
From: Bridger, Michael C FLNR:EX
Sent: May 26, 2021 2:01 PM
To: Burwash, Michael FLNR:EX; Bohm, Holger FLNR:EX
Cc: MacIver, Stephen FLNR:EX
Subject: FW: Request for review - R7B Moose regulation change proposal
Attachments: R7B_2022-Moose from GOS to LEH_Bridger.docx; Moose population and hunting efforts summary_Bridger.docx; Copy of Draft Population estimates- Moose Survey Summaries Peace Region_Bridger.xlsx; MOOSE Harvest Tracking.xlsx

Hey gents,

I had a quick look at the moose LEH proposal package that was sent out for review. The management team here was not willing to send it to me for some reason (as you saw in those emails, Burwash), but I was able to get my hands on some copies. I'm not sure what their concern was with sharing this information with me specifically, as it's all just based off of our regional moose data.

Anyhow, overall I did find the documents to be quite misleading. So I added quite a few comments that I think help tell the full story of the moose situation in our region here. s.13

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I added quite a few comments to the two word documents, and to the one spreadsheet. I also included our regional moose harvest tracking spreadsheet, which I believe helps tell a more fulsome story.

Let me know if you'd like to discuss at some point.

Cheers,

Mike

Mike Bridger, M.Sc., R.P.Bio.



Wildlife Biologist | Northeast Region

Ministry of Forests, Lands, Natural Resource Operations and Rural Development

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Ph: 778-576-8933





**2022-2024
REGULATION CHANGE
REQUEST FORM**

HQ Use Only		
Executive Summary	<input type="checkbox"/>	LEH Proposal <input type="checkbox"/>
Wildlife Mgr. Approval	<input type="checkbox"/>	H&T Proposal <input type="checkbox"/>
Director Approval	<input type="checkbox"/>	Synopsis edited <input type="checkbox"/>
Regulations drafted	<input type="checkbox"/>	AHTE drafted <input type="checkbox"/>
Map (for synopsis)	<input type="checkbox"/>	AHTE posted <input type="checkbox"/>

Contact: Michel Lavallee **Phone:** 778-576-1139 **Region:** 7B

SUBJECT: Replace Moose GOS with LEH

Management Units: 7-19, 7-20, 7-21A, 7-31A, 7-32, 7-33, 7-35, 7-36, 7-42, 7-43, 7-46 to 7-56 **Date of Submission:** October 1, 2021

Species: Moose

Choose applicable one(s): General Open Season Limited Entry Hunting Trapping
 Motor Vehicle Prohibition Firearm Restriction Other (describe) _____

Who is the regional contact for communications issues?
 (someone with authority to deal with media requests if requested by Public Affairs)
 Name: Greg Van Dolah Phone: 250-795-4158

PART A: BACKGROUND

1. What is currently in the synopsis? (exact wording preferred)

Moose	7-21B, 7-22, 7-31B	Bulls	Aug 15 – Aug 31
	7-19, 7-20, 7-21A, 7-31A, 7-32, 7-33, 7-35, 7-36, 7-42, 7-43, 7-46 to 7-56 ▲	Bulls	Aug 23 – Aug 31
	7-19, 7-21B, 7-22, 7-31, 7-36, 7-42, 7-43, 7-46 to 7-56+▲	*Bulls	Sept 1 – Oct 31
	7-20, 7-21A, 7-32 to 7-35, 7-44, 7-45, 7-57, 7-58	*Bulls	Sept 1 – Sept 30
	7-20, 7-21A, 7-32 to 7-35, 7-44, 7-45, 7-57, 7-58	*Bulls	Oct 16 – Oct 31
Bow Only	7-20, 7-21A, 7-32 to 7-35, 7-44, 7-45, 7-57, 7-58	*Bulls	Oct 1 – Oct 15

2. Briefly describe the proposed wording in the synopsis:

GOS

Moose	7-21B, 7-22, 7-31B	Bulls	Aug 15 – Aug 31
	7-21B, 7-22, 7-31B	*Bulls	Sept 1 – Oct 31
Bow Only	7-20, 7-21A, 7-32 to 7-35, 7-44, 7-45, 7-57, 7-58	*Bulls	Oct 1 – Oct 15

LEH

Moose; youth only	7-19, 7-20, 7-21A, 7-31A, 7-32, 7-33, 7-34, 7-35, 7-36, 7-42, 7-43, 7-46 to 7-56▲	Bulls	Aug 23 – Aug 31
Moose; shared hunt	7-19, 7-20, 7-21A, 7-31A, 7-32, 7-33, 7-34, 7-35, 7-36, 7-42, 7-43, 7-46 to 7-56 ▲	Bulls	Sept 1 – Sept 30
	7-19, 7-20, 7-21A, 7-31A, 7-32, 7-33, 7-34, 7-35, 7-36, 7-42, 7-43, 7-46 to 7-56+ ▲	Bulls	Oct 16 – Oct 31

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3. Map associated with the proposed regulation. Yes No

- This map may be used to form the regulation. It should be digital and professional. [Please provide shapefiles if available.](#)

4. Reason for proposal (rationale in plain language): IMPORTANT – this is what goes on the public engagement website (AHTE) verbatim

Moose populations are stable to declining across most of the Northeast Region. Stakeholders and First Nations are concerned about the populations ability to support First Nation sustenance harvest, licenced harvest, and non-consumptive values due to the pressures of landscape changes and hunting practices. A series of regulation changes were implemented to reduce licenced moose harvest during the last 6 years; moose populations do not appear to be stabilizing with these changes. Addressing habitat concerns is a long process and industry specific; moving moose from General Open Season to Limited Entry Hunt is intended to maintain moose harvest opportunity while providing more oversight of the number of moose harvested within the Region. Changing part of the Northeast Region to LEH while keeping other areas GOS risks moving hunters into areas with lower hunting pressure and increasing moose harvest in currently stable populations. The Youth LEH season is intended to provide opportunity for youth to harvest moose before returning to school and having reduced opportunity during the remaining seasons. The two LEH opportunities (September 1 – September 30 and October 16 – October 31) are intended to balance harvest pressure before and after the rut to support reproductive success; the number of authorizations can be adjusted to maintain post-hunt bull to cow ratios. All three LEH opportunities are Any Bull to distribute harvest pressure across the different age classes and offset loss of harvest opportunity by increasing the number of moose that could be legally harvested.

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PART B: ANALYSIS

1. Describe surveys used for conservation issues and their results as they relate to this submission:

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Moose inventory data in the Northeast Region does not have the required frequency or coverage to estimate population trends for most of the management units. The recent inventories (2015-2021), demographics, and densities were calculated for each management unit and extrapolated into management units that do not have current inventory data using available information within each Game Management Zone. The result of this work indicates the Northeast Region has 60,660 moose (minimum 47,705 and a maximum of 73,615 moose); the Northeast Region contains an estimated 16,307 (12,406 – 20,208) bulls, 33,257 (26,375 – 40,140) cows, and 11,094 (8,923 – 13,266) calves).

Work completed by Kuzyk and colleagues in 2018¹ modelled moose population trends across the Province and found each Northeast Game Management Zone has a decreasing population trend ($\lambda < 1$) between 2006 and 2015; a change from the 1996-2005 period where only one Game Management Zone had a declining population trend. This perspective is supported by all the Northeast Region's First Nations who have indicated moose populations are decreasing and harvesting is becoming challenging. Declining hunter effort in the Big Game Harvest Survey is likely a hunter response to declining moose populations and declining success rates.

Research completed by Natcher and colleagues² in 2021 indicates First Nation communities harvest annually 2.1 – 2.4 moose per household. There is a minimum of 677 First Nation residences in the Northeast Region and an unknown number of households from transboundary First Nations (Kaska Daylu Council, Dene Tha' First Nation, Horselake First Nation, McLeod Lake Indian Band) that may hunt in the Region. Approximately 1,421 to 1,624 moose are harvested by First Nations assuming every household is actively harvesting moose and the estimate for households that don't harvest is balanced by harvest from First Nations bordering the Region. First Nations prefer to harvest bull moose to protect the cows and support a sustainable population; exceptions are made for dry cows since they did not successfully reproduce and would be harvested for sustenance purposes. The First Nation harvest distribution can be adjusted to 75% of the moose harvested are bull (1,066 – 1,218) and 25% of the harvest is are dry cows (355 – 406).

Licensed hunters harvested an estimated 1,489 moose in 2019. The combined licenced and First Nation subsistence harvest may be 2,910 – 3,113 moose annually (2,555 – 2,707 bull moose assuming First Nation bull harvest is 75% of the total First Nation harvest).

The Harvest Management Principles described in the Provincial Moose Management Framework suggest the maximum moose population growth of 15% occurs when wolf populations are controlled. A minimum of 32 calves per 100 cows is required to compensate for natural mortality. The maximum harvest rate suggested is 10-11% of the population when harvest is distributed across bulls, cows, and calves. First Nation subsistence practices favors harvesting bull moose and licenced harvest is restricted to bulls with further restrictions based on antler configuration. Even distribution across the population does not occur under the current cultural practices and regulatory requirements which requires a lower maximum allowable harvest rate to account for the selective harvest practices; a recommendation is 5% of the population (3,033 ± 348). The annual estimated combined harvest of licensed hunters and First Nations is approximately 4.9% (ranges from 4.1% to 6.3%) of the total population. This harvest rate requires higher calf recruitment of 30-45 calves per 100 cows to maintain stable populations.

Calf recruitment in the Northeast Region ranges from 7 calves per 100 cows (MU 7-57 in 2017) to 68 calves per 100 cows (MU 7-47 in 2016) with a regional average of 32 calves per 100 cows. The regional moose recruitment has remained in this range during the last 20 years. This recruitment level indicates regional moose populations are likely to continue declining under current the wildlife management practice. Changing to LEH may provide the Province the flexibility required to maintain the bull composition and slow the population declines while long-term measures are implemented to change the main population drivers.

Kuzyk and colleagues¹ publication indicates a maximum bull harvest of 20% would be sustainable for most moose populations in the Province. Based on the current population estimates, the Northeast Region could support the harvest of 3,261 (± 780) bull moose annually which is approximately equal to current harvest rates.

Local overharvesting is challenging to avoid through General Open Season since hunters have the flexibility to harvest moose based on hunter preference and access. Antler restrictions have not stabilized the moose populations; moving to Limited Entry Hunt provides the Province the ability to distribute harvest pressure across the Region to reduce the risk of overharvesting in certain areas. The proposed Any Bull LEH is intended to support hunters' opportunity to successfully harvest moose while addressing potential enforcement challenges and unlawful harvest encountered when hunters do not accurately count points on the antler.

The Any Bull LEH would distribute harvest pressure across more age classes rather than the current focused harvest on young bulls (spike-fork) or older bulls (tri-palm, 10 point).

Management Units 7-21B, 7-22, and 7-31B overlap the South Peace Caribou recovery efforts and wolf control zones. Keeping these Management Units as GOS will encourage moose harvest within the caribou recovery areas and slow moose population growth.

The Moose LEH Shared hunt allows family or friends to continue moose hunting together without increasing the number of authorizations issued to support the continuation of this practice and knowledge transfer to newer hunters.

¹ Kuzyk, G., I. Hatter, S. Marshall, C. Procter, B. Cadsand, D. Lirette, H. Schindler, M. Bridger, P. Stent, A. Walker, and M. Klaczek. 2018. Moose population dynamics during 20 years of declining harvest in British Columbia. *Alces* 54:101-119

² Natcher, D., S. Ingram, A-M. Bogdan, and A. Rice. 2021. Conservation and Indigenous subsistence hunting in the Peace River Region of Canada. *Human Ecology*. 49:109-120

2. Alternatives to regulation considered:

The Northeast Region has implemented more restrictive hunting regulations to address declining moose populations, but these have not generated the expected change.

Alternatives considered:

- Current regulation structure – moose populations have been declining for over 20 years. The current regulations have been inadequate to stabilize the populations.
- The calf recruitment is low across the Region and is inadequate to stabilize the population. The main driver behind low calf recruitment and survival is predation. Increasing the wolf bag limit to 10 has been proposed and not supported since licenced hunters currently can harvest 3 wolves annually and few hunters consistently harvest wolves. Increasing the limit is unlikely to have a direct, consistent, and sustainable benefit for moose.
- Implementing a predator control program in specific Game Management Zones to enhance calf moose survival. The Management Plan for Grey Wolf (*Canis lupus*) in British Columbia is clear (section 7.4) that implementing predator control to enhance ungulate populations for hunting is contrary to policy. Licenced hunting opportunities will need to be closed before this alternative can be considered.

3. Pros/Cons analysis undertaken & results:

Pros:

- Low calf recruitment indicates moose declines are likely to continue, LEH provides the ability to collect hunter success data and adjust LEH authorizations and quota before the maximum harvest declines below current harvest levels.
- First Nations requested the Province management moose under LEH; this is responsive to their requests
- Responds to First Nations' local and traditional knowledge regarding moose populations
- The Province will need to explicitly consider First Nation Treaty 8 right to hunt when making quota and LEH decisions
- The Province would be able to distribute harvest across the region and reduce the risk of localized overharvesting
- Regional staff and Branch have more control over moose harvest and can adjust LEH authorizations to support management objectives
- Precautionary approach for management units without current inventory data to reduce risk of moose becoming a species of conservation concern

Cons:

- LEH is unlikely to stabilize or increase the moose populations without addressing habitat and predation
- Licenced hunting community harvests moose for food. A moose provides approximately 200kg of meat for the cost of a hunting licence (\$32) and species licence (\$25). There are additional, variable costs associated with hunting – fuel, travel, accommodations, cut & wrap – that are harder to incorporate since this varies between hunters. Replacing 220kg of moose meat with 220kg of beef would cost approximately \$3,370³ using beef's 2020 weighted average of \$15.31/kg.
- Licenced hunters may be upset on the reduced opportunity.
- Northeast licenced hunters will have reduced opportunity under the current LEH system
- Updating the licencing system to include the new LEH codes will take time and resources
- Additional staff time to calculate annual LEH and quota recommendations
- First Nations may expect this change will stop or reverse moose population declines
- Decreased number of hunters traveling from other Regions to the Northeast for moose hunting
- Increased harvest pressure in the other Regions that have moose general open season

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³ Agriculture and Agri-Food Canada. Red Meat and Livestock Market Information – Prices. <https://www.agr.gc.ca/eng/canadas-agriculture-sectors/animal-industry/red-meat-and-livestock-market-information/prices/annual-retail-beef-and-historical-pork-prices/?id=1520539054104>

4. Identify risks of NOT implementing the new provision:

The risks associated with not implementing the regulation change could be the non-recoverable collapse of the moose population within the Peace Region. If the general open season continues to operate, the moose population may decrease past a recoverable population. Alternatively, it could lead to a recoverable population, that would require either a LEH or a closed season to allow the population to recuperate. This would also frustrate hunters and stakeholders.

