a corporation is seeking approval to build an open-pit mine partially within a watershed sub-basin that flows directly into Lake Claire, the largest lake within the PAD. The PAD also faces potential dangers from a breach of a tailings pond, given the number of oil sands tailings ponds that are located along the Athabasca River and put the WBNP at grave risk.

From Ottawa to the east, the federal government has recently reduced and, in some instances, completely removed environmental management tools that could reduce the threats posed by activities upstream of the WBNP. Furthermore, the federal government has been reluctant to conduct scientific research into the effects of oil sands and hydro-electric activities on the PAD ecosystem. While touting a new monitoring program in 2012, Canada has systematically excluded indigenous communities from this monitoring program, left the future of the monitoring program beyond 2014 in significant doubt, and removed many of the legislative and regulatory tools that would make a monitoring program effective.

From Edmonton to the southwest, the provincial government in Alberta has developed a land use plan to facilitate a huge expansion in oil sands development in the area upstream of the WBNP. In doing so, Alberta declined to protect habitat and ecosystems that are contiguous with the WBNP on the basis that protection of those lands and waters would be inconsistent with the prioritization of exploiting oil resources.

In addition, the federal and provincial governments systematically ignore and fail to implement recommendations regarding the threats from cumulative effects of oil sands development on the WBNP, even when made by independent panels and experts.

From all directions, the threats to the WBNP associated with climate change are being routinely ignored by both the provincial and federal governments. Climate change, in the absence of steps being taken by the federal and provincial governments to increase the resilience of the PAD, will exacerbate the drying of the perched basins and the reduction of river flows, which will undermine many of the outstanding universal values that the WBNP was established to protect.

If these threats to the WBNP and the PAD are not recognized and addressed soon, the outstanding universal values of the UNESCO site #256 may be lost forever. Given the role that the WBNP plays in the lives and cultures of local indigenous populations, such as the Petitioner, inaction may result not only in the loss of these values but also the loss of the distinctive indigenous cultures that the WBNP supports.

An urgent need to take action to protect the WBNP

The Petitioners have used all domestic avenues available to them — such as direct requests, participation in regulatory processes and recourse to the Canadian court system — to have the federal and provincial governments take steps to effectively manage and address the threats to the UNESCO site #256. Unfortunately, these efforts have been unsuccessful and the legacy of inadequate management by all levels of government in Canada and the recent steps to limit and remove even limited management tools suggest that these threats will not be addressed soon enough to avoid further damage to the WBNP and the PAD.

Placement of UNESCO Site #256 on the List of World Heritage in Danger is necessary to highlight the threats of existing and proposed hydroelectric flow regulation, further oil sands development, particularly north of the Firebag River just south of the WBNP, and climate change to the sensitive ecosystems of the PAD. In addition, the designation is necessary to establish an impetus for actions by the governments of British Columbia, Alberta, the Northwest Territories and Canada to act to appropriately manage this unique ecosystem cooperatively with the local indigenous communities that depend on it.

A program of "corrective measures" is an important result of a World Heritage in Danger listing. The Petitioners seek immediate corrective measures that focus on preventing the continued drying up and contamination of the PAD, such as a cumulative effects assessment of hydroelectric regulation on the PAD, strategic flow regulation, a moratorium on industrial development north of the Firebag River pending further research into the effects of oil sands activities, and an adaptive management framework and regulatory system capable of protecting the outstanding universal value of UNESCO site #256.

"Down south they have the rainforest. Up here we have the delta."
— Mikisew member

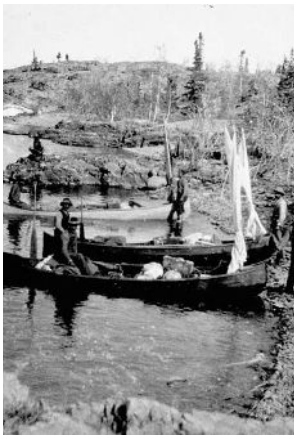
PHOTO COURTESY
DRU OJA JAY

Overview of this Petition

Section I provides an overview of the Petitioners and the UNESCO site that is subject to this petition. Section II sets out the legal basis for this Petition. Section III describes how the WBNP meets the legal threshold for being placed on the List of World Heritage Sites in Danger. Section IV suggests major operations that are necessary to conserve the natural heritage of WBNP as part of a program of corrective measures.

PETITION TO INSCRIBE UNESCO SITE #256 ON THE LIST OF WORLD HERITAGE IN DANGER

I. Introduction



Mikisew First Nations traditional lands have always been a central location for the harvesting, social, economic, political, cultural and spiritual activities that are vital to the physical and cultural continuity of Mikisew.

PHOTO: *RENCONTRE AVEC DES AMÉRINDIENS SUR LA RIVE NORD DU LAC ATHABASCA, ALBERTA* (LAC ARCHIVES 1893)

a. Petitioner

The Mikisew Cree First Nation ("Mikisew") is an indigenous group comprised of approximately 2800 members. Mikisew's administrative centre is Fort Chipewyan, Alberta, which is a remote hamlet located adjacent to WBNP and downstream of Fort McMurray, Alberta. The original name for Fort Chipewyan is *Ayapaskaw*, which is the Cree name for the Peace–Athabasca Delta. As explained by Mikisew Chief, Steve Courtoreille, Mikisew's ancestors named the area after the PAD because the PAD is in the centre of Mikisew's traditional lands and is the source of much that has sustained Mikisew members for generations.

Mikisew and its ancestors have used and occupied their traditional lands in the Athabasca and Peace regions for generations. Mikisew's traditional lands have always been a central location for the harvesting, social, economic, political, cultural and spiritual activities that are vital to the physical and cultural continuity of Mikisew. In 1899, Mikisew's ancestors entered into Treaty 8 with Canada in order to obtain assurances that they would be able to maintain their way of life and livelihood within the Mikisew traditional territory, including the PAD.

In 1986, Mikisew negotiated a landmark Treaty Land Entitlement Agreement with the federal government under which Canada agreed to, among other things, make every reasonable effort to correct man-induced changes to the natural water regime in the Peace–Athabasca Delta basin. That promise remains unfulfilled. Mikisew also hold certain lands within the WBNP that are reserved for the beneficial use of Mikisew members under that agreement.

Mikisew's cultural, spiritual and physical survival remains tied to the WBNP and the PAD. Mikisew members continue to attempt to exercise their rights as their ancestors have done for generations as the exercise of those rights is an important part of maintaining the connection between their community, their lands and their spirituality and an important part of passing down Mikisew's distinct culture to future generations. However, the scale of oil sands development, together with the other threats to the PAD, are driving Mikisew's traditional lands to a point of crisis and threatening Mikisew's culture and indigenous way of life.

The Cree, Dene and Métis peoples that reside in Fort Chipewyan, including Mikisew, have been the hardest hit by the degradation of the PAD ecosystem. Given their location and long history of relying on the WBNP, the Mikisew are experiencing firsthand the effects of the governments' failures to effectively manage the areas in and around the WBNP. Among other things, Mikisew members have witnessed the precipitous drop in the quantity of certain resources, the drying of the PAD, and the contamination of water and wildlife, among other effects. As recently described by Chief Courtoreille, the massive scale of development of Mikisew's traditional lands is driving those lands, waters and resources to a point of crisis. It may also have increased the number of rare cancers in the community, such as bile duct cancer.

b. UNESCO SITE #256

WBNP is a national park situated in the Northern Boreal Plains in northeastern Alberta and the southern Northwest Territories, Canada. It was established in 1922 and expanded in 1926 to protect the world's largest free roaming wood bison herd.[5] At 44,807 km^2, WBNP is the largest national park in Canada and the second largest national park in the world.

The WBNP was inscribed as a World Heritage Site on the basis of 3 criteria:

(a) criteria vii, to contain superlative natural phenomena or areas of exceptional natural beauty and aesthetic importance;

(b) criteria ix, to be outstanding examples representing significant on-going ecological and biological processes in the evolution and development of terrestrial, fresh water, coastal and marine ecosystems and communities of plants and animals; and

(c) criteria x, to contain the most important and significant natural habitats for *in-situ* conservation of biological diversity, including those containing threatened species of outstanding universal value from the point of view of science or conservation.

The ecological value of the WBNP is unsurpassed in Canada. A 1983 International Union for the Conservation of Nature (IUCN) Review identified only two other parks in Canada that can compare ecologically to WBNP, but noted that these parks are much smaller and support considerably fewer endangered species.[6] The WBNP houses four different types of landscapes: glacially eroded plateau, glaciated plains, alluvial river lowlands, and a freshwater delta.[7] The Park's varied landscape provides habitat for an astounding diversity of mammals, fish, and, above all, migratory birds.

The Park's varied landscape provides habitat for an astounding diversity of mammals, fish, and, above all, migratory birds.

WHOOPING CRANE PHOTO KLAUS NIGGE, COURTESY PARKS CANADA

5 International Unions for Conservation of Nature and Natural Resources, *Home of the World's Largest Herd of Wood Bison* (20 August 2013). Online: IUCN, www.iucn.org/about/work/programmes/wcpa_worldheritage/news/site_profiles2/?13543/Home-of-the-worlds-largest-herd-of-wood-bison

6 *WBNP Nomination Report*.

7 *WBNP UNESCO webpage.*

Respecting the latter, the Ramsar Sites Information Service, which is responsible for providing information on wetlands that have been designated under the Convention on Wetlands of International Importance, especially as Waterfowl Habitat (Ramsar, 1971), notes that the PAD is "one of the most important nesting, resting and feeding areas for numerous species of waterbirds in North America."[8] Migratory birds from all four North American flyways pass through the PAD during spring and fall migrations on their way to and from their breeding grounds on the Mackenzie River lowlands, Arctic river deltas, and western Arctic islands.[9] Over 400,000 waterfowl have been recorded during spring migration, and during fall migration estimates have exceeded 1 million.[10] The PAD is particularly important for migratory waterfowl such as snow geese, white-fronted geese and Canada geese, whistling swan, diver, and all seven species of North American grebe and species of duck.[11] In WBNP, a total of 227 bird species have been recorded, including great grey owl, snowy owl, willow ptarmigan, redpoll crossbill and boreal chickadee.[12] The Park contains 86% of the summer range of the last remaining wild migratory flock of whooping cranes left in the world[13] and, critically, contains the only nesting habitat of that flock of whooping cranes.[14]

A total of 47 mammal species have been recorded in the WBNP, including bison, black bear, woodland caribou, Arctic fox, moose, grey wolf, lynx, snowshoe hare, muskrat, beaver, marten, wolverines, and mink.