If the government does not listen to the Traditional Knowledge of the local First Nations, there may be a potential violation of Treaty 8 rights, as the population of moose continues to decrease, and sustenance harvest is affected, a lawsuit may be initiated.

5. Comments by Reviewers: (if relevant)

Use separate page, as comments may not be included in the final OIC/MO Package. Copies of email correspondence may be attached.

PART D: STAKEHOLDER CONSULTATION

ADEQUATE CONSULTATION AND ENGAGEMENT MUST BE RECORDED, OR THE FORM WILL BE RETURNED TO THE ORIGINATOR.

Please attach supporting documentation, such as letters, meeting minutes, etc.

Identify who was consulted and when consultations took place.

Who raised concerns and what was the nature of their concerns?

Has the regulation been changed to respond to Stakeholders' Concerns?

Organization	Contact Name	Date and type of Consultation & Engagement	Supported? (If no, attach an explanation) N/A = Proposal not applicable to organization
CO Service			<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A Note: CO service consultation is required BEFORE submission is sent to Wildlife & Habitat Branch. Only rarely is this consultation not required. COS verification is required for safety related regulation proposals.
Other Regions			<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A

Wildlife & Habitat Branch (Victoria) Note: If proposed regulation is for a CITES species, Stephen MacIver (Management Authority for CITES) must be consulted.	Holger Bohm	May 4, 2021 - Discussed proposal and methodology	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A Note: Consultation is required BEFORE submission is sent to Wildlife & Habitat Branch. Only rarely is this consultation not required. Consultation for: Ungulates: Holger.Bohm@gov.bc.ca Birds: Gerard.Hales@gov.bc.ca Wildlife Health: Caeley.Thacker@gov.bc.ca Furbearers/small game: Gerard.Hales@gov.bc.ca Large Carnivores: Garth.Mowat@gov.bc.ca Motor Vehicle Prohibitions: Depends on the purpose of the closure, if the purpose is related to a specific species contact the species specialist above. Habitat related proposals: Steve.Gordon@gov.bc.ca .
BC Parks, if applicable			<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A
Other Gov't agencies (list) (Highways, Forests)			<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A
BCWF (Zone Representative)			<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A
GOABC or local organization			<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A
BCTA or local organization			<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A
Other organization: (name)			<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A
Public Meetings:	(attendees)		<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A

PART E: INDIGENOUS CONSULTATION AND ENGAGEMENT

Please attach supporting documentation, such as letters, meeting minutes, etc.

When did initial consultation and engagement period begin? _____

a) Does this proposed change have implications (impact or of interest to) Indigenous Peoples?	<input type="checkbox"/> NO - If no, please explain _____ <input type="checkbox"/> YES - If yes, please complete items (b) to (e) if applicable _____
b) Does this proposed change relate to the Calls to Action of the Truth and Reconciliation Commission?	<input type="checkbox"/> NO <input type="checkbox"/> YES - If yes, please indicate which of the calls and how _____

<p>c) Does this proposed change relate to any of the following legal or other government obligations?</p> <ul style="list-style-type: none"> • modern treaty obligations to notify, discuss or consult, • common law consultation obligations, • contractual commitments, • under the <i>Declaration on the Rights of Indigenous Peoples Act</i>? 	<p><input type="checkbox"/> NO</p> <p><input type="checkbox"/> YES – If yes, please explain how</p> <hr/> <p>Please review the following to help you with your analysis: ILR Reference Document: Indigenous Legal Relations Review of Cabinet Submissions*; UN Declaration Reference Document*; Provincial Legislation Engagement with Treaty Nations Guide</p> <p>*Note: You may have to request permission to the site from the Ministry of Attorney General.</p>
<p>d) Does this proposed change affect Indigenous peoples' modern or historic treaty rights or Aboriginal rights, including any Aboriginal title?</p>	<p><input type="checkbox"/> NO</p> <p><input type="checkbox"/> YES – If yes, please indicate how.</p> <p>Was the consultation sufficient for the purposes of the constitutional obligations?</p> <hr/>
<p>e) Have Indigenous peoples, including Indigenous organizations, been involved in the development of the proposed change, and will they be involved in its implementation?</p>	<p><input type="checkbox"/> NO - If no, please explain why not</p> <hr/> <p><input type="checkbox"/> YES - If yes, what views were expressed or how will they be sought?</p> <hr/> <p>Please review the Policy Framework for Advancing Reconciliation with Indigenous Peoples for guidance on involving Indigenous peoples in your policy development.</p> <p>If you would like further support with this section, please contact Legislative Alignment and Process.</p>

Indigenous Peoples

We require the name of each Indigenous group engaged and individuals within the group. When did the engagement and consultation take place and in what forum (letter, fax, meeting, etc.)? What was the response or outcome of engagement (band by band or tribal association)? What might be the anticipated impact of this proposal on the Indigenous peoples ability to practice their Aboriginal Interests?

If consultation/engagement with Indigenous peoples is incomplete/ongoing indicate the anticipated completion date.

PART F: APPROVAL

**RECORD OF APPROVALS FOR REGULATION CHANGES
UNDER THE WILDLIFE ACT
BC REGULATION [title] [reg #] [section #]
SUBJECT: [subject]**

Region: _____

Contact Name: _____

Telephone Number: _____

APPROVAL is sought for the following documents, to be submitted as part of the OIC/MO package:
- [LIST DOCUMENTS & ATTACHMENTS]

1. Section Head, Originating Office (GIVE LOCATION)

Reviewed by: _____

Date: _____

Signature: _____

Supported *Not Supported

*If not supported, please provide reason.

2. Regional Manager

Reviewed by: _____

Date: _____

Signature: _____

Supported *Not Supported

*If not supported, please provide reason.

Standard thresholds used:

Densities: 200/1000 moose per km² above is high density below is low density marked by a black horizontal line on the uncorrected densities figures.

Sex Ratios: Bull: cow thresholds High density 50/1000 bull: cow and 30/1000 bull: cow indicated by a blue line on ratio figures; raw data indicated by blue circles. Calf: cow thresholds: high density: 30/1000 calf: cow and low density 25/1000 calf cow indicated by a red line on ratio figures; Raw data indicated by red triangles.

For both hunting efforts and hunted male black vertical lines indicate 1996 and 2006 implementation of SOFT and SOFT 10 respectively hunting regulation changes.

South Peace: Densities are near or below the low population threshold. Bull: cow ratios mostly above threshold hold for high densities population standard. Compared to Calf: cow ratios near or below the threshold limit for high population densities. Hunting efforts have been increasing since 2006 regulations changes, and male hunting pressure also increased substantially. With high hunting efforts and high male pressure, the change in regulations seems to affect hunting efforts, putting pressure on bulls. However, the bull: cow ratios remain just above the threshold for high population densities.

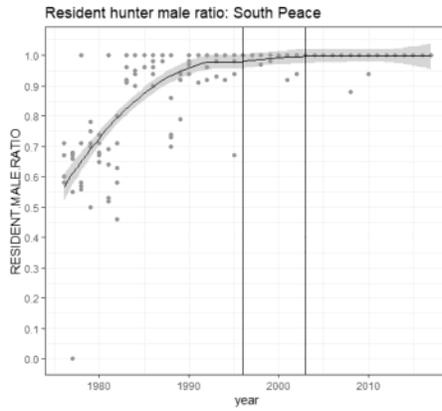
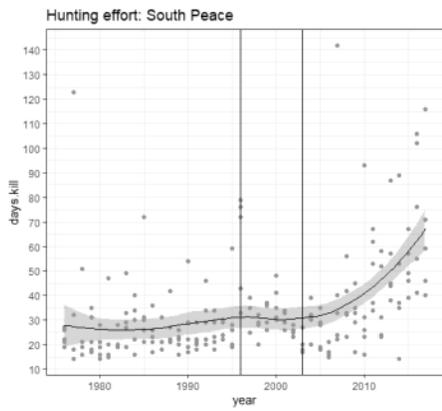
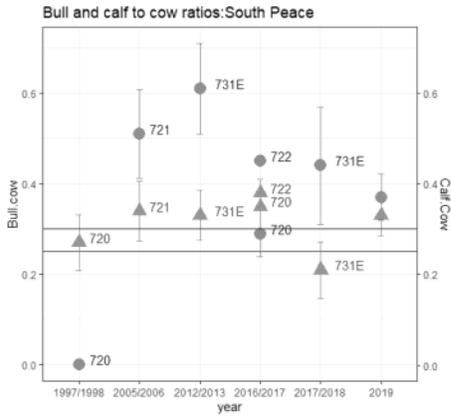
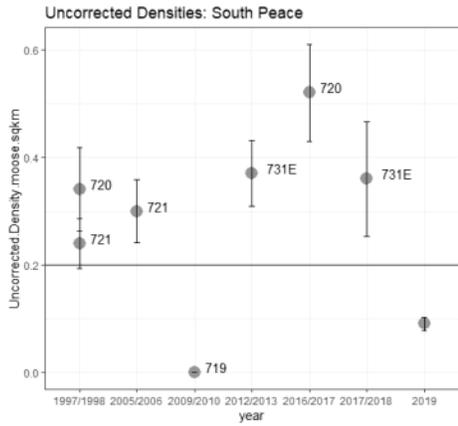
North Peace: High densities population with lots of data (though relatively high error estimates). Calf: cow remains above the high-density threshold, and bull: cow seems to border the threshold for high densities. Some MU's are only slightly above, and some are just under in recent survey reports. Hunting efforts have increased a lot since 2006 regulation changes and quite a few high outliers (above 70 days) since 2010. Male ratios since 2006 increased then remain high; however, not as stark as other regions. The male pressure seems to be slightly more favorable.

Northeast Rockies: Population densities seem to be declining dramatically since the early 2000s. However, this could be due to survey efforts and methodologies. I.e., the more recent surveys are more representative as there is lots of variability in the surveys from the 90s (also strictly from MU 7-42). The 2000s surveys seem to have low error estimates. The densities border around the threshold, so this region was labeled as low density. Calf: cow ratios are well below the threshold and should be a reason to investigate further. Bull: cow border the threshold in recent years depending on MU surveyed. Hunting efforts and male ratios are increasing since the 1996/2006 regulation changes, suggesting pressure on the bull populations.

Liard: Density data is sparse, and surveys have high variability. Population estimates are not specific. Bull: cow ratios are above the Calf: cow ratios and above the thresholds. Calf: cow ratios are all on the threshold. However, the data is not ideal. Hunting efforts have lots of variabilities. They seem to be increasing since the 1996/2006 regulation changes but not as dramatically as other regions. Male ratios are high. A few outlier n/a data is skewing the more recent results in the male hunting ratios.

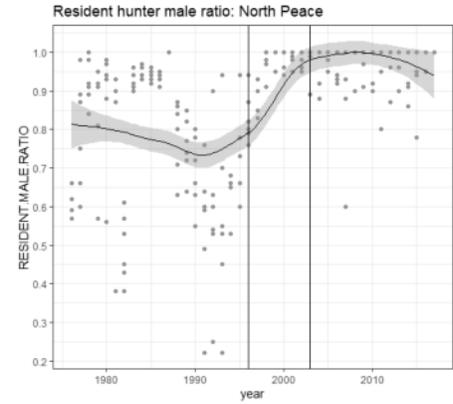
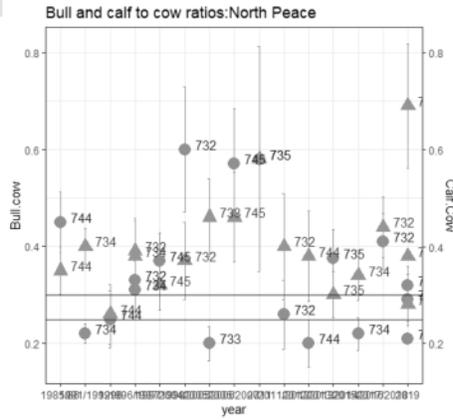
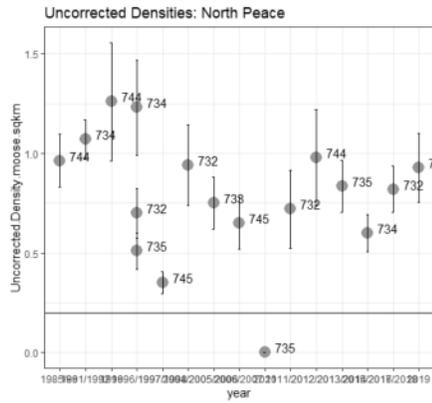
Fort Nelson: Low density populations. Calf: cow ratios are below the threshold, and bull: cow ratios are bordering the threshold. Lots of variability in hunting efforts data and the N/A are skewing the male ratio efforts. It would appear both the hunting efforts and male hunted ratios have increased since the regulation changes.

South Peace

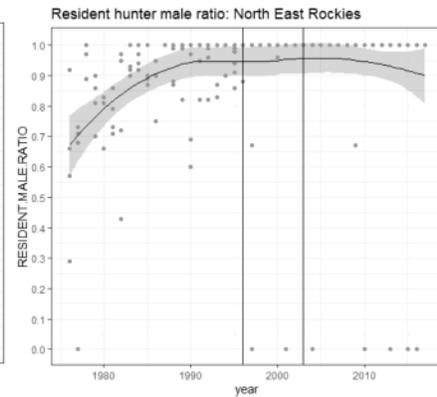
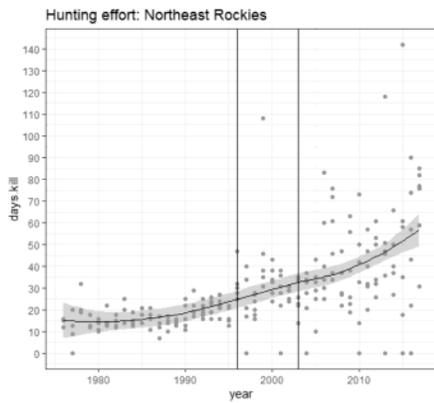
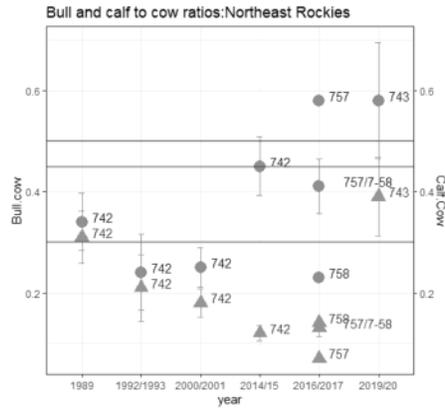
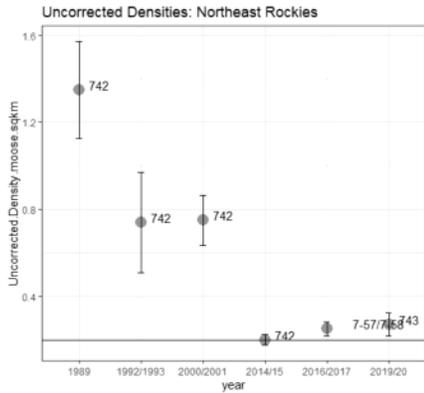


North Peace

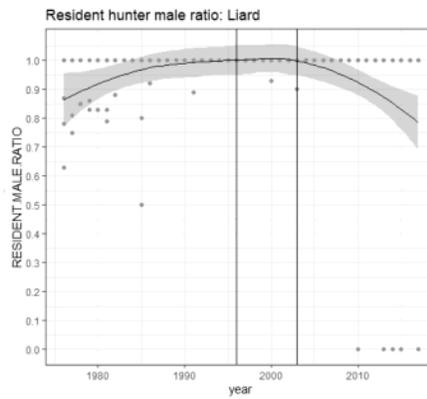
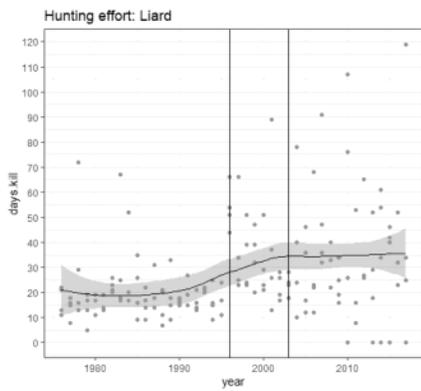
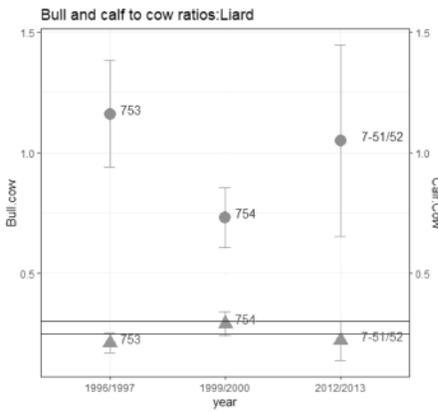
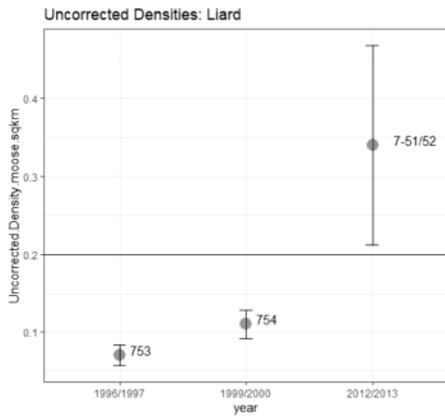
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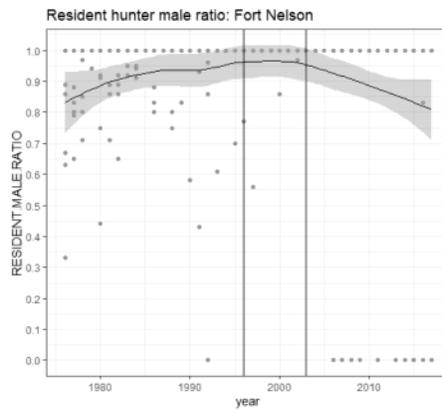
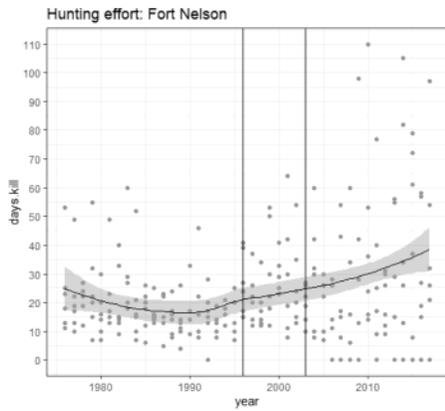
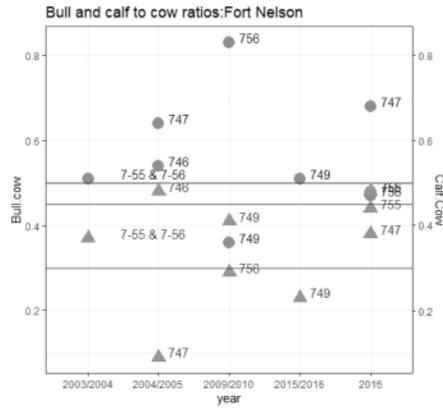
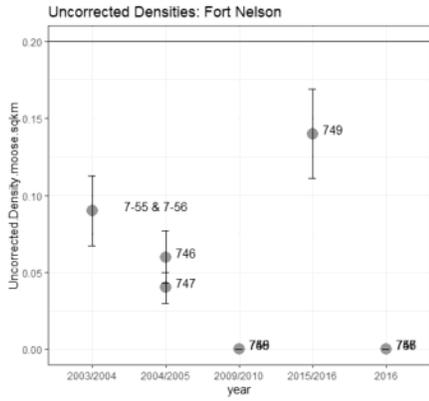
North East Rockies



Liard



Fort Nelson



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Withheld pursuant to/removed as

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Bridger Comments	GMZ	MU	Extrapolated MU	WILDLIFE_MG MT_UNIT_ID	MU Area Square Meters	MU Area Km squared	Survey Period	Season	Survey Type	Survey Area (km2)	Whole MU (Y/N)	Uncorrected Density (moose/sq.km.)	90%CI (±%)	Bull/Cow	Calf/Cow	SCF	Corrected Density (moose/sq.km.)	Degrees of Freedom	Total estimated pop	
7-20 is not comparable for extrapolation to 7-19. The habitat differs greatly through much of 7-20 (Ag. zone and deciduous)	South Peace	7-19	7-20	7-19	4376928492	4376.928492	2016/2017	W	SRB	4356	Yes	0.52	17.30%	0.29	0.35	1.2	0.61	20	2669.92638	
We should be showing trends here. This MU increased by 53% since it's last survey. Yet it has the highest hunting pressure of all South Peace MUs.	South Peace	7-20	N/A	7-20	4366346867	4366.346867	2016/2017	W	SRB	4356	Yes	0.52	17.30%	0.29	0.35	1.2	0.61	20	2663.471589	
This is a caribou recovery area. Should be targeting a density <0.3 moose/km2	South Peace	7-21	7-20	7-21	6731326271	6731.326271	2016/2017	W	SRB	4356	Yes	0.52	17.30%	0.29	0.35	1.2	0.61	20	4106.109025	
This is a caribou recovery area. Should be targeting a density <0.3 moose/km2	South Peace	7-22	7-31	7-22	4159522683	4159.522683	2016/2017	W	Comp	N/R	No	0.36	29.60%	0.45	0.38	N/A	N/A	N/A	1497.428166	
This is a caribou recovery area. Should be targeting a density <0.3 moose/km2	South Peace	7-31E	N/A	7-31	5397753013	5397.753013	2017/2018	W	SRB	2431	No	0.36	29.60%	0.44	0.21	1.18	0.44		2375.011326	
Worth mentioning that this MU increased by 14% from 2012 to 2018, yet it receives the 2nd highest hunting pressure of all MUs in the region.	North Peace	7-32	N/A	7-32	3683444207	3683.444207	2017/2018	W	SRB	3684	Yes	0.82	14.10%	0.41	0.44	1.16	0.94	23	3462.437554	
Why are we extrapolating here? 7-32 is quite different from 7-33, but more importantly, we just had a survey completed in this MU and reported our highest regional moose density of 1.18 moose/km2. Why was this not included? This population increased by 24% from 2006 to 2019, yet it receives the highest hunting pressure of all MUs in the Peace region.	North Peace	7-33	7-32	7-33	5780512751	5780.512751	2017/2018	W	SRB	3684	Yes	0.82	14.10%	0.41	0.44	1.16	0.94	23	5433.681985	
This MU certainly appeared to be in a declining trend.	North Peace	7-34	N/A	7-34	1509268133	1509.268133	2015/2016	W	SRB	1467	Yes	0.60	15.23%	0.22	0.34	1.23	0.74	18	1116.858418	
With a SCF applied, this MU would have a density of > 1 moose/km2	North Peace	7-35	N/A	7-35	2375507652	2375.507652	2013/2014	W	SRB	2376	Yes	0.835	15.77%	0.376	0.301	N/AV	N/AV	25	1983.548889	
	North Peace	7-44	N/A	7-44	2369068573	2369.068573	2012/2013	W	SRB	2368	Yes	0.98	24.50%	0.2	0.38	1.35	1.32	20	3127.170516	
	North Peace	7-45	7-34	7-45	6213899316	6213.899316	2015/2016	W	SRB	1467	Yes	0.60	15.23%	0.22	0.34	1.23	0.74	18	4598.285493	
							2019/20	W	SRB	2430	Yes	0.27	19.90%	0.58	0.39	1.54	0.42		1423.583924	
Extrapolation here is likely leading to an overestimate. Much of this MU is not good moose habitat. This MU is subject to wolf reduction now.	Northeast Rockies	7-36	7-43	7-36	3389485533	3389.485533														
This MU was certainly on a declining trend. But appeared to be an issue with calf recruitment. Not harvest pressure. This is also a caribou recovery area under wolf reduction now.	Northeast Rockies	7-42	N/A	7-42	6065820764	6065.820764	2014/15	W	SRB	5905	Yes		12.92%	0.45	0.12	1.20	0.24	53	1455.796983	
Caribou recovery area, subject to wolf reduction.	Northeast Rockies	7-43	N/A	7-43	3033443375	3033.443375	2019/20	W	SRB	2430	Yes	0.27	19.90%	0.58	0.39	1.54	0.42		1274.046217	
	Northeast Rockies	7-50	N/A	7-50	6807040364	6807.040364	2021	W	SRB	1193.13	No	0.18		0.62	0.4	1.57	0.27808		1892.901784	
Caribou recovery area, subject to wolf reduction.	Northeast Rockies	7-57	N/A	7-57	2522791325	2522.791325	2016/2017	W	Comp	N/R	N/R	0.25	13.20%	0.58	0.07	N/A	N/A	N/R	630.6978313	
Caribou recovery area, subject to wolf reduction.	Northeast Rockies	7-58	N/A	7-58	788285212.5	788.2852125	2016/2017	W	Comp	N/R	Yes	0.25	13.20%	0.23	0.14	N/A	N/A	N/R	197.0713031	
Caribou recovery area, subject to wolf reduction.	Northeast Rockies	7-57/7-58	N/A				2016/2017	W	SRB	2723	Yes	0.25	13.20%	0.41	0.13	1.39	0.35	21	0	
Caribou recovery area, subject to wolf reduction.	Ft. Nelson	7-46	7-47	7-46	6146159345	6146.159345	2016	W	Distance	4275	No	N/A	23.80%	0.68	0.38	N/A	0.157	N/A	964.9470172	
	Ft. Nelson	7-48		7-48	7042262141	7042.262141	2021	W	SRB		No	0.11		0.92	0.58	1.57	0.17			
	Ft. Nelson	7-49	N/A	7-49	11030046874	11030.046874	2015/2016	W	Distance	11,022	Yes	0.14	20.60%	0.51	0.23	N/A	N/A	N/A	1544.206562	
	Ft. Nelson	7-55		7-55	18166993554	18166.993554	2016	W	distance	1058	No	N/A	22.40%	0.48	0.44	N/A	0.07	N/A	1271.689549	
	Ft. Nelson	7-47		7-47	9886087101	9886.087101	2016	W	Distance	4275	No	N/A	23.80%	0.68	0.38	N/A	0.157	N/A	1552.115675	
	Ft. Nelson	7-55		7-55	18166993554	18166.993554	2016	W	Distance	5303	No	N/A	19.00%	0.47	0.48	N/A	0.074	N/A	1344.357523	
	Ft. Nelson	7-56		7-56	15904988655	15904.988655	2016	W	Distance	5303	No	N/A	19.00%	0.47	0.48	N/A	0.074	N/A	1176.96916	
	Liard	7-51/52		7-52	17530503490	17530.50349	2012/2013	W	SRB	5675	No	0.34	37.80%	1.05	0.22	1.82	0.61	N/A	10693.60713	
	Liard	7-53		7-53	9884140824	9884.140824	2020	W	SRB	1625.48	Yes	0.046	25.00%	0.88	0.3	2.73	0.13		454.6704779	
	Liard	7-54		7-56	15904988655	15904.988655	1999/2000	W	SRB	8917	Yes	0.11	17.20%	0.73	0.29	N/A	N/A	16	1749.548752	
																				60660.13923
Why don't we include harvest and harvest rates here? We have all of that information tabulated already. It tells a much more full story.																				
Based on the best available data, the overall harvest rates (avg. from 2012-2019) by GMZ are as follows: South Peace 3.2%, North Peace 3.0%, Northeast Rockies 3.7%, Fort Nelson 2.4%, and Liard 2.4%. These harvest rates are calculated after applying a 5% FNs harvest rate to the population estimates.																				
One takeaway is that the three MUs that are subjected to the highest harvest pressure have all shown population increases in the past 5-20 years, ranging from 14% - 53% increase.																				