LYNX PHOTO MICHAEL ZAHRA/ WIKIMEDIA COMMONS

A total of 47 mammal species have been recorded in the WBNP, including bison, black bear, woodland caribou, Arctic fox, moose, grey wolf, lynx, snowshoe hare, muskrat, beaver, marten, wolverines, and mink.[15] WBNP is the only place in the world where the predator-prey relationship between wolves and wood bison has continued, unbroken, over time. In October 2007, the world's largest beaver dam was discovered within WBNP, south of Lake Claire.[16]

Much of the uniqueness and richness of the WBNP (and much of the reason for the ecological conditions that led to its inscription as a World Heritage Site) is attributable to the fact that the WBNP contains 80% of the Peace–Athabasca Delta.[17] The PAD, in particular, was considered the foundational element underpinning the WBNP's designation as a World Heritage Site in 1983.[18] In reference to the PAD, the IUCN Review describes WBNP as having "a hydrological system that is probably unique in the world".[19]

The PAD depends on the inflow of two major river systems: the Peace and Athabasca Rivers. These river systems are in trouble. Parks Canada rates the hydrology of the Peace

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8 Ramsar *Peace–Athabasca Delta, Alberta Information Sheet on Ramsar Wetlands* [*PAD Info Sheet*], Online: https://rsis.ramsar.org/ris/241

9 *Wood Buffalo National Park of Canada*, Parks Canada. Online: www.pc.gc.ca/eng/pn-np/nt/woodbuffalo/activ/activ1b.aspx [*WBNP PC webpage*] and BirdLife International, Important Bird Areas factsheet: Peace–Athabasca Delta (accessed 15 July 2014). Online: BirdLife, www.ibacanada.com/site.jsp?siteID=AB002&lang=EN [*IBA PAD factsheet*].

10 Ibid.

11 *WBNP UNESCO webpage.*

12 *WBNP Nomination Report* at page 8

13 *Whooping Crane Summer Range Alberta/Northwest Territories Information Sheet on Ramsar Wetlands*. [*Whooping Crane Info Sheet*] Online: http://sites.wetlands.org/reports/ris/4CA006EN_FORMER_1993.pdf

14 *Wood Buffalo National Park Management Plan 2010,* Parks Canada [*WBNPMP2010*] at 41.

15 *WBNP UNESCO webpage*.

16 *The longest beaver dam in the world*, Ecoinformatics International Inc. Online: www.geostrategis.com/p_beavers-longestdam.htm

17 *Parks Canada Report* at 11.

18 *Parks Canada Report* at 12.

19 *WBNP Nomination Report* at page 1.

and Slave Rivers as poor.[20] As described below, while the Peace and Athabasca Rivers have converged to create a superlative natural phenomenon that is rich in biological diversity and ecological complexity, existing and proposed developments along them have now put the PAD, and therefore the entire WBNP, at grave and immediate ecological risk.

II. Legal Framework: Authority for this Petition

Article 11.4 of the *Convention Concerning the Protection of the World Cultural and Natural Heritage* (the *World Heritage Convention*) directs the World Heritage Committee to establish and maintain a "List of World Heritage in Danger" "of which major operations are necessary and for which assistance has been requested under this Convention."[21] The List of World Heritage in Danger may include only those sites that are "threatened by serious and specific dangers."[22]

The World Heritage Committee has identified two broad categories of the types of danger facing World Heritage sites that may warrant listing a site on the List of World Heritage in Danger: ascertained danger and potential danger.

The World Heritage Committee has identified two broad categories of the types of danger facing World Heritage Sites that may warrant listing a site on the List of World Heritage in Danger: ascertained danger and potential danger. The *2013 Operational Guidelines for the Implementation of the World Heritage Convention* define ascertained and potential dangers that might threaten natural properties as follows:

> 180. In the case of natural properties:
>
> a) ASCERTAINED DANGER — The property is faced with specific and proven imminent danger, such as:
>
> i) A serious decline in the population of the endangered species or the other species of outstanding universal value for which the property was legally established to protect, either by natural factors such as disease or by man-made factors such as poaching.
>
> ii) Severe deterioration of the natural beauty or scientific value of the property, as by human settlement, construction of reservoirs which flood important parts of the property, industrial and agricultural development including use of pesticides and fertilizers, major public works, mining, pollution, logging, firewood collection, etc.
>
> iii) Human encroachment on boundaries or in upstream areas which threaten the integrity of the property.

20 Parks Canada, *Wood Buffalo National Park: State of the Park Report, 2010* at 28

21 *Convention Concerning the Protection of the World Cultural and Natural Heritage, Adopted by the General Conference at its seventeenth session Paris, 16 November 1972* at art. 11.4.

22 *Ibid.*

b) POTENTIAL DANGER — The property is faced with major threats which could have deleterious effects on its inherent characteristics. Such threats are, for example:

i) a modification of the legal protective status of the area;

ii) planned resettlement or development projects within the property or so situated that the impacts threaten the property;

iii) outbreak or threat of armed conflict;

iv) the management plan or management system is lacking or inadequate, or not fully implemented. [23]

In addition to finding ascertained or potential dangers, the World Heritage Committee must also consider whether the threats facing the site are amenable to correction by human action when determining whether to add a site to the List of World Heritage in Danger.

The World Heritage Committee must consider whether the threats facing the site are amenable to correction by human action when determining whether to add a site to the List of World Heritage in Danger.

OIL SANDS PHOTO COURTESY DRU OJA JAY/ WIKIMEDIA COMMONS

Finally, the World Heritage Committee may consider a list of supplemental factors:

181. In addition, the factor or factors which are threatening the integrity of the property must be those which are amenable to correction by human action. In the case of cultural properties, both natural factors and man-made factors may be threatening, while in the case of natural properties, most threats will be man-made and only very rarely a natural factor (such as an epidemic disease) will threaten the integrity of the property. In some cases, the factors threatening the integrity of a property may be corrected by administrative or legislative action, such as the cancelling of a major public works project or the improvement of legal status.

182. The Committee may wish to bear in mind the following supplementary factors when considering the inclusion of a cultural or natural property in the List of World Heritage in Danger:

a) Decisions which affect World Heritage properties are taken by Governments after balancing all factors. The advice of the World Heritage Committee can often be decisive if it can be given before the property becomes threatened.

b) Particularly in the case of ascertained danger, the physical or cultural deteriorations to which a property has been subjected should be judged according to the intensity of its effects and analyzed case by case.

c) Above all in the case of potential danger to a property, one should consider that:

i) the threat should be appraised according to the normal evolution of the social and economic framework in which the property is situated;

ii) it is often impossible to assess certain threats — such as the threat of armed conflict — as to their effect on cultural or natural properties;

23 UNESCO, Intergovernmental Committee for the Protection of the World Cultural and Natural Heritage *Operational Guidelines for the Implementation of the World Heritage Convention*, WHC. 13/01, July 2013 [*Operational Guidelines*].

iii) some threats are not imminent in nature, but can only be anticipated, such as demographic growth.

d) Finally, in its appraisal the Committee should take into account any cause of unknown or unexpected origin which endangers a cultural or natural property.[24]

Taken together, Article 11.4 of the *World Heritage Convention* and these provisions of the Operational Guidelines establish the elements for inscribing a site on the List of World Heritage in Danger:

1. It is a World Heritage Site;
2. It is threatened by specific and serious dangers, whether ascertained or potential, that are amenable to correction by human action, taking into account relevant supplemental factors;
3. Major operations are necessary for its conservation; and
4. Assistance under the Convention has been requested for the property.

As described in the following sections of this petition, the WBNP meets the four elements set out above for inclusion in the List of World Heritage in Danger.

As described in the following sections of this petition, the WBNP meets the four elements set out above for inclusion in the List of World Heritage in Danger.

WBNP PHOTO COURTESY PAUL ZIZSKA / ZIZKA.CA

24 ibid

III. Wood Buffalo National Park Meets the Requirements and Supplementary Factors

The World Heritage Committee originally determined that WBNP met this criterion because its "great concentrations of migratory wildlife are of world importance and the rare and superlative natural phenomena include a large inland delta, salt plains and gypsum karst that are equally internationally significant."

WBNP SALT MEADOWS, PHOTO KARL JOHNSTON, COURTESY PARKS CANADA

a. Wood Buffalo National Park is Site #256 on the World Heritage List

The World Heritage Committee inscribed WBNP on the World Heritage List in 1983 based on three criteria.[25]

First, WBNP contains "superlative natural phenomena or areas of exceptional natural beauty and aesthetic importance" (criterion vii).[26] The World Heritage Committee originally determined that WBNP met this criterion because its "great concentrations of migratory wildlife are of world importance and the rare and superlative natural phenomena include a large inland delta, salt plains and gypsum karst that are equally internationally significant".[27]

Second, the WBNP has "outstanding examples representing significant ongoing ecological and biological processes in the evolution and development of terrestrial, fresh water, coastal and marine ecosystems and communities of plants and animals" (criterion ix).[28] For example, the WBNP contains the most ecologically complete and largest example of the entire Great Plains-Boreal grassland in all of North America.[29] The WBNP further harbors North America's largest population of free-roaming wild bison and is the only place in the world in which the predatory relationship between wolves and bison has continued, unbroken, over time.[30]

Third, the WBNP contains "the most important and significant natural habitats for in-situ conservation of biological diversity, including those containing threatened species of outstanding universal value from the point of view of science or conservation" (criterion x).[31] Among other things, the WBNP contains the only breeding area of the whooping crane and is crucial to the species' survival.

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25 Report of the Rapporteur, UNESCO, 7th Sess, SC/83/Conf. 009/8 (1983).
26 *WBNP UNESCO webpage*.
27 *Ibid.*
28 *Ibid*.
29 *Ibid*.
30 *Ibid*.
31 *Ibid*.

b. Wood Buffalo National Park is threatened by serious and specific dangers

This Petition is based on seven major and imminent threats to the WBNP (three ascertained and four potential) that threaten the Universal Outstanding Values for which the site is inscribed in the List of World Heritage Sites.

i. Existing hydro-electric regulation on the Peace River is severely deteriorating the Peace–Athabasca Delta and threatening its integrity

The Peace–Athabasca Delta is a flood–dependent ecosystem. The PAD is made up of three large shallow lakes (Lake Claire, Mamawi Lake, Baril Lake), as well as more than 1,000 smaller lakes. Many of these smaller lakes, known as "perched basins" because they are perched above surrounding waterways, are less than 1.5 m deep.[32] Perched basins are able to retain water for a period of 5 years under cool-dry conditions (e.g., 1920s) and up to 9 years for wet conditions (e.g., 1940s and 1950s); however, they must be periodically replenished by floods because average evaporation losses generally exceed average precipitation gains, leading to water drawdown of about 80 mm/a.[33] The perched basins sustain a high primary plant production on which most of the PAD's wildlife rely for food and shelter,[34] including species important to local First Nations such as muskrat.[35] These perched basins are ecologically significant as they are crucial to maintaining the size and scope of the PAD.[36]

There are three mechanisms important to the PAD's hydrologic recharge: hydraulic damming, flow reversals and ice-jam flooding. Hydraulic damming and flow reversals (collectively referred to as "open-water recharge mechanisms") play a critical role in recharging the PAD. The activation of the open-water recharge mechanisms depends on the Peace River being higher in elevation than the central PAD lakes and Athabasca River. This higher elevation typically occurs during the spring freshet, but may also occur during periods when the Peace River is raised in elevation by ice jamming or other factors. When the Peace River is higher in elevation, PAD outflows are blocked and are redistributed to the PAD lakes and surrounding areas, in addition to certain amounts of inflow from the Peace River.[37]

The Peace–Athabasca Delta is a flood-dependent ecosystem, made up of three large shallow lakes (Lake Claire, Mamawi Lake, Baril Lake), as well as more than 1,000 smaller lakes.