Total estimated pop min	Total estimated pop Max	Estimated Cows	Min Cow	Max Cows	Estimated Bulls	Min Bulls	Max Bulls	Estimated calves	Min Calves	Max Calves	
2208.029116	3131.823644	1628.00389	1346.359217	1909.648563	472.1211282	390.444173	553.7980834	569.8013616	471.225726	668.3769972	yellow=extrapolated MU with old data
2202.691004	3124.252173	1624.068042	1343.104271	1905.031813	470.9797321	389.5002385	552.4592258	568.4238146	470.0864947	666.7611346	Orange= corrected densities used
3395.752164	4816.465886	2503.725015	2070.580588	2936.869443	726.0802544	600.4683704	851.6921384	876.3037553	724.7032057	1027.904305	
1054.189429	1940.666903	818.2667572	576.0597971	1060.473717	368.2200407	259.2269087	477.2131728	310.9413677	218.9027229	402.9800126	
1672.007973	3078.014678	1439.400803	1013.338166	1865.463441	633.3363535	445.8687929	820.8039142	302.2741687	212.8010148	391.7473227	
2974.233859	3950.641249	1871.587867	1607.693978	2135.481756	767.3510255	659.1545309	875.5475201	823.4986615	707.3853502	939.6119728	
4667.532826	6199.831145	2937.125398	2522.990716	3351.260079	1204.221413	1034.426194	1374.016632	1292.335175	1110.115915	1474.554435	
946.760881	1286.955955	715.9348834	606.8980006	824.9717661	157.5056743	133.5175601	181.4937885	243.4178603	206.3453202	280.4904005	
1670.74323	2296.354549	1182.795998	996.2690695	1369.322927	444.7312954	374.5971701	514.8654207	356.0215955	299.8769899	412.1662012	
2361.01374	3893.327293	1979.221846	1494.312494	2464.131198	395.8443692	298.8624987	492.8262396	752.1043014	567.8387476	936.3698552	
3897.966613	5298.604374	2947.618906	2498.696547	3396.541265	648.4761593	549.7132403	747.2390784	1002.190428	849.5568259	1154.82403	
1140.290723	1706.877124	722.6314333	578.8277781	866.4350886	419.1262313	335.7201113	502.5323514	281.826259	225.7428335	337.9096845	
1267.708013	1643.885953	927.259225	807.4573331	1047.061117	417.2666512	363.3557999	471.1775026	111.271107	96.89487997	125.647334	
1020.51102	1527.581415	646.7239682	518.0258985	775.4220378	375.0999015	300.4550211	449.7447819	252.2223476	202.0301004	302.4145948	
1892.901784	1892.901784	937.0800913	937.0800913	937.0800913	580.9896566	580.9896566	580.9896566	374.8320365	374.8320365	374.8320365	
547.4457175	713.949945	382.2411098	331.7852833	432.6969363	221.6998437	192.4354643	250.9642231	26.75687769	23.22496983	30.28878554	
171.0578911	223.0847151	143.8476665	124.8597745	162.8355585	33.0849633	28.71774814	37.45217845	20.13867331	17.48036843	22.79697819	
0	0	0	0	0	0	0	0	0	0	0	
735.2896271	1194.604407	468.4208821	356.9367122	579.9050521	318.5261998	242.7169643	394.3354354	177.9999352	135.6359506	220.3639198	
0	0	0	0	0	0	0	0	0	0	0	
1226.10001	1862.313114	887.4750358	704.6551784	1070.294893	452.6122683	359.374141	545.8503955	204.1192582	162.070691	246.1678254	
986.8310899	1556.548008	662.3383067	513.974526	810.7020873	317.9223872	246.7077725	389.1370019	291.4288549	226.1487914	356.7089184	
1182.712144	1921.519205	753.4542111	574.1321088	932.7763133	512.3488635	390.409834	634.287893	286.3126002	218.1702014	354.454999	
1088.929594	1599.785452	689.4141144	558.4254326	820.4027961	324.0246337	262.4599533	385.5893142	330.9187749	268.0442077	393.7933421	
953.34502	1400.593301	603.5739284	488.894882	718.2529748	283.6797464	229.7805946	337.5788982	289.7154856	234.6695434	344.7614279	
6651.423634	14735.79062	4710.840145	2930.14257	6491.53772	4946.382152	3076.649699	6816.114606	1036.384832	644.6313654	1428.138298	
341.0028584	568.3380974	208.5644394	156.4233296	260.7055493	183.5367067	137.65253	229.4208834	62.56933182	46.92699887	78.21166478	
1448.626367	2050.471137	866.1132436	717.1417657	1015.084721	632.2626678	523.5134889	741.0118467	251.1728406	207.971112	294.3745692	
47705.09633	73615.18213	33257.72721	26375.06551	40140.38891	16307.43032	12406.71846	20208.14218	11094.9817	8923.312364	13266.65105	

MU	WILDLIFE_MGMT_UNIT_ID	Area Square Meters			WILDLIFE_MGMT_UNIT_ID	Area Square Meters
7-19	7-19	4376928492			7-1	2220647575
7-20	7-20	4366346867			7-10	1563137563
7-21	7-21	6731326271			7-11	1899206020
7-22	7-22	4159522683			7-12	5279943715
7-31E	7-31	5397753013			7-13	2774543537
					7-14	1684307533
7-32	7-33	5780512751			7-15	2310193828
7-33	7-34	1509268133			7-16	3787261433
7-34	7-35	2375507652			7-17	2735833682
7-35	7-35	2375507652			7-18	3943327931
7-44	7-44	2369068573			7-19	4376928492
7-45	7-45	6213899316			7-2	3340307250
					7-20	4366346867
7-36	7-36	3389485533			7-21	6731326271
7-42	7-42	6065820764			7-22	4159522683
7-43	7-43	3033443375			7-23	4346519205
7-50	7-50	6807040364			7-24	5095499552
7-57	7-57	2522791325			7-25	4777061508
7-58	7-58	788285212.5			7-26	3342340994
7-57/7-58	7-57	2522791325			7-27	5659034793
	7-45	6213899316			7-28	7717925272
	7-46	6146159345			7-29	3611647512
7-49	7-49	11030046874			7-3	3798232428
7-55	7-55	18166993554			7-30	2411048387
7-47	7-47	9886087101			7-31	5397753013
7-55	7-55	18166993554			7-32	3683444207
7-56	7-56	15904988655			7-33	5780512751
	7-51	18490995571			7-34	1509268133
7-51/52	7-52	17530503490			7-35	2375507652
7-53	7-53	9884140824			7-36	3389485533
7-53	7-53	9884140824			7-37	6463474135
7-54	7-56	15904988655			7-38	13080626638
					7-39	8820147734
					7-4	2690339541
					7-40	7527165698
					7-41	7939880073
					7-42	6065820764
					7-43	3033443375
					7-44	2369068573
					7-45	6213899316
					7-46	6146159345
					7-47	9886087101
					7-48	7042262141
					7-49	11030046874
					7-5	3014228047
					7-50	6807040364
					7-51	18490995571
					7-52	17530503490
					7-53	9884140824
					7-54	7516628844
					7-55	18166993554
					7-56	15904988655
					7-57	2522791325
					7-58	788285212.5
					7-6	2014071882
					7-7	3002861495
					7-8	1934014954
					7-9	1751929929

																Target 35 days
Game Management Zone/ WMU	Pop'n Estimate	Date of Estimate	First Nations Harvest Rate	Harvestable Pop'n after FN's Harvest	Max. Licensed Harvest Rate	Max. AAH (licensed)	B:C Ratio	Bull Pop'n Estimate	Bull Pop'n Estimate After FN's Harvest	Max. Licensed Bull Harvest Rate	Max. Annual Licensed Bull Harvest	Average Annual Harvest (Avg. 2012-19)	Average Annual Harvest Rate (2012-19)	Average Annual Bull Harvest Rate (2012-19)	Average Annual Hunter Effort (Days 2012-19)	Average Annual Days per Kill (2012-19)
South Peace																
7-19	585	2010	5%	556	5%	28	42%	120	108	20%	22	19	3.5%	18.2%	576	30
7-20	2660	2017	5%	2527	5%	126	29%	440	396	20%	79	136	5.4%	34.2%	5779	43
7-21	2730	2006	5%	2594	5%	130	51%	696	626	20%	125	59	2.3%	9.4%	4588	78
7-22	1820	Extrapolated	5%	1729	5%	86	45%	409	368	20%	74	38	2.2%	10.3%	1899	50
7-31	1070	2018	5%	1017	5%	51	44%	326	293	20%	59	58	5.7%	19.8%	2302	40
Overall	8865		5%	8422	5%	421	42%	1991	1792	20%	358	310	3.7%	17.3%	15144	49
North Peace																
7-32	3463	2018	5%	3290	5%	164	41%	766	689	20%	138	156	4.7%	21.5%	7096	46
7-33	6773	2019	5%	6434	5%	322	29%	982	884	20%	177	199	3.1%	21.8%	6866	34
7-34	1085	2016	5%	1031	5%	52	22%	154	139	20%	28	38	3.7%	25.7%	2266	60
7-35	2380	2014	5%	2261	5%	113	37%	440	396	20%	79	51	2.3%	13.0%	2453	48
7-44	3125	2013	5%	2969	5%	148	20%	313	282	20%	56	41	1.4%	14.5%	1838	45
7-45	1426	2019	5%	1355	5%	68	32%	244	220	20%	44	59	4.4%	27.0%	2791	47
Overall	18252		5%	17339	5%	867	30%	2899	2609	20%	522	545	3.1%	20.2%	23310	43
Northeast Rockies																
7-36	609	Extrapolated	5%	579	5%	29	40%	122	110	20%	22	9	1.5%	6.9%	303	36
7-42	1417	2015	5%	1346	5%	67	45%	420	378	20%	76	60	4.4%	15.8%	2491	42
7-43	1020	2020	5%	969	5%	48	40%	258	232	20%	46	26	2.7%	11.4%	1338	51
7-50	1653	Extrapolated	5%	1570	5%	79	40%	330	297	20%	59	56	3.6%	18.9%	2054	37
7-57/58	953	2017	5%	905	5%	45	41%	301	271	20%	54	24	2.6%	8.7%	1591	67
Overall	5652		5%	5369	5%	268	41%	1431	1288	20%	258	174	3.2%	13.5%	7777	45
Fort Nelson																
7-46	461	2005	5%	438	5%	22	54%	140	126	20%	25	33	7.4%	25.9%	1016	31
7-47	516	2016	5%	490	5%	25	68%	200	180	20%	36	4	0.7%	2.0%	167	46
7-48	1232	Extrapolated	5%	1170	5%	59	61%	429	386	20%	77	13	1.1%	3.5%	553	41
7-49	1543	2016	5%	1466	5%	73	51%	450	405	20%	81	43	3.0%	10.7%	2093	48
7-55	1453	2016	5%	1380	5%	69	48%	349	314	20%	63	15	1.1%	4.9%	242	16
7-56	1177	2016	5%	1118	5%	56	83%	558	502	20%	100	29	2.6%	5.8%	536	18
Overall	6382		5%	6063	5%	303	61%	2126	1913	20%	383	138	2.3%	7.2%	4607	34
Liard																
7-51	2615	2013	5%	2484	5%	124	105%	1150	1035	20%	207	61	2.5%	5.9%	1227	20
7-52	2680	2013	5%	2546	5%	127	105%	1180	1062	20%	212	58	2.3%	5.5%	1312	22
7-53	988	1997	5%	939	5%	47	116%	434	391	20%	78	6	0.6%	1.5%	267	46
7-54	827	2000	5%	786	5%	39	73%	302	272	20%	54	14	1.8%	5.3%	497	35
Overall	7110		5%	6755	5%	338	100%	3066	2759	20%	552	140	2.1%	5.1%	3304	24
TOTALS/AVERAGE	46261		5%	43948	5%	2197	55%	11513	10362	20%	2072	1305	3.0%	12.4%	54141	41