PEACE–ATHABASCA DELTA WITH LAKE CLAIRE AND MOUTHS OF PEACE RIVER AND ATHABASCA RIVER, COURTESY VISIBLE EARTH, NASA

32 Peters, D.L., T.D. Prowse and B.R. Bonsal, *Anticipated climate change impacts on the water balance of northern delta wetlands*. Annual Scientific Meeting of the Canadian Geophysical Union. May 14-17, 2001, University of Ottawa, Ottawa [*Peters et al*. 2001].

33 G. Nielsen. *Groundwater Investigation, Peace–Athabasca Delta, Section J* (1972). In: Peace–Athabasca Delta Project, Technical reports and appendices: Volume 1: hydrological investigations. Peace–Athabasca Delta Project Group, Delta Implementation Committee, Governments of Alberta, Saskatchewan and Canada.

34 Carbyn, L.N., S.M. Oostenbrug and D.W. Anions. 1993. *Wolves, bisons, and the dynamics related to the Peace–Athabasca Delta in Canada's Wood Buffalo National Park.* Canadian Circumpolar Institute, University of Alberta.

35 *Peters et al*. 2001.

36 *Carver Report* at 14.

37 *Carver Report* at 13-15.

These mechanisms lead to higher water levels on Lake Athabasca and support increases in water levels in the central lakes area of the PAD. The efficacy of the open-water recharge mechanisms is influenced by the magnitude and duration of the spring freshet peak flows and summer flows in the Peace River, as well as the timing of the Peace River freshet relative to that of the Athabasca River and other PAD inflows.[38]

Ice-jam floods are also crucial to preserving the integrity of the PAD, including the maintenance of water levels in many of the perched basins within the PAD. Perched basins are the smaller lakes within the PAD that are raised in elevation and therefore many are situated beyond the "reach" of the open-water recharge mechanisms. In fact, many perched basins are reached *only* by ice-jam floods, and recent research has determined that ice-jams are the most effective means of replenishing all of the perched basins in the PAD.[39]

Aurora borealis in Wood Buffalo National Park

PHOTO COURTESY JOHN DAVID MCKINNON/PARKS CANADA

Ice-jam flooding occurs when ice that covers the Peace River mechanically breaks up to create ice rubble in the lower part of the Peace River. This ice rubble blocks the river, causing water levels to rise.[40] A 2006 research paper identify three conditions necessary to produce an ice-jam flood that would reach all of the perched basins in the PAD: 1) the ice on the Peace River must be broken mechanically by the rising waters of the spring freshet, rather than melting gradually; 2) the river flow must reach at least 4,000 m^3/s; and 3) an ice-jam must form on the Peace River no more than 50 kilometres upstream from the PAD.[41]

At the present time, BC Hydro operates two hydroelectric dams on the British Columbian side of the Peace River: the W.A.C. Bennett Dam (the "Bennett Dam"), constructed in 1967, and the Peace Canyon Dam, constructed in 1980. Although not fully appreciated at the time the WBNP was inscribed, except by local indigenous communities, the hydrology of the PAD has been significantly altered by the construction and operation of these two hydroelectric dams on the Peace River.[42] Historically, monthly mean flows reached their maximum values in June and their minimum values in December. Regulation from the Bennett Dam and Peace Canyon Dam has decreased Peace River flows during the spring and summer and increased flows during the fall and winter, when more power generation is needed. Preliminary analysis has shown that regulation decreased June flow by 50% and increased average winter flows (December to March) by 200%.[43]

The dam-induced changes to the Peace River have resulted in a severe deterioration of the PAD's main recharge mechanisms. First, regulation on the Peace River has reduced the incidence of ice-jam flooding. The release of more water in the winter results in winter ice forming at a higher level, and therefore requiring a larger spring freshet to cause a

38 *Carver Report* at 13-15.

39 Peters DL, TD Prowse, A Pietroniro and R Leconte 2006. Flood hydrology of the Peace–Athabasca Delta, northern Canada. Hydrological Processes 20:4073-4096 [*Peters et al*. 2006].

40 S. Beltaos, *Numerical modelling of ice-jam flooding on the Peace–Athabasca delta* (2007) Hydrological Processes, 21(19) at 2548-2559.

41 S. Beltaos,TD Prowse and T Carter al. *Ice regime of the lower Peace River and ice-jam flooding of the Peace–Athabasca Delta* (2006) Hydrological Processes 20 (19):4009-4029 at 4028; *Carver Report* at 22.

42 *Carver Report* at 17-19.

43 Appendix 3.4 Peace–Athabasca Delta Assessment of the Joint Review Panel Jackpine Mine Expansion Project Supplemental Information at 11. Online: http://ceaa.gc.ca/050/documents_staticpost/59540/56367/A34-Peace–Athabasca_Delta_Assessment.pdf

mechanical breakup.[44] At the same time, regulation has reduced the average size of the spring freshet.[45] The overall effect has been to decrease the number of ice-jams forming and the number and intensity of ice-jam floods.[46] Only 4 ice-jam floods occurred after 1968, due to increased freeze-up stage (effect of regulation) and reduced spring flow (effect of climate-change induced reduced snowpack).[47]

Second, regulation on the Peace River has reduced the incidence and intensity of flow reversals. Before regulation, the Peace River contributed some reverse flow to the delta lakes each year during the open-water period. After regulation, more than half the years did not experience any reversal and those that did were characterized by much smaller events. The mean annual volume and duration of reverse flow for the regulated open-water period from 1972 to 1996 was significantly lower than for the period from 1960 to 1967 prior to construction of the dam — an estimated mean reduction from approximately 2.6×10^9 to 2.69×10^8 m^3. The reduced reverse flows have led to reduced flooding of the perched basins.[48]

A significant amount of research has been conducted on the effects of hydro-electric regulation on the Peace–Athabasca Delta. While by no means exhaustive, the following bibliography is illustrative:

- Aitken B and R Sapach 1994. Hydraulic Modelling of the Peace–Athabasca Delta under Modified and Natural Flow Conditions. Northern River Basins Study Report Number 43.
- Beltaos S 1997. Onset of river ice breakup. Cold Regions Science and Technology 25:183-196.
- Beltaos S 2002. Effects of climate on mid-winter ice jams. Hydrological Processes 16(4):789-804.
- Beltaos S 2003. Numerical modelling of ice-jam flooding on the Peace–Athabasca delta. Hydrological Processes 17:3685–3702.
- Beltaos S 2003. Threshold between mechanical and thermal breakup of river ice cover. Cold Regions Science and Technology 37:1-13.
- Beltaos S 2007. The role of waves in ice-jam flooding of the Peace–Athabasca Delta. Hydrological Processes 21:2548-2559.
- Beltaos S, TD Prowse and T Carter 2006a. Ice regime of the lower Peace River and ice-jam flooding of the Peace–Athabasca Delta. Hydrological Processes 20:4009-4029.

Only 4 ice-jam floods occurred after 1968, due to increased freeze-up stage (effect of regulation) and reduced spring flow (effect of climate-change induced reduced snowpack).

PHOTO COURTESY
THE FIRELIGHT GROUP

44 T.D. Prowse and F.M. Conly *Effects of climatic variability and flow regulation on ice-jam flooding of a northern delta* (1998) Hydrological Processes, 12(10-11) at 1605-1606 [*Prowse & Conly*]; *Carver Report* at 21.

45 *Carver Report* at 6.

46 *Prowse & Conly*, at 1605-1606.

47 Prowse TD, S Beltaos, JT Gardner, JJ Gibson, RJ Granger, R Leconte, DL Peters, A Pietroniro, LA Romolo, and B Toth 2006. Climate change, flow regulation, and land-use effects on the hydrology of the Peace–Athabasca-Slave system; findings from the Northern Rivers Ecosystem Initiative. Environmental Monitoring and Assessment 113:167-197 at 183.

48 *Ibid* at 176.

- Beltaos S, T Prowse, B Bonsal, R MacKay, L Romolo, A Pietroniro and B Toth 2006b. Climatic effects on ice-jam flooding of the Peace–Athabasca Delta. Hydrological Processes 20:4031–4050.
- Conly FM & TD Prowse 1998. Temporal changes to the ice regime of a regulated cold-regions river. In: Ice in Surface Waters, HT SHen (ed), p 41-48.
- LeConte R, Peters D, Pietroniro A and T Prowse 2006. Modelling climate change impacts in the Peace and Athabasca catchment and delta: II— variations in flow and water levels with varying winter severity. Hydrological Processes 20:4215-4230.
- Peace–Athabasca Delta Technical Studies (PADTS) 1996. Peace–Athabasca Delta Technical Studies Final Report. Peace–Athabasca Delta Technical Studies, Communications: Fort Chipewyan, Canada, 107 p.
- Peters DL 2003. Controls on the Persistence of Water in Perched Basins of the Peace–Athabasca Delta, Northern Canada. PhD thesis, Trent University, Canada, 194 p.
- Peters DL and JM Buttle 2009. The effects of flow regulation and climatic variability on obstructed drainage and reverse flow contribution in a northern river-lake-delta complex, Mackenzie Basin headwaters. River Research and Applications. DOI:10.1002/rra.1314.
- Peters DL and TD Prowse 2001. Regulation effects on the lower Peace River, Canada. Hydrological Processes 15:3181–3194.
- Peters DL and TD Prowse 2006. Generation of streamflow to seasonal high waters in a freshwater Delta, northwestern Canada. Hydrological Processes 20: 4173-4196.
- Peters DL, TD Prowse, A Pietroniro and R Leconte 2006. Flood hydrology of the Peace–Athabasca Delta, northern Canada. Hydrological Processes 20:4073-4096.
- Pietroniro A, R Leconte, B Toth, DL Peters, N Kouwen, FM Conly and T Prowse 2006. Modelling climate change impacts in the Peace and Athabasca catchment and delta: III—integrated model assessment. Hydrological Processes 20:4231-4245.
- Prowse TD, S Beltaos, JT Gardner, JJ Gibson, RJ Granger, R Leconte, DL Peters, A Pietroniro, LA Romolo, and B Toth 2006. Climate change, flow regulation, and land-use effects on the hydrology of the Peace–Athabasca-Slave system; findings from the Northern Rivers Ecosystem Initiative. Environmental Monitoring and Assessment 113:167-197.
- Prowse TD and FM Conly 2002. A review of hydroecological results of the Northern River Basins Study, Canada. Part 2. Peace–Athabasca Delta. River Research and Applications 18:447-460.
- Prowse TD and FM Conly 2000. Multiple-hydrologic stressors of a northern delta ecosystem. Journal of Aquatic Ecosystem Stress and Recovery 8:17-26.
- Prowse TD and FM Conly 1998. Effects of climatic variability and flow regulation on ice-jam flooding of a northern Delta. Hydrological Processes 12, 1589–1610.
- Prowse TD, M Conly and V Lalonde 1996. Hydrometerological Conditions Controlling Ice-Jam Floods, Peace River near the Peace–Athabasca Delta. Northern River Basins Study Report No. 103.

- Prowse TD and V Lalonde 1996. Open-water and ice-jam flooding of a northern delta. Nordic Hydrology 27:85-100.
- Toth et al. 2006. Modelling climate change impacts in the Peace and Athabasca catchment and delta: I hydrological model application. Hydrological Processes 20:4197–4214.

Without the full efficacy of its natural recharge mechanisms, the PAD hasn't experienced a significant delta-wide flood since 1997.[49] The lack of flooding has led to a drying out of the PAD, in particular the highest perched basins. For example, in 1998, 55% of the Peace sector of the PAD was covered by open water or flooded, emergent vegetation but this had dropped to 33% by 2008.[50] Some basins have changed from aquatic to terrestrial ecosystems.[51] As wetlands and meadows dry out, the encroachment of willows and non-native species increases.[52] According to one researcher, if current trends continue, there is a distinct possibility that large, fish-filled lakes, such as Mamawi and Baril, could turn into shallow marshes.[53]

In 1998, 55% of the Peace sector of the PAD was covered by open water or flooded, emergent vegetation but this had dropped to 33% by 2008. According to one researcher, if current trends continue, there is a distinct possibility that large, fish-filled lakes, such as Mamawi and Baril, could turn into shallow marshes.

WBNP PHOTO COURTESY
PAUL ZIZSKA / ZIZKA.CA

49 *Parks Canada Report* at 16.
50 *Ibid* at 15.
51 *Ibid* at 6, 14.
52 *Ibid* at 15.
53 E. Struzik, *Canada's Great Inland Delta: A Precarious Future Looms* (2003) Yale School of Forestry and Environmental Studies. Online: Yale, http://e360.yale.edu/feature/canadas_great_inland_delta_precarious_future_looms/2709/

Directly south of the WBNP and the PAD (and upstream along the Athabasca River) lies the largest deposit of the Canadian oil sands, comprising the third largest proven resource of crude oil in the world.

OIL SANDS PHOTO COURTESY JENNIFER GRANT/PEMBINA INSTITUTE NORTHERN LIFEBLOOD

ii. Activities associated with existing oil sands developments are threatening the integrity of the PAD, causing the deterioration of the WBNP's natural beauty and impacting species that rely on the WBNP

Directly south of the WBNP and the PAD (and upstream along the Athabasca River) lies the largest deposit of the Canadian oil sands, comprising the third largest proven resource of crude oil in the world.[54] The bitumen is recovered either by surface mining or in-situ drilling depending on the depth of the reserves. The surface mineable deposits in the Athabasca region cover an area of 4,800 km^2 and are located primarily along the Athabasca River, upstream of the PAD.[55]

Pollution from oil sands activities derives from at least 11 sources: (1) permitted (licensed) discharges to air and land; (2) seepage from tailings ponds; (3) evaporation from tailings ponds; (4) leaks from pipelines; (5) major spills of bitumen, oil, and wastewater; (6) windblown stack emissions; (7) coke dust, (8) dry tailings; (9) dust with various metals and other contaminants; (10) outgassing from mine faces; and (11) ancillary activities such as transportation, construction of mines, ponds, roads, pipelines, and facilities, and landscape dewatering.[56]

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54 Canadian Association of Petroleum Producers (CAPP), *What Are Oil Sands?* (updated 2014) Online: CAPP, www.oilsandstoday.ca/whatareoilsands/Pages/WhatareOilSands.aspx [*CAPP What Are Oil Sands?*].

55 A Parajulee & F Wania, *Evaluating Officially Reported polycyclic aromatic hydrocarbon emissions in the Athabasca oil sands region with a multimedia fate model* (2014) Proceedings of the National Academy of Sciences of the United States of America [*Parajulee & Wania*].

56 K Timoney & P Lee, *Does the Alberta Tar Sands Industry Pollute? The Scientific Evidence* (2009), The Open Conservation Biology Journal at 65-81 [*Timoney & Lee 2009*].

In recent years, there has been an increasing understanding of how many of these pollutants are impacting the waters, wildlife and ecosystems that connect with and support the PAD. For the purposes of this Petition, we will focus on the following: threats to the integrity of the WBNP: tailings pond seepage and airborne contaminants; threats to the migratory bird populations noted for their outstanding universal value from oil sands activities outside of the WBNP; and the effects of water withdrawals from the Athabasca River and the progressive loss of wetlands in and around tributaries flowing into the WBNP.

(a) Threats to the integrity of the WBNP from tailings pond seepage and airborne contaminants

Recent research has identified that existing tailings ponds, the structures built to store the processed water from the oil sands mining extraction process, are seeping into the Athabasca River via groundwater or through surrounding dykes in volumes of between 7 million to 36 million L/day.[57] Recent federal government evidence has also concluded that significant concentrations of oil sands acid-extractable organics are moving from tailings ponds into local groundwater and reaching the Athabasca River, one of the primary tributaries for the PAD.[58] Tailings ponds contain a host of toxic compounds, such as residual bitumen, sand, clay, dissolved metals, and organic compounds, including polycyclic aromatic hydrocarbons ("PAHs"). The metals detected in tailings ponds include arsenic, cadmium, chromium, copper, lead and zinc, all of which are labelled as priority pollutants under the United States Clean Water Act.[59] Indeed, sixteen of the PAHs found in tailings ponds are listed as priority pollutants by the United States Environmental Protection Agency.[60] Historic data from tailings lakes indicates that metals have exceeded Canadian Council of Ministers of the Environment water quality guidelines.[61]

Second, existing oil sands developments release air pollutants such as acidifying emissions, particulate matter, PAHs, sulphur, metals, VOCs and greenhouse gases. Studies by Kelly et al. (2009)[62] found that oil sands development releases significant masses of polycyclic aromatic compounds and elements that are priority pollutants ("PPE") to the Athabasca River and its watershed via air and water. Kelly et al. (2009) noted that, if deposition rates are constant throughout the year, the annual release of the contaminants associated with oil sands activities is estimated at approximately 1,200 kg (associated with approximately

Studies have found that oil sands development releases significant masses of polycyclic aromatic compounds and elements that are priority pollutants ("PPE") to the Athabasca River and its watershed via air and water.

WHOOPING CRANE IN WBNP
PHOTO COURTESY KLAUS
NIGGE/PARKS CANADA

57 *Timoney & Lee 2009.*

58 Frank et al. 2014. *Profiling Oil Sands Mixtures from Industrial Developments and Natural Groundwaters for Source Identification*. Environmental Science and Technology. Online: Pubs. acs.org/est

59 United States Department of Labor. Occupational Safety and Health Administration. Safety and Health Topics Toxic Metals. www.osha.gov/SLTC/metalsheavy/index.html

60 *Ibid*.

61 E. Allen. *Process water treatment in Canada's oil sands industry: 1. Target pollutants and treatment objectives.* J. Environ. Sci. 7: 123-138 (2008).

62 E Kelly, J. Short, D. Schindler, P. Hodson, M. Ma, A. Kwan, and B. Fortin. "Oil Sands Development Contributes Polycyclic Aromatic Compounds to the Athabasca River and Its Tributaries." *Proceedings of the National Academy of Sciences* (2009) 106(52): 22346–22351 [*Kelly et al. 2009*]; E. Kelly, D. Schindler, P. Hodson, J. Short, R. Radmanovich, and C. Nielsen, "Oil sands development contributes elements toxic at low concentrations to the Athabasca River and its tributaries," *Proceedings of the National Academy of Sciences of the United States of America* 107 (2010) [*Kelly et al. 2010*] at p. 3.

While most of the existing oil sands projects are located a considerable distance from the WBNP and the PAD, new research is beginning to draw the link between water contamination found in and around the PAD with oil sands activities.

WBNP PHOTO COURTESY
PAUL ZIZSKA / ZIZKA.CA

1,800 tonnes of bitumen particulates), and another 500 kg of dissolved polycyclic aromatic compounds ("PACs"). If this amount of bitumen were released in a single pulse, it would be equivalent to a major oil spill, repeated annually.

While most of the existing oil sands projects are located a considerable distance from the WBNP and the PAD, new research is beginning to draw the link between water contamination found in and around the PAD with oil sands activities. Among other things:

- The atmospheric releases from these projects have been shown to travel long distances before depositing on land or water.[63] Concentrations of many PPEs (antimony, arsenic, chromium, copper, lead, mercury, nickel) in the PAD are significantly greater than upstream of oil sands development. At Lake Athabasca, near the Athabasca River discharge, concentrations of eight PPEs (antimony, arsenic, cadmium, chromium, copper, lead, mercury, nickel) were as much as 2 times greater than upstream of oil sands development.

- Kelly et al. (2009) further found that the pattern of increase in toxins in the Peace–Athabasca Delta and Lake Athabasca was similar to increases near development, and was indicative of a persistent anthropogenic signal with oil sands development as the most likely source.[64]

- Kelly et al. (2010) found that levels of toxic pollutants, including mercury, selenium, arsenic and lead, were higher near areas of oil sands development and downstream of development as compared to remote sites and upstream areas.[65]

63 Jennifer Grant, Jennifer Dagg, Simon Dyer, Nathan Lemphers. *Northern Lifeblood: Empowering Northern Leaders to Protect the Mackenzie River Basin from Oil Sands Risks* (2010). The Pembina Institute [*Grant et al*.] at 15.

64 *Kelly et al*. *2009*.

65 *Kelly et al*. *2010* at p. 3.

- Kurek et al. used aquatic sediment core samples to establish that the oil sands industry has been a decades-long contributor of PAHs to lake ecosystems both near and far from the oil sands region.[66]

There is increasing evidence that the pollutants associated with oil sands activities have compromised the integrity of the WBNP as a sanctuary for wildlife, including the significant migratory bird populations that rely on the WBNP. An Environment Canada study of contaminants in waterbird eggs found that concentrations of mercury and PACs in eggs from WBNP and Lake Athabasca, areas more closely linked to oil sands development, were greater than expected and greater than eggs collected from the Peace River.[67] A study by Herbert et al. (2013) has shown that mercury levels in California and Ring-billed gull eggs at Mamawi Lake increased by 139% between 2009 and 2012.[68] The majority of Caspian Tern eggs exceeded the lower toxicity threshold. This stands in contrast to mercury levels in bird eggs from sites in southern Alberta, far away from oil sands development, that have declined significantly over the same period. The study notes that while the oil sands have not been conclusively identified as the source of the mercury, many alternative sources of mercury, such as forest fires and long-range atmospheric transport, have been ruled out. In light of the Herbert et al. (2013) study, a consumption advisory for gull and tern eggs on Lake Athabasca and Mamawi Lake was put in place in May 2014 due to dangerous levels of mercury.[69]

Deposition in snow is of particular concern because the subsequent spring melt releases the contaminants in a highly concentrated pulse into the Athabasca River at a time when fish populations are spawning.[70] A study by Timoney (2007) discusses the science and traditional ecological knowledge (TEK) regarding fish deformities in the Lake Athabasca region.[71] Fish with physical deformities have been reported across a number of studies in the Athabasca River and Lake Athabasca. Observations by local Indigenous peoples have noted an increased frequency in abnormalities in fish including deformities and changes to the colour, taste and texture of the meat. The study notes that fish abnormalities are not necessarily related to water pollution of toxic discharges, though contaminants from oil sands emissions have the potential to do so. Although not conclusive, the combination of scientific

There is increasing evidence that the pollutants associated with oil sands activities have compromised the integrity of the WBNP as a sanctuary for wildlife, including the significant migratory bird populations that rely on the WBNP.