2019										2018									
	Resident Harvest Estimate	Non-Resident Harvest	Licensed Cow Harvest	Licensed Calf Harvest	Total Moose Harvest	Harvest Rate	Total Bull Harvest Rate	Hunter Days	Days per Kill		Resident Harvest Estimate	Non-Resident Harvest	Licensed Cow Harvest	Licensed Calf Harvest	Total Moose Harvest	Harvest Rate	Total Bull Harvest Rate	Hunter Days	Days per Kill
South Peace										South Peace									
	7-19	18			18	3.2%	16.7%	767	43		7-19	16	6	0	0	22	4.0%	20.4%	624
	7-20	138			138	5.5%	34.8%	5954	43		7-20	141	0	0	0	141	5.6%	35.6%	5155
	7-21	49			49	1.9%	7.8%	4997	102		7-21	41	2	0	0	43	1.7%	6.9%	4415
	7-22	67			67	3.9%	18.2%	2865	43		7-22	28	0	0	0	28	1.6%	7.6%	1642
	7-31	64			64	6.3%	21.8%	2449	38		7-31	76	1	0	0	77	7.6%	26.2%	3172
	Overall	336			336	4.0%	18.8%	17032	51		Overall	302	9	0	0	311	3.7%	17.4%	15008
North Peace *										North Peace *									
	7-32	216			216	6.6%	31.3%	8792	41		7-32	145	0	0	0	145	4.4%	21.0%	6804
	7-33	232			232	3.6%	26.3%	5484	24		7-33	174	0	0	0	174	2.7%	19.7%	6405
	7-34	37			37	3.6%	26.7%	2570	69		7-34	36	0	0	0	36	3.5%	26.0%	2546
	7-35	49			49	2.2%	12.4%	2327	47		7-35	72	2	0	0	74	3.3%	18.7%	3200
	7-44	44			44	1.5%	15.6%	1293	29		7-44	44	0	0	0	44	1.5%	15.6%	1796
	7-45	65			65	4.8%	29.6%	3278	50		7-45	70	0	0	0	70	5.2%	31.9%	2582
	Overall	643			643	3.7%	24.6%	23744	37		Overall	541	2	0	0	543	3.1%	20.8%	23333
Northeast Rockies										Northeast Rockies									
	7-36	5			5	0.9%	4.6%	183	37		7-36	0	2	0	0	2	0.3%	1.8%	516
	7-42	22			22	1.6%	5.8%	1694	77		7-42	25	10	0	0	35	2.6%	9.3%	2396
	7-43	20			20	2.1%	8.6%	1257	63		7-43	19	6	0	0	25	2.6%	10.8%	1929
	7-50	39			39	2.5%	13.1%	1322	34		7-50	27	12	0	0	39	2.5%	13.1%	1451
	7-57/58	12			12	1.3%	4.4%	1625	135		7-57/58	16	0	0	0	16	1.8%	5.9%	1640
	Overall	98			98	1.8%	7.6%	6081	62		Overall	87	30	0	0	117	2.2%	9.1%	7932
Fort Nelson										Fort Nelson									
	7-46	33			33	7.5%	26.2%	886	27		7-46	23	1	0	0	24	5.5%	19.0%	756
	7-47	0			0	0.0%	0.0%	126			7-47	4	0	0	0	4	0.8%	2.2%	32
	7-48	12			12	1.0%	3.1%	817	68		7-48	21	6	0	0	27	2.3%	7.0%	671
	7-49	14			14	1.0%	3.5%	1548	111		7-49	5	4	0	0	9	0.6%	2.2%	1721
	7-55	19			19	1.4%	6.0%	313	16		7-55	27	0	0	0	27	2.0%	8.6%	421
	7-56	45			45	4.0%	9.0%	777	17		7-56	21	0	0	0	21	1.9%	4.2%	555
	Overall	123			123	2.0%	6.4%	4467	36		Overall	101	11	0	0	112	1.8%	5.9%	4156
Liard										Liard									
	7-51	16			16	0.6%	1.5%	783	49		7-51	16	39	0	0	55	2.2%	5.3%	1407
	7-52	23			23	0.9%	2.2%	1209	53		7-52	16	26	0	0	42	1.6%	4.0%	1186
	7-53	0			0	0.0%	0.0%	67			7-53	4	3	0	0	7	0.7%	1.8%	315
	7-54	6			6	0.8%	2.2%	269	45		7-54	0	8	0	0	8	1.0%	2.9%	306
	Overall	45			45	0.7%	1.6%	2328	52		Overall	36	76	0	0	112	1.7%	4.1%	3214
TOTAL/AVERAGE	1200	0	0	0	1200	2.7%	11.6%	53652	45		TOTAL/AVERAGE	1067	128	0	0	1195	2.7%	11.5%	53643

											target 35											
	2017											2016										
Days per Kill	Resident Harvest Estimate	Non-Resident Harvest	Licensed Cow Harvest	Licensed Calf Harvest	Total Moose Harvest	Harvest Rate	Total Bull Harvest Rate	Hunter Days	Days per Kill		Resident Harvest Estimate	Non-Resident Harvest	Licensed Cow Harvest	Licensed Calf Harvest	Total Moose Harvest	Harvest Rate	Total Bull Harvest Rate	Hunter Days	Days per Kill			
	South Peace											South Peace										
28	7-19	4	4	0	0	8	1.4%	7.4%	559	70	7-19	5	8	0	0	13	2.3%	12.0%	609			
37	7-20	124	1	0	0	125	4.9%	31.6%	5653	45	7-20	134	0	0	0	134	5.3%	33.8%	5560			
103	7-21	66	1	0	0	67	2.6%	10.7%	4716	70	7-21	39	1	0	0	40	1.5%	6.4%	3995			
59	7-22	34	0	0	0	34	2.0%	9.2%	2022	59	7-22	28	2	0	0	30	1.7%	8.1%	2142			
41	7-31	54	0	0	0	54	5.3%	18.4%	2178	40	7-31	32	0	0	0	32	3.1%	10.9%	1803			
48	Overall	282	6	0	0	288	3.4%	16.1%	15128	53	Overall	238	11	0	0	249	3.0%	13.9%	14109			
	North Peace *											North Peace *										
47	7-32	116	0	0	0	116	3.5%	16.8%	6225	54	7-32	112	0	0	6	112	3.4%	15.4%	6370			
37	7-33	204	3	0	0	207	3.2%	23.4%	7132	34	7-33	128	0	0	0	128	2.0%	14.5%	8404			
71	7-34	32	0	0	0	32	3.1%	23.1%	2574	80	7-34	21	0	0	0	21	2.0%	15.2%	2168			
43	7-35	56	3	0	0	59	2.6%	14.9%	2361	40	7-35	38	2	0	0	40	1.8%	10.1%	1891			
41	7-44	42	0	0	0	42	1.4%	14.9%	1767	42	7-44	35	0	0	0	35	1.2%	12.4%	1827			
37	7-45	47	0	0	0	47	3.5%	21.4%	2648	56	7-45	79	0	0	0	79	5.8%	36.0%	3204			
43	Overall	497	6	0	0	503	2.9%	19.3%	22707	45	Overall	413	2	0	6	415	2.4%	15.7%	23864			
	Northeast Rockies											Northeast Rockies										
258	7-36	10	0	0	0	10	1.7%	2.5%	336	34	7-36	0	3	0	0	3	0.5%	2.7%	204			
68	7-42	49	15	0	0	64	4.8%	16.9%	2945	46	7-42	28	20	0	0	48	3.6%	12.7%	2597			
77	7-43	14	1	0	0	15	1.5%	6.5%	1196	80	7-43	19	3	0	0	22	2.3%	9.5%	1118			
37	7-50	28	18	0	0	46	2.9%	15.5%	2371	52	7-50	29	3	0	0	32	2.0%	10.8%	2184			
103	7-57/58	18	1	0	0	19	2.1%	7.0%	1460	77	7-57/58	29	0	0	0	29	3.2%	10.7%	825			
68	Overall	119	35	0	0	154	2.9%	12.0%	8308	54	Overall	105	29	0	0	134	2.5%	10.4%	6928			
	Fort Nelson											Fort Nelson										
32	7-46	28	1	0	0	29	6.6%	23.0%	904	31	7-46	43	6	0	0	49	11.2%	38.9%	849			
8	7-47	0	0	0	0	0	0.0%	0.0%	72	0	7-47	0	0	0	0	0	0.0%	0.0%	69			
25	7-48	5	8	0	0	13	1.1%	3.4%	533	41	7-48	4	5	0	0	9	0.8%	2.3%	254			
191	7-49	38	9	0	0	47	3.2%	11.6%	2396	51	7-49	33	0	0	0	33	2.3%	8.1%	1936			
16	7-55	17	0	0	0	17	1.2%	5.4%	352	21	7-55	6	0	0	0	6	0.4%	1.9%	91			
26	7-56	30	0	0	0	30	2.7%	6.0%	780	26	7-56	32	0	0	0	32	2.9%	6.4%	856			
37	Overall	118	18	0	0	136	2.2%	7.1%	5037	37	Overall	118	11	0	0	129	2.1%	6.7%	4055			
	Liard											Liard										
26	7-51	32	46	0	0	78	3.1%	7.5%	1518	19	7-51	22	30	0	0	52	2.1%	5.0%	1141			
28	7-52	46	30	0	0	76	3.0%	7.2%	1389	18	7-52	54	30	0	0	84	3.3%	7.9%	1410			
45	7-53	0	6	0	0	6	0.6%	1.5%	385	64	7-53	9	8	0	0	17	1.8%	4.4%	411			
38	7-54	4	5	0	0	9	1.1%	3.3%	573	64	7-54	5	8	0	0	13	1.7%	4.8%	482			
29	Overall	82	87	0	0	169	2.5%	6.1%	3865	23	Overall	90	76	0	0	166	2.5%	6.0%	3444			
45	TOTAL/AVERAGE	1098	152	0	0	1250	2.8%	12.1%	55045	44	TOTAL/AVERAGE	964	129	0	6	1093	2.5%	10.5%	52400			
											* First year of shortened August season in North Peace GMZ											

2015											2014										
Days per Kill	Resident Harvest Estimate	Non-Resident Harvest	License d Cow Harvest	License d Calf Harvest	Total Moose Harvest	Harvest Rate	Total Bull Harvest Rate	Hunter Days	Days per Kill	Resident Harvest Estimate	Non-Resident Harvest	License d Cow Harvest	License d Calf Harvest	Total Moose Harvest	Harvest Rate	Total Bull Harvest Rate	Hunter Days	Days per Kill			
South Peace											South Peace										
47	7-19	18	5	0	0	23	4.1%	21.3%	934	41	7-19	24	7	0	0	31	5.6%	28.7%	460	15	
41	7-20	115	1	0	0	116	4.6%	29.3%	7698	66	7-20	124	0	0	0	124	4.9%	31.3%	6602	53	
100	7-21	88	0	0	0	88	3.4%	14.0%	5009	57	7-21	48	0	0	0	48	1.9%	7.7%	4281	89	
71	7-22	47	1	0	0	48	2.8%	13.0%	2369	49	7-22	45	7	0	0	52	3.0%	14.1%	1625	31	
56	7-31	66	1	0	0	67	6.6%	22.8%	2622	39	7-31	63	1	0	0	64	6.3%	21.8%	2430	38	
57	Overall	334	8	0	0	342	4.1%	19.1%	18632	54	Overall	304	15	0	0	319	3.8%	17.8%	15398	48	
North Peace											North Peace										
57	7-32	100	0	0	5	100	3.0%	13.8%	8795	88	7-32	207	0	0	18	207	6.3%	27.4%	7151	35	
66	7-33	194	1	0	12	195	3.0%	20.7%	7847	40	7-33	174	0	0	14	174	2.7%	18.1%	7921	46	
103	7-34	54	0	0	12	54	5.2%	30.3%	2452	45	7-34	44	0	0	6	44	4.3%	27.4%	2185	50	
47	7-35	32	0	0	0	32	1.4%	8.1%	3014	94	7-35	37	0	0	0	37	1.6%	9.3%	2556	69	
52	7-44	33	0	0	0	33	1.1%	11.7%	1891	57	7-44	38	0	0	0	38	1.3%	13.5%	2183	57	
41	7-45	34	1	0	0	35	2.6%	15.9%	2405	69	7-45	50	0	0	0	50	3.7%	22.8%	2812	56	
58	Overall	447	2	0	29	449	2.6%	16.1%	26404	59	Overall	550	0	0	38	550	3.2%	19.6%	24808	45	
Northeast Rockies											Northeast Rockies										
68	7-36	13	3	0	0	16	2.8%	14.6%	275	17	7-36	12	6	0	0	18	3.1%	16.4%	402	22	
54	7-42	44	11	0	0	55	4.1%	14.6%	2649	48	7-42	58	16	0	0	74	5.5%	19.6%	2942	40	
51	7-43	26	1	0	0	27	2.8%	11.6%	1630	60	7-43	47	5	0	0	52	5.4%	22.4%	1389	27	
68	7-50	74	21	0	0	95	6.0%	32.0%	2763	29	7-50	37	26	0	0	63	4.0%	21.2%	1640	26	
28	7-57/58	4	0	0	0	4	0.4%	1.5%	1344	336	7-57/58	19	0	0	0	19	2.1%	7.0%	1657	87	
52	Overall	161	36	0	0	197	3.7%	15.3%	8661	44	Overall	173	53	0	0	226	4.2%	17.5%	8030	36	
Fort Nelson											Fort Nelson										
17	7-46	22	4	0	0	26	5.9%	20.6%	1355	52	7-46	12	4	0	0	16	3.7%	12.7%	1289	81	
	7-47	0	3	0	0	3	0.6%	1.7%	333	111	7-47	0	1	0	0	1	0.2%	0.6%	208	208	
28	7-48	10	3	0	0	13	1.1%	3.4%	738	57	7-48	6	4	0	0	10	0.9%	2.6%	517	52	
59	7-49	83	0	0	0	83	5.7%	20.5%	3055	37	7-49	62	0	0	0	62	4.2%	15.3%	2112	34	
15	7-55	23	0	0	0	23	1.7%	7.3%	182	8	7-55	14	0	0	0	14	1.0%	4.5%	370	26	
27	7-56	9	0	0	0	9	0.8%	1.8%	72	8	7-56	20	0	0	0	20	1.8%	4.0%	263	13	
31	Overall	147	10	0	0	157	2.6%	8.2%	5735	37	Overall	114	9	0	0	123	2.0%	6.4%	4759	39	
Liard											Liard										
22	7-51	22	46	0	0	68	2.7%	6.6%	1392	20	7-51	30	39	0	0	69	2.8%	6.7%	1413	20	
17	7-52	30	38	0	0	68	2.7%	6.4%	1447	21	7-52	16	43	0	0	59	2.3%	5.6%	1097	19	
24	7-53	0	7	0	0	7	0.7%	1.8%	187	27	7-53	0	0	0	0	0	0.0%	0.0%	222		
37	7-54	6	12	0	0	18	2.3%	6.6%	377	21	7-54	7	7	0	0	14	1.8%	5.2%	644	46	
21	Overall	58	103	0	0	161	2.4%	5.8%	3403	21	Overall	53	89	0	0	142	2.1%	5.1%	3376	24	
48	TOTAL/AVERAGE	1147	159	0	29	1306	3.0%	12.3%	62835	48	TOTAL/AVERAGE	1194	166	0	38	1360	3.1%	12.8%	56371	41	