WHOOPING CRANE IN WBNP
PHOTO COURTESY KLAUS
NIGGE/PARKS CANADA

66 J. Kurek, J. Kirk, D. Muir, X. Wang, M. Evans, and J. Smol. *Legacy of a half century of Athabasca oil sands development recorded by lake ecosystems* (2013) Proceedings of the National Academy of Sciences of the United States of America, 110(5): 1761–1766.

67 C. Hebert, D. Weseloh, S. MacMillan, D. Campbell, W. Nordstromk. *Metals and Polycyclic Aromatic Hydrocarbons in Colonial Waterbird Eggs from Wood Buffalo National Park and Lake Athabasca.* (2010: Environmental Technology & Chemistry 5 (30): 1178-1832) [*Herbert et al. 2010*].

68 C. Hebert, D. Campbell, R. Kindopp, S. MacMillan, P. Martin, E. Neugebauer, L. Patterson, and J. Shatford. *Mercury Trends in Colonial Waterbird Eggs Downstream of the Oil Sands Region of Alberta, Canada* (2013: Environmental Science & Technology 47(20): 11785-92)

69 Government of Alberta, *Q&A: Gull and Tern Egg Consumption Advisory*, May 16, 2014. Available online at http://mywildalberta.com/Hunting/SafetyProcedures/documents/QA-Gull-Tern-EggAdvisory-May16-2014.pdf

70 D. Schindler, A. Miall, and A. Hurley, *The Oil Sands Environmental Footprint: Measuring Pollutants and Managing Their Impact — Notes for Discussion Munk School Forum* (2011) Program on Water Issues, Munk School of Global Affairs, University of Toronto, at 6 [*Schindler et al.*].

71 K. Timoney, *A study of Water and Sediment Quality as Related to Public Health Issues, Fort Chipewyan, Alberta* (2007) Nunee Health Board Society Fort Chipewyan, Alberta, at 61-63 [*Timoney 2007*].

data and TEK suggest that rates of fish abnormalities may be higher than expected, may be increasing, and may be related to changes in water quality. The Government of Alberta put in place a consumption advisory for Burbot (Athabasca River downstream of Iron Point) and Walleye (Athabasca River downstream of Fort McMurray) due to dangerous levels of dioxin and furan in their tissues.[72]

(b) Existing oil sands activities outside of the WBNP threaten the migratory bird populations noted for their outstanding universal value within the WBNP

The oil sands region lies within a significant convergence zone of migration flyways; millions of birds migrate annually through this region en route to and from breeding grounds in the WBNP and beyond. The Peace–Athabasca Delta is recognized as one of the most important waterfowl nesting and staging areas in North America with over 400,000 waterfowl having been recorded during spring migration. During fall migration estimates have exceeded 1 million birds.[73] In all, 214 bird species have been recorded in the Delta. All of these birds must pass over or near the oil sands region during migration. Additionally, some of North America's most rapidly declining bird species are among those that migrate over the oil sands including Lesser scaup *(Aythya affinis*) which has experienced an overall 70% decline in populations over the last 50 years.[74] Lesser scaup is one of the most widely reported casualties of tailings ponds in Alberta.[75] Currently, the total number of migratory birds passing through the lower Athabasca River Valley is unknown. In the spring of 2003, more than 16,000 birds were visually observed flying over a tailings pond. However, radar suggested that at least four times that many (64,000) may have actually passed over because many of the birds were not able to be visually detected, especially at night.[76]

The presence of an extensive network of industrial waterbodies (i.e., tailings ponds) and loss of wetland habitat along an internationally significant migratory bird corridor poses great risks to migratory birds. It is important to note that it is not just waterfowl (ducks, geese, and swans) that are impacted by exposure to industrial wastewater in the oil sands. Other avian species impacted by exposure to tailings ponds include shorebirds, gulls, grebes, loons, raptors, and passerines. Birds representing 43 species and 51 taxa have died due to tailings pond exposures in Alberta, but total annual bird mortality attributable to industrial waterbodies remains unknown.[77] The risk to waterbirds using the areas south of the WBNP as a stopover

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72 Fish Consumption Advisory, My Wild Alberta. Online: http://mywildalberta.com/fishing/SafetyProcedures/FishConsumptionAdvisory.aspx

73 *IBA PAD factsheet.*

74 Wilkins, K. A., M.C. Otto, G.S. Zimmerman, E.D. Silverman, and M. D. Koneff. 2007. Trends in Duck Breeding Populations, 1955 -2007. US Fish and Wildlife Service, Division of Migratory Bird Management, Laurel, M.D

75 Wells, J., S. Casey-Lefkowitz, G. Chavarria, and S. Dyer. 2008. Danger in the nursery. Impacts on birds of tar sands oil development in Canada's boreal forest. New York: Natural Resources Defense Council.

76 Ronconi, R.A and C.C St.Clair. 2006. Efficacy of a radar-activated on-demand system for deterring waterfowl from oil sands tailings ponds. Journal of Applied Ecology 43: 111-119 [*Ronconi and St. Claire 2006*].

77 *Ronconi and St. Claire 2006*; Ronconi, R.A. 2006. Predicting bird oiling events at oil sands tailings ponds and assessing the importance of alternate waterbodies for waterfowl: a preliminary assessment. Canadian Field Naturalist 120:1-9

is escalating due to the increasing size and number of industrial waterbodies: based on satellite image analysis, in 1992 the total surface area of industrial waterbodies north of Fort McMurray was 28 km^2; as of 2008 this number tripled to 85 km^2.

(c) Deterioration and loss of integrity of the WBNP due to water loss from activities upstream of the WBNP

The Athabasca River, one of the primary drivers of the PAD, has been experiencing a steady decline in flow rates over the past 30 years. Between the 1966-1976 and 1996-2006 time periods, there has been a 25% decrease in the average high flow (May-August) and a 30% decrease in the average low flow (September-April) at the mouth of the Athabasca River.[78]

The declines are being exacerbated by direct industrial water withdrawals. In 2010 alone the oil sands industry withdrew a total of 130 million m^3 of water from the Athabasca River.[79] In 2005, oil sands mines accounted for 76% of licensed water use in the Athabasca River basin.[80] In winter, when flow declines, industry water withdrawal may account for up to 21% of the Athabasca River flow.[81]

Between 25 and 50% of water used by the oil sands industry is withdrawn from groundwater sources. The impact of this extraction is unknown as there has not been a regional hydro-geological study specific to the oil sands region since 1979, nor has there been a cumulative impact assessment of surface mining effects on groundwater levels and flow rate.[82] As such, there is a significant lack of regional knowledge of groundwater quantity and quality.

Lower water levels in the Athabasca River threaten to increase the concentration of pollutants in the PAD. They also severely threaten fish populations. First, water-withdrawals during low-flow season may cause the river to freeze to the bottom, preventing upstream migration of fall- spawning fish such as whitefish and bull trout. [83] Second, water withdrawals during low-flows exacerbate existing low oxygen levels under the ice, thereby endangering the eggs and young of fall-spawning fish.[84]

The Athabasca River, one of the primary drivers of the PAD, has been experiencing a steady decline in flow rates over the past 30 years.

PHOTO COURTESY THE FIRELIGHT GROUP

78 AJ Squires, CJ Westbrook, M Dubé. *An Approach for Assessing Cumulative Effects in a Model River, the Athabasca River Basin*. Integr Environ Assess Manag. 2010 Jan; 6(1):119-34 at 124-125.

79 Canadian Association of Petroleum Producers, *Water Use in Canada's Oil Sands* (2012). Online: CAPP, www.capp.ca/getdoc.aspx?DocId=193756

80 *Running out of steam? Oil Sands Development and Water Use in the Athabasca River-Watershed: Science and Market based Solutions* (2007), University of Alberta [*Running out of Steam?*] at 2. Online: www.ualberta.ca/~ersc/water.pdf

81 *Ibid* at 9.

82 Royal Society of Canada Expert Panel, *Environmental and Health Impacts of Canada's Oil Sands Industry* (2010) at 116. Online: RSC https://rsc-src.ca/sites/default/files/pdf/RSC%20Oil%20Sands%20Panel%20Main%20Report%20Oct%202012.pdf *Royal Society of Canada* at 116.

83 D Schindler, A Miall, and A Hurley, *The Oil Sands Environmental Footprint: Measuring Pollutants and Managing Their Impact — Notes for Discussion Munk School Forum* (2011) Program on Water Issues, Munk School of Global Affairs, University of Toronto, at 6. Available online at http://powi.ca/wp-content/uploads/2011/04/En_OilSands_8April11-DISCUSSION-NOTES.pdf.

84 *Running out of Steam?* at 6.

(d) Climate change has exacerbated the effects of upstream activities on the Peace–Athabasca Delta

Climate change also endangers the rare ecological processes and conditions for which the WBNP was inscribed. Twenty years of scientific study has shown that climate change caused by greenhouse gases negatively impacts the hydrologic recharge of the PAD[85] by, along with the effect of hydro-electric regulation, undermining the efficiency of the PAD's main recharge mechanisms. A study conducted by Beltaos et al. (2006) found that the frequency and intensity of PAD flooding is expected to decrease in future as a result of climate change.[86] In addition, milder winters caused by climate change also diminish the effectiveness of flow reversals. As LeConte et al. (2006) explained, high river flows encourage flow reversal conditions.[87] However, less severe winters were found to reduce river flow, which, in turn, reduces the lake levels in the PAD. LeConte et al. found that lake levels dropped by almost 10 cm below baseline.[88]

Climate change has also increased the rate of evaporation of the perched basins. As discussed above, the drawdown of water in higher perched basins primarily occurs through evaporation.[89] Higher temperatures resulting from climate change cause this evaporation to occur more quickly,[90] meaning that more frequent ice-jam floods are required to sustain the perched basins.

Climate change is also significantly altering the available habitat for the wood bison population within the WBNP. As water levels in Lake Claire, the largest water body within the WBNP, have dropped, areas along the southern edge of the lake have been converted from good bison habitat into fields of thistles that cannot support bison.

Climate change is significantly altering the available habitat for the wood bison population within Wood Buffalo National Park.

BISON BISON ATHABASCAE SPECIES IN WBNP, PHOTO COURTESY ANSGAR WALK/PARKS CANADA

(e) The planned Site C Dam may exacerbate the adverse effect of existing hydro-electric regulation on the Peace–Athabasca Delta

The WBNP is currently threatened by a proposal by BC Hydro, a provincial Crown Corporation, to construct and operate a 1,100 megawatt hydroelectric generating station, Site C Dam, on the Peace River.[91] BC Hydro proposes to locate Site C approximately seven kilometers southwest of Fort St. John, downstream from the existing W.A.C. Bennett and

85 *Carver Report* at 15, 29-31.

86 S. Beltaos et al., *Climatic effects on ice-jam flooding of the Peace–Athabasca Delta* (2006) Hydrological Processes, 20(19) at 4031-4050.

87 R. LeConte et al., *Modelling climate change impacts in the Peace and Athabasca catchment and delta: II—variations in flow and water levels with varying winter severity* (2006) Hydrological Processes, 20(19) at 4215-4230.

88 *Ibid.*

89 D. Peters, T. Prowse, P. Lafleur, J. Buttle. *Persistence of Water in Perched Basins of the Peace–Athabasca Delta, Northern Canada* (2006) Wetlands Ecology and Management, 14(3) at 221-243.

90 *Carver Report* at 14.

91 Canadian Environmental Assessment Agency, *Site C Environmental Assessment Joint Review Panel Stage Begin.* Online: Canadian Environmental Assessment Registry — Additional Information, www.ceaa-acee.gc.ca/050/document-eng.cfm?document=92769

Climate change endangers the rare ecological processes and conditions for which the WBNP was inscribed.

WBNP PHOTO COURTESY PAUL ZIZSKA / ZIZKA.CA

Peace Canyon dams.[92] The federal and British Columbia governments granted environmental assessment approvals for the Site C Dam on October 14, 2014.

Given the current fragility and marginal functionality of the PAD from existing hydro-electric regulation and climate change, the additional incremental changes from Site C could constitute the "straw that breaks the camel's back" in the PAD.[93] However, despite requests from Mikisew and other interveners for a cumulative effects assessment of the impact of flow regulation from all three dams on the Peace River's downstream environment in the PAD, and despite serious criticisms of the science and methodology relied upon by BC Hydro in its environmental assessment application, the regulatory body reviewing the application chose to exclude consideration of cumulative effects on the PAD in the environmental assessment process for the Site C Dam.

(f) The first planned oil sands mine within a watershed that drains directly in the WBNP

In 2012, Teck Resources Ltd submitted an application to construct and operate the Frontier Oil Sands Mine, which would be the most northern open pit oil sands mine to date, if approved.

For the first time, an oil sands mine has been proposed in an area that would require mining within a watershed sub basin that drains directly into Lake Claire from outside of the WBNP. The Frontier Mine would also be the first mine within the last remaining intact forest and ungulate habitat that is contiguous with the WBNP. As such, the Frontier Mine provides the most direct threat to the PAD from an oil sands development to date.

92 BC Hydro, *About Site C: Maps*. Online: Site C Clean Energy Project, https://www.sitecproject.com/about-site-c/maps

93 *Carver Report* at 78.

Parks Canada has expressed concern that the Frontier Mine could adversely impact the PAD and has further expressed concern that those potential impacts are not being adequately considered in the regulatory review for the project.

(g) The first mineral permit application adjacent to the WBNP

Mikisew has recently learned that an application for a mineral disposition permit has been filed for an area that is directly along the southern border of the WBNP and adjacent to the Athabasca River. This application also covers portions of the Buckton Creek watershed sub basin that drains directly into Lake Claire from outside of the WBNP. The application also covers a portion of the last remaining intact forest and ungulate habitat that is contiguous with the WBNP. At the time of the filing of this Petition, Mikisew has not been able to obtain more detailed information from Alberta regarding this application.

(h) A tailings pond breach would permanently affect the PAD

A tailings pond breach would permanently affect the PAD.

AUGUST 2014 MOUNT POLLEY SPILL IN BRITISH COLUMBIA

If a tailings pond breach happened in winter, the tailings would seep under the ice and be almost impossible to clean up. A large spill, such as would occur in a major breach of a tailwater pond dike, could threaten the biological integrity of the lower Athabasca River, the PAD, Lake Athabasca, the Slave River and Delta, Great Slave Lake, the Mackenzie River and Delta, and perhaps also the Beaufort Sea.[94] Furthermore, because there has been no successful reclamation of tailings to date, tailings ponds may pose a threat to the PAD indefinitely.[95] Despite these risks, documents relating to the status and performance of tailings pond dams and emergency planning are not publicly available. Consequently, it is difficult to assess the probability of a tailings pond failure.[96]

In Canada, there have been a number of tailings dam accidents. In 1974 an accident occurred at the Great Canadian Oil Sands (now Suncor) mine due to slope instability. In 1978 an accident occurred at Syncrude's operations due to foundation problems. In 1979 an accident occurred at Suncor's retention dam due to slope instability.[97] There appears to be no available data for the volume of tailings released or the consequences of these accidents. In 2004, a former mercury mine spilled 6,000 to 8,000 m^3 of tailings into Pinchi Lake, B.C.[98] In 2008, a dam breach at the former Opemiska copper mine spilled an unknown volume of tailings near Chapais, Quebec.[99] It is important to note that two of the largest spills in North American history have happened in Canada and in the last two years: the Obed Mine spill and the Mount Polley spill. The Obed Mine spill released 600 million litres of water including 90,000 tonnes of sediment contamination made up of coal, clay and sand into the Athabasca River

94 Rosenberg International Forum, *The Mackenzie River Basin: Report of the Rosenberg International Forum's Workshop on Transboundary Relations in the Mackenzie River Basin*, June, 2013 at 26. http://gordonfoundation.ca/sites/default/files/publications/Rosenberg%20Final%20-%20WEB.pdf

95 *Grant et al*. at 8.

96 *Ibid* at 9.

97 *Ibid* at 19.

98 *Ibid* at 19.

99 Grand Council of the Crees, *The failure of the retaining dyke at the Opemiska Mine near Chapais*, Online: www.gcc.ca/newsarticle.php?id=148

The Frontier Mine would be the first mine within the last remaining intact forest and ungulate habitat that is contiguous with the WBNP. As such, the Frontier Mine provides the most direct threat to the PAD from an oil sands development to date.

WBNP PHOTO COURTESY PAUL ZIZSKA / ZIZKA.CA

in October 2013.[100] The Mount Polley spill released 10 million m^3 of water contaminated with arsenic and mercury and 4.5 million m^3 of sediment into surrounding lakes and creeks in British Columbia in August 2014.[101] The extent of environmental damage caused by these two spills is still not fully understood.

(i) Provincial and federal management regimes are grossly inadequate to protect the Outstanding Universal Values of the WBNP

According to section 5 of the World Heritage Convention, each State Party shall endeavor:

> 3) to develop scientific and technical studies and research and to work out such operating methods as will make the State capable of counteracting the dangers that threaten its cultural or natural heritage;
>
> 4) to take the appropriate legal, scientific, technical, administrative and financial measures necessary for the identification, protection, conservation, presentation and rehabilitation of this heritage.[102]

100 C. Griwkowsky. *Extent of environmental damage caused by Obed Mine spill will not be known until spring*, Edmonton Sun. Online: www.edmontonsun.com/2014/02/27/extent-of-environmental-damage-caused-by-obed-mine-spill-will-not-be-known-until-spring

101 M. Forrest. *Tailings Dams 'Have Not Breached,' Says Minister... Except When They Have,* The Tyee. Online: http://thetyee.ca/News/2014/08/15/Tailings-Dams-Have-Not-Breached/

102 *World Heritage Convention*, Articles 5(3) and 5(4).

The Operational Guidelines provide several criteria for the protection and management of World Heritage sites, including:

> 97. All properties inscribed on the World Heritage List must have adequate long-term legislative, regulatory, institutional and/or traditional protection and management to ensure their safeguarding.
>
> 98. Legislative and regulatory measures at national and local levels should assure the survival of the property and its protection against development and change that might negatively impact the Outstanding Universal Value, or the integrity and/or authenticity of the property. States Parties should also assure the full and effective implementation of such measures.
>
> 103. Wherever necessary for the proper protection of the property, an adequate buffer zone should be provided.
>
> 108. Each nominated property should have an appropriate management plan or other documented management system which must specify how the Outstanding Universal Value of a property should be preserved, preferably through participatory means.
>
> 111. In recognizing the diversity mentioned above, common elements of an effective management system could include:
>
> c) the monitoring and assessment of the impacts of trends, changes, and of proposed interventions.

If these guidelines are not upheld or a State Party is ill-equipped to implement or enforce them, then an "in danger" listing may be necessary to reform and supplement State Party efforts. As described below, given the failures of the federal and provincial governments to uphold any of these criteria, that is precisely the case here.

None of the three main goals of the 2010 Wood Buffalo National Park Management Plan (i.e. involving aboriginal groups in park management; enhancing visitor experience; managing bison) addresses threats to the Park.

FIRST NATIONS ELDER ON THE ATHABASCA RIVER, PHOTO COURTESY THE FIRELIGHT GROUP

iii. The federal department overseeing the WBNP has no authority to ensure the protection of the WBNP from activities outside the WBNP boundaries

Current management of WBNP by Parks Canada is not adequate to ensure its safeguarding. While Wood Buffalo National Park has a management plan, it does not adequately address the dangers of upstream activities and climate change. None of the three main goals of the 2010 Wood Buffalo National Park Management Plan (i.e. involving aboriginal groups in park management; enhancing visitor experience; managing bison) addresses threats to the Park. The plan, which includes a sub-plan entitled "Peace–Athabasca Delta Area Management Approach", only briefly mentions that "the impacts of external stressors and climate change on water quantity and quality are of concern" without mentioning what those external stressors are, how they are affecting the park, and how they should be addressed.[103]

103 Parks Canada, *2010 Wood Buffalo National Park of Canada Management Plan*, June 2010 at 29.

iv. Canada has recently reduced and, in some cases, removed environmental protections for industrial activities that may impact the WBNP

In 2012, Canada transformed its role in assessing and managing resource development that may impact the WBNP through the passage of two budget implementation acts: Bill C-38 and Bill C-45 (the "Omnibus Bills")[104]. The Omnibus Bills were each over 450 pages and contained substantial amendments to dozens of statutes, many of which were not fiscally related, including to key environmental laws such as the *Canadian Environmental Assessment Act*,[105] the *Fisheries Act*,[106] the *Species at Risk Act*[107] and the *Navigable Waters Protection Act.*[108] The key changes were:

- ***Fisheries Act:*** reduced protection of fish habitat (s.35(1)); increased ability to authorize serious harm to fish (ss. 35(2), 43); ability to transfer responsibility for fisheries to the provinces (ss. 4.1, 4.2)
- ***Canadian Environmental Assessment Act:*** abolition of Law List of environmental assessment triggers; reduced timeframes for assessing potential effects of projects; narrowed definition of environmental effects; Minister may substitute a provincial process for a federal environmental assessment; if substitution, the GIC may declare *CEAA 2012* inapplicable; narrowed test for standing in review panel assessments; narrowed scope of decision following environmental assessment
- ***Navigation Protection Act:*** authorization required only for works on listed navigable waters; Minister may exempt works and listed navigable waters from the authorization requirement; pipeline and powerline projects are exempt from the authorization requirement; authorizations under the Act no longer trigger environmental assessments; Minister may delegate responsibilities under the Act to any person or body
- ***Species at Risk Act:*** agreements and permits allowing activities affecting listed wildlife species are no longer subject to time limits; certifications of public convenience and necessity (*National Energy Board Act*) no longer require consideration of alternatives and mitigation measures.