2013										2012									
Resident Harvest Estimate	Non-Resident Harvest	Licensed Cow Harvest	Licensed Calf Harvest	Total Moose Harvest	Harvest Rate	Total Bull Harvest Rate	Hunter Days	Days per Kill		Resident Harvest Estimate	Non-Resident Harvest	Licensed Cow Harvest	Licensed Calf Harvest	Total Moose Harvest	Harvest Rate	Total Bull Harvest Rate	Hunter Days	Days per Kill	
South Peace										South Peace									
7-19	17	9	0	0	26	4.7%	24.1%	272	10	7-19	8	8	0	0	16	2.9%	14.8%	386	24
7-20	116	1	0	0	117	4.6%	29.5%	5269	45	7-20	177	12	0	0	189	7.5%	47.7%	4340	23
7-21	61	1	0	0	62	2.4%	9.9%	5346	86	7-21	72	2	0	0	74	2.9%	11.8%	3944	53
7-22	24	0	0	0	24	1.4%	6.5%	1357	57	7-22	20	1	0	0	21	1.2%	5.7%	1171	56
7-31	44	2	0	0	46	4.5%	15.7%	1957	43	7-31	57	3	0	0	60	5.9%	20.4%	1804	30
Overall	262	13	0	0	275	3.3%	15.3%	14201	52	Overall	334	26	0	0	360	4.3%	20.1%	11645	32
North Peace										North Peace									
7-32	126	0	0	5	126	3.8%	17.6%	6862	54	7-32	225	0	0	29	225	6.8%	28.4%	5770	26
7-33	176	0	0	18	176	2.7%	17.9%	6356	36	7-33	308	0	0	12	308	4.8%	33.5%	5375	17
7-34	15	0	0	0	15	1.5%	10.8%	1834	122	7-34	64	0	0	0	64	6.2%	46.2%	1799	28
7-35	64	0	0	0	64	2.8%	16.2%	2497	39	7-35	55	1	0	0	56	2.5%	14.1%	1779	32
7-44	44	0	0	0	44	1.5%	15.6%	2222	51	7-44	47	0	0	0	47	1.6%	16.7%	1727	37
7-45	68	0	0	0	68	5.0%	31.0%	2912	43	7-45	59	1	0	0	60	4.4%	27.3%	2488	41
Overall	493	0	0	23	493	2.8%	18.0%	22683	46	Overall	758	2	0	41	760	4.4%	27.6%	18938	25
Northeast Rockies										Northeast Rockies									
7-36	0	4	0	0	4	0.7%	3.6%	299	75	7-36	5	5	0	0	10	1.7%	9.1%	205	21
7-42	51	21	0	0	72	5.3%	19.0%	2426	34	7-42	66	42	0	0	108	8.0%	28.6%	2278	21
7-43	19	11	0	0	30	3.1%	12.9%	1052	35	7-43	18	2	0	0	20	2.1%	8.6%	1131	57
7-50	54	25	0	0	79	5.0%	26.6%	2789	35	7-50	31	24	0	0	55	3.5%	18.5%	1912	35
7-57/58	38	0	0	0	38	4.2%	14.0%	2511	66	7-57/58	52	0	0	0	52	5.7%	19.2%	1669	32
Overall	162	61	0	0	223	4.2%	17.3%	9077	41	Overall	172	73	0	0	245	4.6%	19.0%	7195	29
Fort Nelson										Fort Nelson									
7-46	37	6	0	0	43	9.8%	34.1%	1099	26	7-46	38	3	0	0	41	9.4%	32.5%	991	24
7-47	5	3	0	0	8	1.6%	4.4%	287	36	7-47	13	0	0	0	13	2.7%	7.2%	206	16
7-48	8	0	0	0	8	0.7%	2.1%	450	56	7-48	15	0	0	0	15	1.3%	3.9%	447	30
7-49	42	1	0	0	43	2.9%	10.6%	2306	54	7-49	52	4	0	0	56	3.8%	13.8%	1671	30
7-55	0	0	0	0	0	0.0%	0.0%	54	15	7-55	17	0	0	0	17	1.2%	5.4%	150	9
7-56	29	0	0	0	29	2.6%	5.8%	439	15	7-56	47	0	0	0	47	4.2%	9.4%	543	12
Overall	121	10	0	0	131	2.2%	6.8%	4635	35	Overall	182	7	0	0	189	3.1%	9.9%	4008	21
Liard										Liard									
7-51	41	43	0	0	84	3.4%	8.1%	1135	14	7-51	32	34	0	0	66	2.7%	6.4%	1030	16
7-52	26	24	0	0	50	2.0%	4.7%	1522	30	7-52	39	26	0	0	65	2.6%	6.1%	1238	19
7-53	0	1	0	0	1	0.1%	0.3%	299	299	7-53	8	0	0	0	8	0.9%	2.0%	248	31
7-54	21	11	0	0	32	4.1%	11.8%	713	22	7-54	8	7			15	1.9%	5.5%	613	41
Overall	88	79	0	0	167	2.5%	6.1%	3669	22	Overall	87	67	0	0	154	2.3%	5.6%	3129	20
TOTAL/AVERAGE	1126	163	0	23	1289	2.9%	12.2%	54265	42	TOTAL/AVERAGE	1533	175	0	41	1708	3.9%	16.1%	44915	26

From: Bohm, Holger FLNR:EX <Holger.Bohm@gov.bc.ca>
Sent: June 1, 2021 8:14 AM
To: Burwash, Michael FLNR:EX
Cc: MacIver, Stephen FLNR:EX
Subject: RE: Resource request - R7B Moose Regulation
Attachments: RE: Request for review - R7B Moose regulation change proposal; FW: Request for review - R7B Moose regulation change proposal; RE: Request for review - R7B Moose regulation change proposal

Hey guys,
bit of a hot topic it is not only controversial with stakeholders but also very much not supported by the bios internally. I think you were cc'ed on the reviews of this reg-change proposal. I added them back into this email so they are all in one spot.
I am wondering if a meeting with bios and Michel would be beneficial?

Holger

From: Burwash, Michael FLNR:EX <Michael.Burwash@gov.bc.ca>
Sent: May 31, 2021 5:19 PM
To: Lavallee, Michel FLNR:EX <Michel.Lavallee@gov.bc.ca>
Cc: Bohm, Holger FLNR:EX <Holger.Bohm@gov.bc.ca>; MacIver, Stephen FLNR:EX <Stephen.MacIver@gov.bc.ca>
Subject: FW: Resource request - R7B Moose Regulation

Hi Michel,
We can support from both the ungulate specialist position (Holger) and regs lead (Steve).

Thanks,
Michael

From: Lavallee, Michel FLNR:EX <Michel.Lavallee@gov.bc.ca>
Sent: May 25, 2021 3:02 PM
To: Burwash, Michael FLNR:EX <Michael.Burwash@gov.bc.ca>
Subject: Resource request - R7B Moose Regulation

Good afternoon Michael,

I attached an early draft of one of our Region's proposed regulation changes. We are expecting this will generate a lot of comment from stakeholders (BCWF and guide-outfitters) and the public through regional discussion and AHTE. Do you have someone available to support engagement for this proposal?



Michel Lavallée, M.SEM., R.P.Bio.

Head | Fish, Wildlife, and Ecosystems Section

Ministry of Forests, Lands, Natural Resource Operations, and Rural Development

Suite 100, 10003-110th Avenue, Fort St. John, BC, V1J 6M7

Ph: 778-576-1139

Conservation means development as much as it does protection – T. Roosevelt

From: Harrison, Dominica FLNR:EX <Dominica.Harrison@gov.bc.ca>
Sent: May 21, 2021 10:04 AM
To: Lavallee, Michel FLNR:EX; Bohm, Holger FLNR:EX; Vander Vennen, Luke FLNR:EX; Schindler, Heidi FLNR:EX; MacIver, Stephen FLNR:EX; Lirette, Daniel FLNR:EX; Blythe, Emily FLNR:EX; Procter, Chris FLNR:EX
Cc: Johnson, Marianne FLNR:EX
Subject: RE: Request for review - R7B Moose regulation change proposal

Hello everyone,

I just wanted to follow up with a few caveats to these data.

Moose densities/ratios are uncorrected because there is a lack of data with corrected values. The confident intervals and error bars are therefore also uncorrected. The figures themselves are a working document and are not a finished product. So I apologize for the sloppiness of them.

The regression analyses are on the hunting efforts only. I don't think this is clear from the document. The lm formula for these data could be examined closer, and there are more robust functions I feel could have been utilized in this analysis. Both hunting efforts and resident male ratios are on raw data!

Population estimates have a lot of 'extrapolated' data where the adjacent MU estimates were used. Nothing before 2015 was used however, this led to 30 to 40% of the MUs having extrapolated estimates.

I feel there's a lot of improvements to be made on these analyses so please let us know of any comments or if this information will be shared further and I will make the appropriate improvements!

Thank you
Dominica

From: Lavallee, Michel FLNR:EX <Michel.Lavallee@gov.bc.ca>
Sent: May 20, 2021 3:26 PM
To: Bohm, Holger FLNR:EX <Holger.Bohm@gov.bc.ca>; Vander Vennen, Luke FLNR:EX <Luke.VanderVennen@gov.bc.ca>; Schindler, Heidi FLNR:EX <Heidi.Schindler@gov.bc.ca>; MacIver, Stephen FLNR:EX <Stephen.MacIver@gov.bc.ca>; Lirette, Daniel FLNR:EX <Daniel.Lirette@gov.bc.ca>; Blythe, Emily FLNR:EX <Emily.Blythe@gov.bc.ca>; Procter, Chris FLNR:EX <Chris.Procter@gov.bc.ca>
Cc: Harrison, Dominica FLNR:EX <Dominica.Harrison@gov.bc.ca>; Johnson, Marianne FLNR:EX <Marianne.Johnson@gov.bc.ca>
Subject: Request for review - R7B Moose regulation change proposal

Good afternoon,

The Northeast Region has been working through the moose data available. Dominica has used known moose densities within the different MUs and Game Management Zones to estimate moose populations where we don't have inventories or the data is too old to be reliable (excel sheet). She completed non-linear regression analysis, population, and hunting effort summaries for each GMZ.

We reviewed some recent food security research for First Nation communities along the Peace River to estimate potential First Nation moose subsistence needs in the region, Hunter Survey harvest estimates, and different ways of calculating the AAH.

We are expecting this will receive a lot of public feedback and we would like to be fairly confident we are heading in the right direction and have considered our options before starting engagement in the Northeast.

Can you review the calculations/analysis and draft regulation proposal? Feel free to contact Dominica or me if you have questions, comments, or suggested edits.

Please don't distribute these documents further.



Michel Lavallée, M.SEM., R.P.Bio.

Head | Fish, Wildlife, and Ecosystems Section

Ministry of Forests, Lands, Natural Resource Operations, and Rural Development

Suite 100, 10003-110th Avenue, Fort St. John, BC, V1J 6M7

Ph: 778-576-1139

Conservation means development as much as it does protection – T. Roosevelt

From: Bridger, Michael C FLNR:EX <Michael.Bridger@gov.bc.ca>
Sent: May 26, 2021 2:01 PM
To: Burwash, Michael FLNR:EX; Bohm, Holger FLNR:EX
Cc: MacIver, Stephen FLNR:EX
Subject: FW: Request for review - R7B Moose regulation change proposal
Attachments: R7B_2022-Moose from GOS to LEH_Bridger.docx; Moose population and hunting efforts summary_Bridger.docx; Copy of Draft Population estimates- Moose Survey Summaries Peace Region_Bridger.xlsx; MOOSE Harvest Tracking.xlsx

Hey gents,

I had a quick look at the moose LEH proposal package that was sent out for review. The management team here was not willing to send it to me for some reason (as you saw in those emails, Burwash), but I was able to get my hands on some copies. I'm not sure what their concern was with sharing this information with me specifically, as it's all just based off of our regional moose data.

Anyhow, overall I did find the documents to be quite misleading. So I added quite a few comments that I think help tell the full story of the moose situation in our region here. [s.13](#)

[s.13](#)

I added quite a few comments to the two word documents, and to the one spreadsheet. I also included our regional moose harvest tracking spreadsheet, which I believe helps tell a more fulsome story.

Let me know if you'd like to discuss at some point.

Cheers,

Mike

Mike Bridger, M.Sc., R.P.Bio.



Wildlife Biologist | Northeast Region

Ministry of Forests, Lands, Natural Resource Operations and Rural Development

Suite 400, 10003-110th Avenue, Fort St. John, BC, V1J 6M7

Ph: 778-576-8933





**2022-2024
REGULATION CHANGE
REQUEST FORM**

HQ Use Only		
Executive Summary	<input type="checkbox"/>	LEH Proposal <input type="checkbox"/>
Wildlife Mgr. Approval	<input type="checkbox"/>	H&T Proposal <input type="checkbox"/>
Director Approval	<input type="checkbox"/>	Synopsis edited <input type="checkbox"/>
Regulations drafted	<input type="checkbox"/>	AHTE drafted <input type="checkbox"/>
Map (for synopsis)	<input type="checkbox"/>	AHTE posted <input type="checkbox"/>

Contact: Michel Lavallee **Phone:** 778-576-1139 **Region:** 7B

SUBJECT: Replace Moose GOS with LEH

Management Units: 7-19, 7-20, 7-21A, 7-31A, 7-32, 7-33, 7-35, 7-36, 7-42, 7-43, 7-46 to 7-56 **Date of Submission:** October 1, 2021

Species: Moose

Choose applicable one(s): General Open Season Limited Entry Hunting Trapping
 Motor Vehicle Prohibition Firearm Restriction Other (describe) _____

Who is the regional contact for communications issues?
 (someone with authority to deal with media requests if requested by Public Affairs)
 Name: Greg Van Dolah Phone: 250-795-4158

PART A: BACKGROUND

1. What is currently in the synopsis? (exact wording preferred)

Moose	7-21B, 7-22, 7-31B	Bulls	Aug 15 – Aug 31
	7-19, 7-20, 7-21A, 7-31A, 7-32, 7-33, 7-35, 7-36, 7-42, 7-43, 7-46 to 7-56 ▲	Bulls	Aug 23 – Aug 31
	7-19, 7-21B, 7-22, 7-31, 7-36, 7-42, 7-43, 7-46 to 7-56+▲	*Bulls	Sept 1 – Oct 31
	7-20, 7-21A, 7-32 to 7-35, 7-44, 7-45, 7-57, 7-58	*Bulls	Sept 1 – Sept 30
	7-20, 7-21A, 7-32 to 7-35, 7-44, 7-45, 7-57, 7-58	*Bulls	Oct 16 – Oct 31
Bow Only	7-20, 7-21A, 7-32 to 7-35, 7-44, 7-45, 7-57, 7-58	*Bulls	Oct 1 – Oct 15