These legislative changes have the potential to reduce the scope, depth and frequency of federal environmental assessments of activities that may threaten the WBNP and protections of the WBNP itself.

In 2012, Canada transformed its role in assessing and managing resource development through legislative changes that have the potential to reduce the scope, depth and frequency of federal environmental assessments of activities that may threaten the WBNP and protections of the WBNP itself.

PARLIAMENT OF CANADA PHOTO COURTESY SAFFRON BLAZE/ WIKIMEDIA COMMONS

104 *Jobs, Growth and Long term Prosperity Act*, S.C. 2012, c. 19 (the legislative changes relevant to this Petition are contained in Part 3 — Division 1 — Environmental Assessment; Division 5– *Fisheries Act*; Part 4 — Division 6 — *Canadian Environmental Protection Act, 1999*; Division 7 — *Species at Risk Act)* and the *Jobs and Growth Act*, S.C. 2012, c. 31

105 SC 1992, c 37.

106 RSC 1985, c F-14.

107 SC 2002, c 29.

108 RSC 1985, c N-22.

v. The provincial government has established a land use plan that will greatly exacerbate the threats to the WBNP

The government of Alberta is promoting the expansion of oil sands and other development without consideration of the threats that such development is having on the WBNP. In 2012, Alberta enacted the Lower Athabasca Regional Plan, which created a framework for the rapid and massive industrialization of Mikisew's traditional lands without consideration for their treaty rights, culture, well-being or livelihood. Among other things, the Lower Athabasca Regional Plan requires all provincial decision-makers to consider Alberta's goal of doubling current levels of oil production (extracting an additional 1.7 million barrels of crude bitumen every day) when making any land-use decision.[109] While Alberta set aside some lands for conservation under the Lower Athabasca Regional Plan, it rejected all requests to create a buffer around the Athabasca River and the WBNP and to protect intact habitat that is contiguous with the WBNP. The Lower Athabasca Regional Plan also allows many industrial activities to take place in the limited areas that are set aside for conservation.

While the Lower Athabasca Regional Plan calls for a biodiversity framework to be established in the areas south of the Park, that framework has been delayed for two years and will be premised on a huge expansion of oil sands projects.

OIL SANDS PHOTO COURTESY THE PEMBINA INSTITUTE

While the Lower Athabasca Regional Plan calls for a biodiversity framework to be established in the areas south of the Park, that framework has been delayed for two years and will be premised on a huge expansion of oil sands projects. An independent review of Alberta's proposed approach to the biodiversity framework found that Alberta's current concept for the framework is fundamentally flawed and will not only fail to protect biodiversity but result in the reduction in biodiversity around the WBNP.

vi. Provincial regulatory tools are inadequate to minimize the threats to the WBNP

A 2013 study indicated that environmental violations in Alberta's bitumen sands region are frequent, enforcement is rare, record keeping is dysfunctional, and there is a chronic failure to disclose important environmental incident information to the public.[110] The environmental enforcement rate was 0.9% in relation to over 9,262 environmental incidents (including 4,063 alleged contraventions of Alberta environmental legislation) that occurred between 1996 and 2012 and were attributed to oil sands operations in the lower Athabasca River region.[111]

Furthermore, although provincial frameworks for air and water quality have already been exceeded in the oil sands region due to contamination levels of nitrogen dioxide, sulphur dioxide, nitrogen, dissolved uranium and dissolved lithium at six oil sands projects, no measures have been taken by the provincial government to correct these exceedances. Indeed, since the exceedances were noted in 2012, additional oil sands projects have been brought into operation or been approved, which will exacerbate these exceedances.

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109 Government of Alberta, *Lower Athabasca Regional Plan, 2012-2022*, approved on August 22, 2012, at page 25: https://landuse.alberta.ca/LandUse%20Documents/Lower%20Athabasca%20Regional%20Plan%202012-2022%20Approved%202012-08.pdf

110 K. Timoney & P. Lee, *Environmental Incidents in Northeastern Alberta's Bitumen Sands Region*, 1996-2012 (2013), Online www.globalforestwatch.ca/files/publications/20130723A_Envir_Incidents_July-22-2013.pdf

111 *Ibid* at page 178.

vii. There is no effective monitoring program in place to assess the impacts of oil sands activities on the WBNP

The provincial and federal monitoring of the effects of upstream activities and climate change on WBNP and the PAD has been wholly inadequate.

Until recently, the responsibility for monitoring the effects of oil sands activity on aquatic environments was given to the industry-funded Regional Aquatic Monitoring Program a program repeatedly criticised for a lack of scientific integrity, design and overall failure to incorporate a regional approach.[112]

In 2011, a Report of the Commissioner of the Environment and Sustainable Development found that the lack of environmental information and monitoring has hindered the government's ability to understand how oil sands projects in northern Alberta have cumulatively affected the environment.[113]

After prompting in 2010 from the Federal Oil Sands Advisory Panel, the governments of Canada and Alberta embarked on a Joint Oil Sands Monitoring Program ("JOSM"), which is been called a "world class" monitoring program. Unfortunately, JOSM has not met this lofty moniker. Most recently, the 2014 Fall Report of the federal Commissioner of the Environment and Sustainable Development noted that Canada had not committed to supporting the monitoring activities of JOSM after 2015.[114] The Commissioner was similarly clear in her 2014 Fall Report that there has been a failure by Canada and Alberta to engage appropriately with Aboriginal groups, such as Mikisew, in JOSM. She was also clear that the JOSM program has failed to meet its obligation to incorporate traditional knowledge. Alberta's Auditor General identified similar flaws and gaps in his October, 2014 Report, noting that the status of key monitoring commitments was not clear, information about monitoring initiatives was missing, and reported information contained inaccuracies and was incomplete.[115]

All indigenous groups in the region have withdrawn from JOSM on the basis that it has not been undertaken with any transparency and due to its routine exclusion of indigenous participation and consideration of indigenous knowledge.[116]

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FIRST NATIONS ON THE ATHABASCA, PHOTO COURTESY THE FIRELIGHT GROUP

112 *Grant et al*. at 33; Ayles, G.B., M. Dubé, and D. Rosenberg, *Oil Sands Regional Aquatic Monitoring Program (RAMP): ScientificPeer Review of the Five Year Report (1997-2001),* prepared for the RAMP Steering Committee, 2004, iv; *Grant et al*. at 9.

113 Office of the Auditor General of Canada. *Report of the Commissioner of the Environment and Sustainable Development,* Chapter 2: Assessing Cumulative Environmental Effects of Oil Sands Projects (Ottawa, October 2011). Online: www.oag-bvg.gc.ca/internet/english/parl_cesd_201110_e_35765.html

114 Office of the Auditor General of Canada, *Report of the Commissioner of the Environment and Sustainable Development,* Chapter 2: Environmental Monitoring of Oil Sands (Ottawa, Fall 2014): www.oag-bvg.gc.ca/internet/English/parl_cesd_201410_02_e_39849.html

115 Auditor General Alberta, *Report of the Auditor General of Alberta* (Alberta: October 2014). Online: www.scribd.com/doc/242195987/Auditor-General-releases-October-2014-Report

116 The Canadian Press, *Athabasca Chipewyan First Nation Pulls Out Of Joint Oilsands Monitoring Program* (24 January 2014). Online: Huffington Post, www.huffingtonpost.ca/2014/01/24/joint-oil-sands-monitoring-program-first-nation_n_4662405.html

Over the last decade, the federal and provincial governments have routinely ignored recommendations for monitoring and further study of the impacts from oil sands developments. Mikisew's recommendations for monitoring and further study of the impacts from oil sands development have been similarly ignored.

WBNP PHOTO COURTESY
PAUL ZIZSKA / ZIZKA.CA

Furthermore, over the last decade, the federal and provincial governments have routinely ignored recommendations for monitoring and further study of the impacts from oil sands developments, even when recommendations have been repeated by review panels on multiple occasions. Mikisew's recommendations for monitoring and further study of the impacts from oil sands development have been similarly ignored.

viii. Canada is not honouring its agreement with Mikisew to address man-induced changes to the water regime of the PAD

In 1986, Canada entered into a Treaty Land Entitlement Agreement with Mikisew. Under this agreement, Canada agreed to, among other things, make every reasonable effort to correct man-induced changes to the natural water regime in the Peace–Athabasca Delta basin. This promise remains unfulfilled.

ix. There is no buffer around the WBNP

The federal and provincial governments have failed to establish a buffer zone around WBNP even though it is necessary for the protection of the park. WBNP did not receive a buffer zone at the time it was listed as a World Heritage Site because the inclusion of a buffer for new World Heritage Sites had not yet become customary practice. However, it is possible for States Parties to create a buffer zone subsequent to the inscription of a property on the World Heritage list pursuant to article 164 of the Operational Guidelines. In light of the northern spread of oil sands development, federal and provincial governments should have worked together to establish a buffer zone.

c. Supplemental Factors

Should the Committee wish to consider any of the supplemental factors set out in the Operational Guidelines, the Petitioner offers the following comments.

i. The determination of the World Heritage Committee can often be decisive

The Committee's addition of a site to the list of World Heritage in Danger can often be decisive to the survival of that site, even before it becomes threatened. Unfortunately, WBNP is already threatened with serious and specific ascertained dangers. However, the park is also threatened with the potential dangers of inadequate management, a new dam on the Peace River, a new oil sands mine within a watershed that flows into the WBNP, and continuing climate change, among other threats. Concerns arising from climate change should be countered by taking steps to increase the resilience of the PAD yet, instead, provincial and federal governments are enabling and promoting accelerated development that continues to sharply undermine the integrity and resilience of the PAD. The Petitioner submits that World Heritage Committee's advice could motivate Canada to better prevent and manage these potential risks to WBNP and to reconsider projects that would endanger WBNP ecosystems, such as the Site C Dam and the Frontier Mine.

ii. In the case of ascertained dangers, deteriorations should be judged by the intensity of their effects and analyzed on a case-by-case basis

To appropriately understand the intensity of the ascertained danger of hydro-electric regulation, oil sands contamination and water withdrawals, and climate change, the World Heritage Committee should take into account the traditional ecological knowledge of the indigenous peoples of Fort Chipewyan, including the Mikisew. Traditional ecological knowledge systems provide an alternate framework of information, hypothesis, understanding, social rules, and relationship that produce critical insight into ecological relationships, including the distribution of resources, environmental, social and cultural conditions, and trends over time. Traditional knowledge about the environment is both traditional and contemporary, and it is contextual, dynamic and continually updated and revised. As a result, it has significant application to present issues.

Mikisew's firsthand knowledge, accumulated and past down through successive generations of use and occupation in the WBNP, clearly points to the serious decline in the functionality of the PAD, the biodiversity within the WBNP and the significant encroachment of oil sands activities on the integrity of the WBNP.

iii. The World Heritage Committee should consider certain factors for appraising potential dangers

The Operational Guidelines suggest that in the case of potential danger, the World Heritage Committee should consider threats within normal evolutions of social and economic frameworks, note the impossibility of ascertaining certain threats, such as armed conflict, and realize that some threats are not imminent, such as demographic growth.

None of these factors applies in this case. The threats posed to the outstanding universal values of WBNP are both known and imminent.

iv. The Committee should take into account any cause of unknown or unexpected origin

Both the ascertained causes (existing dams, oil sands water withdrawals, oil sands water pollution, climate change) and the potential threats (Site C dam), inadequate management, a tailings pond breach) are well-documented and imminent in nature.

Both the ascertained causes (existing dams, oil sands water withdrawals, oil sands water pollution, climate change) and the potential threats (Site C dam), inadequate management, a tailings pond breach) are well-documented and imminent in nature. While it is not yet possible to link specific contaminants found in the PAD to specific mining projects or to determine what percentage of the drying of a specific perched basin is caused by the Bennett Dam versus climate change, the causes of the threats to the WBNP are known and expected. Indeed, in many instances, the causes of dangers to WBNP and the PAD have been known for decades.

d. Major Operations are Necessary for Wood Buffalo National Park's Conservation

As set out above, federal and provincial governments in Canada have failed to meet the standards established in the Operational Guidelines for protecting the integrity of World Heritage sites. The next factor that is relevant to the Committee's determination of whether to include the WBNP in the List of World Heritage Sites in Danger is whether the ascertained and potential threats to the site are amenable to correction by human action through major operations.

In the case of WBNP, all of the threats facing the Park are amenable to human action. The present failure to address these threats is a result of a lack of political leadership and the ongoing prioritization of industrial activities over honouring Canada's obligations to protect the integrity of this UNESCO site.

Details of human actions that may alleviate or address the ascertained and potential threats to the WBNP are described in the next section.

e. The Petitioners are requesting assistance under the Convention for UNESCO site #256

The final factor relevant to the Committee's determination of whether to include the WBNP in the List of World Heritage Sites in Danger is whether the Committee has received a request for assistance.

The Petitioner has used all domestic avenues available to it — such as direct requests, participation in regulatory processes and recourse to the Canadian court system — to have the federal and provincial governments take steps to effectively manage and address the threats to the UNESCO site #256. Unfortunately, these efforts have been unsuccessful. In the Petitioner's view, the legacy of inadequate management by all levels of government in Canada suggests that these threats will not be addressed domestically any time soon. Accordingly, the Petitioner hereby requests the assistance of the World Heritage Committee to include UNESCO site #256 on the List of World Heritage Sites in Danger.

This Petition is supported by numerous non-state parties. A list of those supporting this Petition is attached below.

The Petitioner has used all domestic avenues available to it — such as direct requests, participation in regulatory processes and recourse to the Canadian court system — to have the federal and provincial governments take steps to effectively manage and address the threats to UNESCO site #256.

WBNP PHOTO COURTESY
PAUL ZIZSKA / ZIZKA.CA

IV. Immediate Corrective Actions are Necessary

In addition to requesting that the WBNP be added to the List of World Heritage Sites in Danger, the Petitioner requests that the World Heritage Committee consider developing and implementing a program for corrective measures to eliminate the threats to the PAD. The Petitioner has developed the following recommendations that may provide some assistance in developing a program for corrective measures.

a. Downstream and cumulative impacts assessment regarding the Site C Dam

SKETCH OF THE SITE C DAM/BCHYDRO

Despite the failure of BC Hydro to consider whether existing flow regulation of the Peace River has adversely affected the PAD and whether Site C dam will exacerbate these adverse effects, either residually or cumulatively with other development, the federal and British Columbia governments have now indicated their environmental assessment approvals for the Site C dam. Governments must now consider and decide whether to grant specific regulatory approvals to permit construction and operations to proceed.

We recommend that the World Heritage Committee initiate its own assessment of the downstream effects of the Site C dam, including in combination with other stressors.

We recommend that the World Heritage Committee initiate its own assessment of the downstream effects of the Site C dam, including in combination with other stressors. Mikisew notes the urgency of this recommendation now that governments have given their approvals of the dam under environmental assessment legislation, and further regulatory approvals are pending. Once the Site C dam is built, it will be far more difficult to address the impacts of the dam on the PAD.

b. Strategic flow regulation of tributaries into the PAD

We recommend that the World Heritage Committee investigate whether strategic flow regulation on the tributaries into the PAD, such as the Peace River, should be considered as a remedial measure to mitigate the adverse effects of dams on the PAD. The effectiveness of implementing strategic flow regulation to recharge the PAD has been advanced by a number of scientists including Dr. Carver, and those from Parks Canada and Environment Canada.[117] Unfortunately, BC Hydro has not agreed to strategic flow regulation for its existing dams or

117 *Parks Canada Report* at 20; See also Environment Canada, *BC Hydro Site C Clean Energy Project Joint Review Panel: Submission of the Department of the Environment* (25 November, 2013), at 12-13. Online: CEAA, www.ceaa-acee.gc.ca/050/documents-eng.cfm?evaluation=63919&type=4 [*Environment Canada submission*]; *Carver Report* at 73-76.

the proposed Site C dam,[118] although, at the January 11, 2014 environmental assessment hearing for the Site C dam, it expressed a willingness to entertain such a request if made by the Alberta government.[119]

Strategic flow regulation has been proven to be successful in inducing flooding of the PAD via major ice-jamming flooding. In the spring of 1996, when hydro-climatic conditions were favourable to an ice-jam flooding event, BC Hydro modified its operations and released a discharge of water to produce a flooding event that successfully recharged the PAD, including the elevated perched basins that had not been recharged since the last major ice-jam flood in 1974.[120]

c. Credible modelling and other assessments for the WBNP

We recommend that the World Heritage Committee initiate an assessment of the effects of climate change on the PAD and model the future impacts of climate change on the PAD.

We recommend that the World Heritage Committee initiate a cumulative impacts assessment that would take into account the interconnected effects of flow regulation, oil sands development, and climate change on the PAD, as well as the potential impact of proposed projects or eventualities such as the Site C Dam or a tailings pond dam failure.

UNESCO has noted that the fish fauna of the Park have been poorly studied, despite the wide variety of aquatic habitats.[121] The changes in plant communities that have been happening as a result of the drying of the delta are also poorly understood. We recommend that the World Heritage Committee conduct an assessment of the species currently inhabiting WBNP, including mammals, birds, plants, and fish.

d. Creation of a buffer zone south of the WBNP

We recommend that, pursuant to article 103 of the World Heritage Convention, an adequate buffer zone be established for WBNP in order assure the protection of the WBNP.

The buffer zone should be based on the ecological needs of the PAD and other aspects of the outstanding universal values for which the WBNP was established to protect. Accordingly, at a minimum the buffer should include:

- The remaining 14% of the Whooping Crane Summer Range located outside of WBNP;

We recommend that, pursuant to article 103 of the World Heritage Convention, an adequate buffer zone be established for WBNP in order assure the protection of the WBNP.

WBNP PHOTO COURTESY PAUL ZIZSKA / ZIZKA.CA

118 BC Hydro Response to Working Group and Public Comments on the Site C Clean Energy Project EIS — Technical Memo on Peace Athabasca Delta, May 8, 2013, CEAR 1455, at 9.

119 Site C Hearing Transcript Vol. 18 (January 11, 2014) CEAR 2420, at 14-15.

120 Submission of the Department of the Environment Canada, November 25, 2013, CEAR 1843, at 12-13.

121 *WBNP UNESCO webpage*.

- The remaining 20% of the Peace–Athabasca Delta located outside of WBNP[122];
- All watershed sub basins south of the WBNP that flow into the WBNP; and
- Areas between the WBNP and the latitude of the point where the Firebag River joins the Athabasca River.

While by no means guaranteeing the complete protection of the WBNP from the threats posed by oil sands activities, such a buffer zone would protect the WBNP from the most direct, immediate and pernicious threats. For example, it would prevent the Frontier Mine from being developed within a watershed that flows directly into Lake Claire and in such close proximity to the WBNP.

e. Establishment of an effective adaptive management framework outside of the WBNP

While by no means guaranteeing the complete protection of the WBNP from the threats posed by oil sands activities, such a buffer zone would protect the WBNP from the most direct, immediate and pernicious threats.

PHOTO COURTESY KLAUS NIGGE/PARKS CANADA

In tandem with a buffer zone, we recommend that the World Heritage Committee initiate or recommend the development of an adaptive management framework for all areas outside of the WBNP where activities may adversely impact the WBNP. The framework should establish clear management responses necessary for the protection of the natural ecosystem of the WBNP and the PAD as well as the human health of those who rely on the PAD. This framework should be based on the precautionary principle, with the burden of proving an absence of harm from oil sands development being placed on the oil sands industry

As part of this framework, we recommend that the World Heritage Committee seek participant status in the Joint Oil Sands Monitoring Program and its successor, the Alberta Environmental Monitoring, Evaluation and Reporting Agency (AEMERA) to ensure that this program operates as an independent monitoring body at arm's length from industry and government.

In light of the threat posed by potential tailings pond dam leakages or failures, we further recommend that the World Heritage Committee:

i. request the public release of all monitoring data related to tailings ponds, including that of government and industry;

ii. recommend a requirement for isotopic fingerprinting and use of isotopic tracers in all tailings ponds or containment facilities; and

iii. recommend the establishment of a tailings contamination fund.

122 *Parks Canada Report* at 11.

V. Conclusion

The future of Wood Buffalo National Park and the Peace–Athabasca Delta is threatened. Both the ascertained and potential dangers, unless addressed immediately, will continue to further undermine the Park's Outstanding Universal Value. Without international assistance, the threats to the WBNP, and to the indigenous peoples that rely on it, will continue to mount. With the projected expansion of oil sands production in the coming decades, the Athabasca River will lose more water and become increasingly contaminated. Planned dams on the Peace River will further alter the PAD's natural flow cycles. Climate change will magnify the effects of upstream activities on the PAD and speed up the drying of the perched basins.

International pressure is needed to ensure that Canada will effectively protect the WBNP from these threats so that the outstanding universal values in the Park, and the indigenous communities that depend on the WBNP for their livelihoods, can continue into the future. Accordingly, the Petitioner calls upon the World Heritage Committee to add the Park to the List of World Heritage in Danger and take, or propose, all necessary corrective measures to address the threats to this precious world resource.

Without international assistance, the threats to the WBNP, and to the indigenous peoples that rely on it, will continue to mount.

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THE FIRELIGHT GROUP

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MIKISEW CREE
FIRST NATION

Mikisew Cree First Nation is a Cree nation whose lands and rights depend on the Athabasca River and surrounding waters. The Mikisew Cree signed Treaty 8 in 1899 at Fort Chipewyan on Lake Athabasca. Today, MCFN members reside in Fort Chipewyan as well as Fort McMurray, Edmonton, Fort Smith, NWT and elsewhere.