2. Briefly describe the proposed wording in the synopsis:

GOS

Moose	7-21B, 7-22, 7-31B	Bulls	Aug 15 – Aug 31
	7-21B, 7-22, 7-31B	*Bulls	Sept 1 – Oct 31
Bow Only	7-20, 7-21A, 7-32 to 7-35, 7-44, 7-45, 7-57, 7-58	*Bulls	Oct 1 – Oct 15

LEH

Moose; youth only	7-19, 7-20, 7-21A, 7-31A, 7-32, 7-33, 7-34, 7-35, 7-36, 7-42, 7-43, 7-46 to 7-56▲	Bulls	Aug 23 – Aug 31
Moose; shared hunt	7-19, 7-20, 7-21A, 7-31A, 7-32, 7-33, 7-34, 7-35, 7-36, 7-42, 7-43, 7-46 to 7-56 ▲	Bulls	Sept 1 – Sept 30
	7-19, 7-20, 7-21A, 7-31A, 7-32, 7-33, 7-34, 7-35, 7-36, 7-42, 7-43, 7-46 to 7-56+ ▲	Bulls	Oct 16 – Oct 31

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3. Map associated with the proposed regulation. Yes No

- This map may be used to form the regulation. It should be digital and professional. [Please provide shapefiles if available.](#)

4. Reason for proposal (rationale in plain language): IMPORTANT – this is what goes on the public engagement website (AHTE) verbatim

Moose populations are stable to declining across most of the Northeast Region. Stakeholders and First Nations are concerned about the populations ability to support First Nation sustenance harvest, licenced harvest, and non-consumptive values due to the pressures of landscape changes and hunting practices. A series of regulation changes were implemented to reduce licenced moose harvest during the last 6 years; moose populations do not appear to be stabilizing with these changes. Addressing habitat concerns is a long process and industry specific; moving moose from General Open Season to Limited Entry Hunt is intended to maintain moose harvest opportunity while providing more oversight of the number of moose harvested within the Region. Changing part of the Northeast Region to LEH while keeping other areas GOS risks moving hunters into areas with lower hunting pressure and increasing moose harvest in currently stable populations. The Youth LEH season is intended to provide opportunity for youth to harvest moose before returning to school and having reduced opportunity during the remaining seasons. The two LEH opportunities (September 1 – September 30 and October 16 – October 31) are intended to balance harvest pressure before and after the rut to support reproductive success; the number of authorizations can be adjusted to maintain post-hunt bull to cow ratios. All three LEH opportunities are Any Bull to distribute harvest pressure across the different age classes and offset loss of harvest opportunity by increasing the number of moose that could be legally harvested.

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PART B: ANALYSIS

1. Describe surveys used for conservation issues and their results as they relate to this submission:

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Moose inventory data in the Northeast Region does not have the required frequency or coverage to estimate population trends for most of the management units. The recent inventories (2015-2021), demographics, and densities were calculated for each management unit and extrapolated into management units that do not have current inventory data using available information within each Game Management Zone. The result of this work indicates the Northeast Region has 60,660 moose (minimum 47,705 and a maximum of 73,615 moose); the Northeast Region contains an estimated 16,307 (12,406 – 20,208) bulls, 33, 257 (26,375 – 40,140) cows, and 11,094 (8,923 – 13,266) calves).

Work completed by Kuzyk and colleagues in 2018¹ modelled moose population trends across the Province and found each Northeast Game Management Zone has a decreasing population trend ($\lambda < 1$) between 2006 and 2015; a change from the 1996-2005 period where only one Game Management Zone had a declining population trend. This perspective is supported by all the Northeast Region's First Nations who have indicated moose populations are decreasing and harvesting is becoming challenging. Declining hunter effort in the Big Game Harvest Survey is likely a hunter response to declining moose populations and declining success rates.

Research completed by Natcher and colleagues² in 2021 indicates First Nation communities harvest annually 2.1 – 2.4 moose per household. There is a minimum of 677 First Nation residences in the Northeast Region and an unknown number of households from transboundary First Nations (Kaska Daylu Council, Dene Tha' First Nation, Horselake First Nation, McLeod Lake Indian Band) that may hunt in the Region. Approximately 1,421 to 1,624 moose are harvested by First Nations assuming every household is actively harvesting moose and the estimate for households that don't harvest is balanced by harvest from First Nations bordering the Region. First Nations prefer to harvest bull moose to protect the cows and support a sustainable population; exceptions are made for dry cows since they did not successfully reproduce and would be harvested for sustenance purposes. The First Nation harvest distribution can be adjusted to 75% of the moose harvested are bull (1,066 – 1,218) and 25% of the harvest is are dry cows (355 – 406).

Licensed hunters harvested an estimated 1,489 moose in 2019. The combined licenced and First Nation subsistence harvest may be 2,910 – 3,113 moose annually (2,555 – 2,707 bull moose assuming First Nation bull harvest is 75% of the total First Nation harvest).

The Harvest Management Principles described in the Provincial Moose Management Framework suggest the maximum moose population growth of 15% occurs when wolf populations are controlled. A minimum of 32 calves per 100 cows is required to compensate for natural mortality. The maximum harvest rate suggested is 10-11% of the population when harvest is distributed across bulls, cows, and calves. First Nation subsistence practices favors harvesting bull moose and licenced harvest is restricted to bulls with further restrictions based on antler configuration. Even distribution across the population does not occur under the current cultural practices and regulatory requirements which requires a lower maximum allowable harvest rate to account for the selective harvest practices; a recommendation is 5% of the population (3,033 ± 348). The annual estimated combined harvest of licensed hunters and First Nations is approximately 4.9% (ranges from 4.1% to 6.3%) of the total population. This harvest rate requires higher calf recruitment of 30-45 calves per 100 cows to maintain stable populations.

Calf recruitment in the Northeast Region ranges from 7 calves per 100 cows (MU 7-57 in 2017) to 68 calves per 100 cows (MU 7-47 in 2016) with a regional average of 32 calves per 100 cows. The regional moose recruitment has remained in this range during the last 20 years. This recruitment level indicates regional moose populations are likely to continue declining under current the wildlife management practice. Changing to LEH may provide the Province the flexibility required to maintain the bull composition and slow the population declines while long-term measures are implemented to change the main population drivers.

Kuzyk and colleagues¹ publication indicates a maximum bull harvest of 20% would be sustainable for most moose populations in the Province. Based on the current population estimates, the Northeast Region could support the harvest of 3,261 (± 780) bull moose annually which is approximately equal to current harvest rates.

Local overharvesting is challenging to avoid through General Open Season since hunters have the flexibility to harvest moose based on hunter preference and access. Antler restrictions have not stabilized the moose populations; moving to Limited Entry Hunt provides the Province the ability to distribute harvest pressure across the Region to reduce the risk of overharvesting in certain areas. The proposed Any Bull LEH is intended to support hunters' opportunity to successfully harvest moose while addressing potential enforcement challenges and unlawful harvest encountered when hunters do not accurately count points on the antler.

The Any Bull LEH would distribute harvest pressure across more age classes rather than the current focused harvest on young bulls (spike-fork) or older bulls (tri-palm, 10 point).

Management Units 7-21B, 7-22, and 7-31B overlap the South Peace Caribou recovery efforts and wolf control zones. Keeping these Management Units as GOS will encourage moose harvest within the caribou recovery areas and slow moose population growth.

The Moose LEH Shared hunt allows family or friends to continue moose hunting together without increasing the number of authorizations issued to support the continuation of this practice and knowledge transfer to newer hunters.

¹ Kuzyk, G., I. Hatter, S. Marshall, C. Procter, B. Cadsand, D. Lirette, H. Schindler, M. Bridger, P. Stent, A. Walker, and M. Klaczek. 2018. Moose population dynamics during 20 years of declining harvest in British Columbia. *Alces* 54:101-119

² Natcher, D., S. Ingram, A-M. Bogdan, and A. Rice. 2021. Conservation and Indigenous subsistence hunting in the Peace River Region of Canada. *Human Ecology*. 49:109-120

s.13

2. Alternatives to regulation considered:

The Northeast Region has implemented more restrictive hunting regulations to address declining moose populations, but these have not generated the expected change.

Alternatives considered:

- Current regulation structure – moose populations have been declining for over 20 years. The current regulations have been inadequate to stabilize the populations.
- The calf recruitment is low across the Region and is inadequate to stabilize the population. The main driver behind low calf recruitment and survival is predation. Increasing the wolf bag limit to 10 has been proposed and not supported since licenced hunters currently can harvest 3 wolves annually and few hunters consistently harvest wolves. Increasing the limit is unlikely to have a direct, consistent, and sustainable benefit for moose.
- Implementing a predator control program in specific Game Management Zones to enhance calf moose survival. The Management Plan for Grey Wolf (*Canis lupus*) in British Columbia is clear (section 7.4) that implementing predator control to enhance ungulate populations for hunting is contrary to policy. Licenced hunting opportunities will need to be closed before this alternative can be considered.

3. Pros/Cons analysis undertaken & results:

Pros:

- Low calf recruitment indicates moose declines are likely to continue, LEH provides the ability to collect hunter success data and adjust LEH authorizations and quota before the maximum harvest declines below current harvest levels.
- First Nations requested the Province management moose under LEH; this is responsive to their requests
- Responds to First Nations' local and traditional knowledge regarding moose populations
- The Province will need to explicitly consider First Nation Treaty 8 right to hunt when making quota and LEH decisions
- The Province would be able to distribute harvest across the region and reduce the risk of localized overharvesting
- Regional staff and Branch have more control over moose harvest and can adjust LEH authorizations to support management objectives
- Precautionary approach for management units without current inventory data to reduce risk of moose becoming a species of conservation concern

Cons:

- LEH is unlikely to stabilize or increase the moose populations without addressing habitat and predation
- Licenced hunting community harvests moose for food. A moose provides approximately 200kg of meat for the cost of a hunting licence (\$32) and species licence (\$25). There are additional, variable costs associated with hunting – fuel, travel, accommodations, cut & wrap – that are harder to incorporate since this varies between hunters. Replacing 220kg of moose meat with 220kg of beef would cost approximately \$3,370³ using beef's 2020 weighted average of \$15.31/kg.
- Licenced hunters may be upset on the reduced opportunity.
- Northeast licenced hunters will have reduced opportunity under the current LEH system
- Updating the licencing system to include the new LEH codes will take time and resources
- Additional staff time to calculate annual LEH and quota recommendations
- First Nations may expect this change will stop or reverse moose population declines
- Decreased number of hunters traveling from other Regions to the Northeast for moose hunting
- Increased harvest pressure in the other Regions that have moose general open season

³ Agriculture and Agri-Food Canada. Red Meat and Livestock Market Information – Prices. <https://www.agr.gc.ca/eng/canadas-agriculture-sectors/animal-industry/red-meat-and-livestock-market-information/prices/annual-retail-beef-and-historical-pork-prices/?id=1520539054104>

4. Identify risks of NOT implementing the new provision:

The risks associated with not implementing the regulation change could be the non-recoverable collapse of the moose population within the Peace Region. If the general open season continues to operate, the moose population may decrease past a recoverable population. Alternatively, it could lead to a recoverable population, that would require either a LEH or a closed season to allow the population to recuperate. This would also frustrate hunters and stakeholders.

If the government does not listen to the Traditional Knowledge of the local First Nations, there may be a potential violation of Treaty 8 rights, as the population of moose continues to decrease, and sustenance harvest is affected, a lawsuit may be initiated.

5. Comments by Reviewers: (if relevant)

Use separate page, as comments may not be included in the final OIC/MO Package. Copies of email correspondence may be attached.

PART D: STAKEHOLDER CONSULTATION

ADEQUATE CONSULTATION AND ENGAGEMENT MUST BE RECORDED, OR THE FORM WILL BE RETURNED TO THE ORIGINATOR.

Please attach supporting documentation, such as letters, meeting minutes, etc.

Identify who was consulted and when consultations took place.

Who raised concerns and what was the nature of their concerns?

Has the regulation been changed to respond to Stakeholders' Concerns?

Organization	Contact Name	Date and type of Consultation & Engagement	Supported? (If no, attach an explanation) N/A = Proposal not applicable to organization
CO Service			<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A Note: CO service consultation is required BEFORE submission is sent to Wildlife & Habitat Branch. Only rarely is this consultation not required. COS verification is required for safety related regulation proposals.
Other Regions			<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A

Wildlife & Habitat Branch (Victoria) Note: If proposed regulation is for a CITES species, Stephen MacIver (Management Authority for CITES) must be consulted.	Holger Bohm	May 4, 2021 - Discussed proposal and methodology	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A Note: Consultation is required BEFORE submission is sent to Wildlife & Habitat Branch. Only rarely is this consultation not required. Consultation for: Ungulates: Holger.Bohm@gov.bc.ca Birds: Gerad.Hales@gov.bc.ca Wildlife Health: Caeley.Thacker@gov.bc.ca Furbearers/small game: Gerad.Hales@gov.bc.ca Large Carnivores: Garth.Mowat@gov.bc.ca Motor Vehicle Prohibitions: Depends on the purpose of the closure, if the purpose is related to a specific species contact the species specialist above. Habitat related proposals: Steve.Gordon@gov.bc.ca .
BC Parks, if applicable			<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A
Other Gov't agencies (list) (Highways, Forests)			<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A
BCWF (Zone Representative)			<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A
GOABC or local organization			<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A
BCTA or local organization			<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A
Other organization: (name)			<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A
Public Meetings:	(attendees)		<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A

PART E: INDIGENOUS CONSULTATION AND ENGAGEMENT

Please attach supporting documentation, such as letters, meeting minutes, etc.

When did initial consultation and engagement period begin? _____

a) Does this proposed change have implications (impact or of interest to) Indigenous Peoples?	<input type="checkbox"/> NO - If no, please explain _____ <input type="checkbox"/> YES - If yes, please complete items (b) to (e) if applicable _____
b) Does this proposed change relate to the Calls to Action of the Truth and Reconciliation Commission?	<input type="checkbox"/> NO <input type="checkbox"/> YES - If yes, please indicate which of the calls and how _____

<p>c) Does this proposed change relate to any of the following legal or other government obligations?</p> <ul style="list-style-type: none"> • modern treaty obligations to notify, discuss or consult, • common law consultation obligations, • contractual commitments, under the <i>Declaration on the Rights of Indigenous Peoples Act</i>? 	<p><input type="checkbox"/> NO</p> <p><input type="checkbox"/> YES – If yes, please explain how</p> <hr/> <p>Please review the following to help you with your analysis: ILR Reference Document: Indigenous Legal Relations Review of Cabinet Submissions*; UN Declaration Reference Document*; Provincial Legislation Engagement with Treaty Nations Guide</p> <p>*Note: You may have to request permission to the site from the Ministry of Attorney General.</p>
<p>d) Does this proposed change affect Indigenous peoples' modern or historic treaty rights or Aboriginal rights, including any Aboriginal title?</p>	<p><input type="checkbox"/> NO</p> <p><input type="checkbox"/> YES – If yes, please indicate how.</p> <p>Was the consultation sufficient for the purposes of the constitutional obligations?</p> <hr/>
<p>e) Have Indigenous peoples, including Indigenous organizations, been involved in the development of the proposed change, and will they be involved in its implementation?</p>	<p><input type="checkbox"/> NO - If no, please explain why not</p> <hr/> <p><input type="checkbox"/> YES - If yes, what views were expressed or how will they be sought?</p> <hr/> <p>Please review the Policy Framework for Advancing Reconciliation with Indigenous Peoples for guidance on involving Indigenous peoples in your policy development.</p> <p>If you would like further support with this section, please contact Legislative Alignment and Process.</p>

Indigenous Peoples

We require the name of each Indigenous group engaged and individuals within the group. When did the engagement and consultation take place and in what forum (letter, fax, meeting, etc.)? What was the response or outcome of engagement (band by band or tribal association)? What might be the anticipated impact of this proposal on the Indigenous peoples ability to practice their Aboriginal Interests?

If consultation/engagement with Indigenous peoples is incomplete/ongoing indicate the anticipated completion date.

PART F: APPROVAL

**RECORD OF APPROVALS FOR REGULATION CHANGES
UNDER THE WILDLIFE ACT
BC REGULATION [title] [reg #] [section #]
SUBJECT: [subject]**

Region: _____

Contact Name: _____

Telephone Number: _____

APPROVAL is sought for the following documents, to be submitted as part of the OIC/MO package:
- [LIST DOCUMENTS & ATTACHMENTS]

1. Section Head, Originating Office (GIVE LOCATION)

Reviewed by: _____

Date: _____

Signature: _____

Supported *Not Supported

*If not supported, please provide reason.

2. Regional Manager

Reviewed by: _____

Date: _____

Signature: _____

Supported *Not Supported

*If not supported, please provide reason.

Standard thresholds used:

Densities: 200/1000 moose per km² above is high density below is low density marked by a black horizontal line on the uncorrected densities figures.

Sex Ratios: Bull: cow thresholds High density 50/1000 bull: cow and 30/1000 bull: cow indicated by a blue line on ratio figures; raw data indicated by blue circles. Calf: cow thresholds: high density: 30/1000 calf: cow and low density 25/1000 calf cow indicated by a red line on ratio figures; Raw data indicated by red triangles.

For both hunting efforts and hunted male black vertical lines indicate 1996 and 2006 implementation of SOFT and SOFT 10 respectively hunting regulation changes.

South Peace: Densities are near or below the low population threshold. Bull: cow ratios mostly above threshold hold for high densities population standard. Compared to Calf: cow ratios near or below the threshold limit for high population densities. Hunting efforts have been increasing since 2006 regulations changes, and male hunting pressure also increased substantially. With high hunting efforts and high male pressure, the change in regulations seems to affect hunting efforts, putting pressure on bulls. However, the bull: cow ratios remain just above the threshold for high population densities.

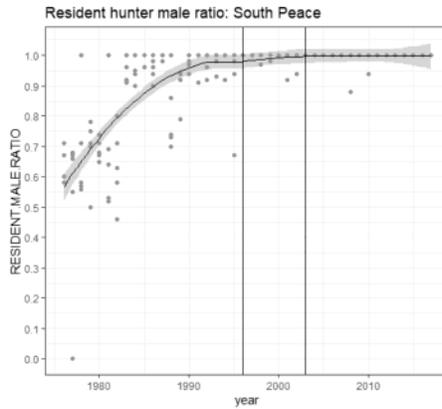
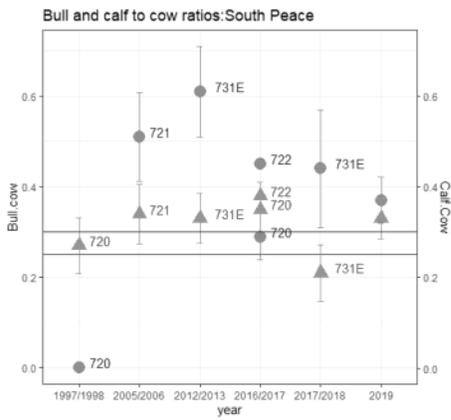
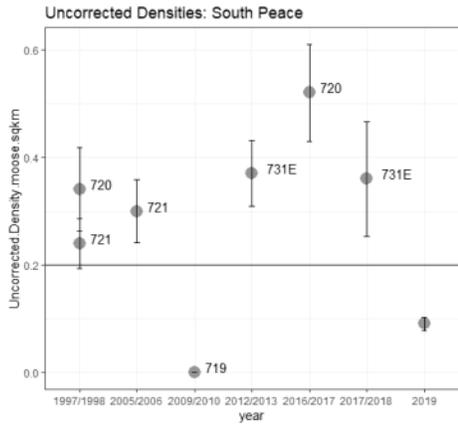
North Peace: High densities population with lots of data (though relatively high error estimates). Calf: cow remains above the high-density threshold, and bull: cow seems to border the threshold for high densities. Some MU's are only slightly above, and some are just under in recent survey reports. Hunting efforts have increased a lot since 2006 regulation changes and quite a few high outliers (above 70 days) since 2010. Male ratios since 2006 increased then remain high; however, not as stark as other regions. The male pressure seems to be slightly more favorable.

Northeast Rockies: Population densities seem to be declining dramatically since the early 2000s. However, this could be due to survey efforts and methodologies. I.e., the more recent surveys are more representative as there is lots of variability in the surveys from the 90s (also strictly from MU 7-42). The 2000s surveys seem to have low error estimates. The densities border around the threshold, so this region was labeled as low density. Calf: cow ratios are well below the threshold and should be a reason to investigate further. Bull: cow border the threshold in recent years depending on MU surveyed. Hunting efforts and male ratios are increasing since the 1996/2006 regulation changes, suggesting pressure on the bull populations.

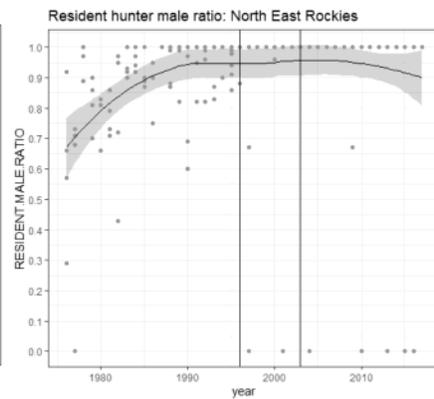
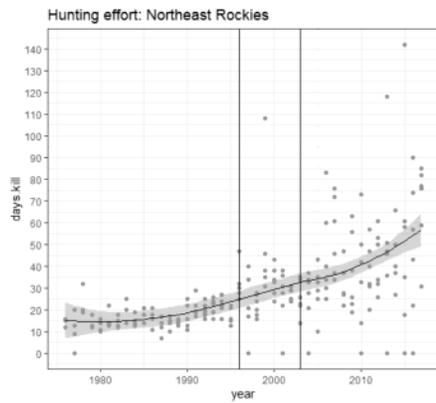
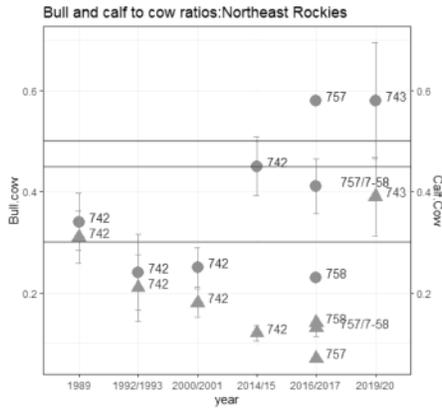
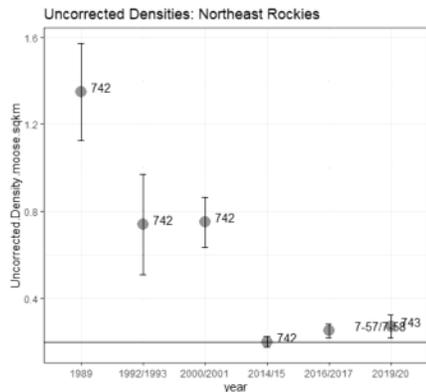
Liard: Density data is sparse, and surveys have high variability. Population estimates are not specific. Bull: cow ratios are above the Calf: cow ratios and above the thresholds. Calf: cow ratios are all on the threshold. However, the data is not ideal. Hunting efforts have lots of variabilities. They seem to be increasing since the 1996/2006 regulation changes but not as dramatically as other regions. Male ratios are high. A few outlier n/a data is skewing the more recent results in the male hunting ratios.

Fort Nelson: Low density populations. Calf: cow ratios are below the threshold, and bull: cow ratios are bordering the threshold. Lots of variability in hunting efforts data and the N/A are skewing the male ratio efforts. It would appear both the hunting efforts and male hunted ratios have increased since the regulation changes.

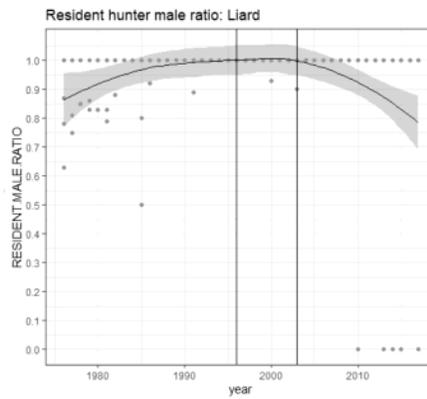
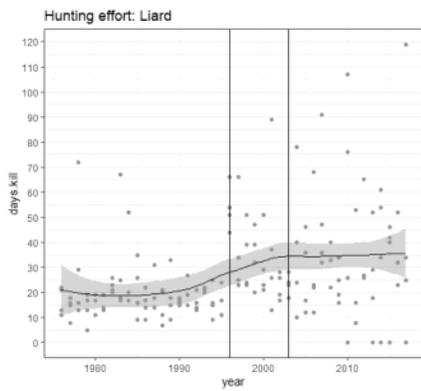
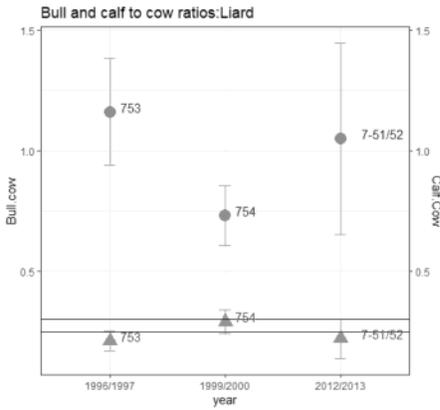
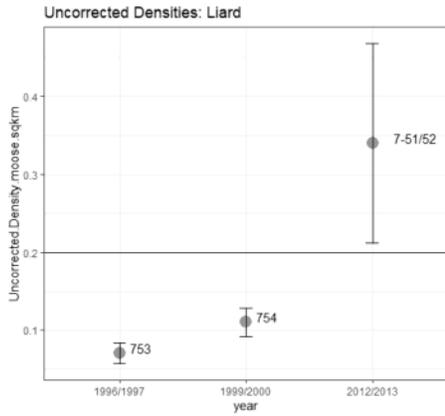
South Peace



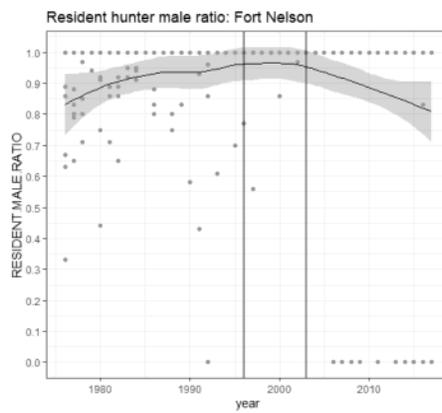
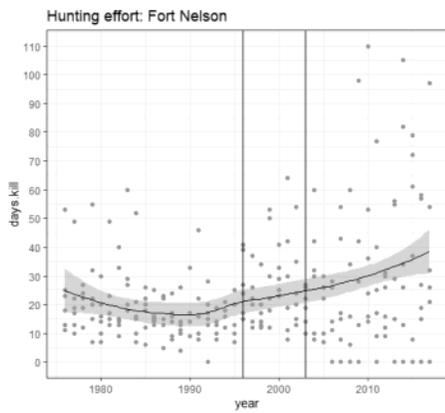
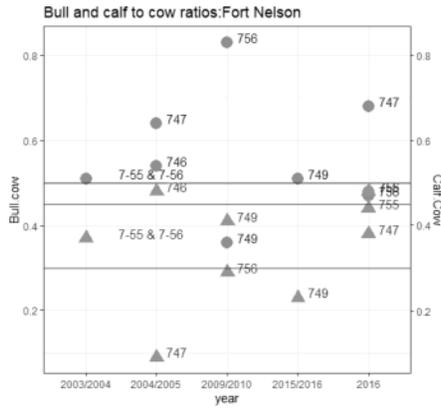
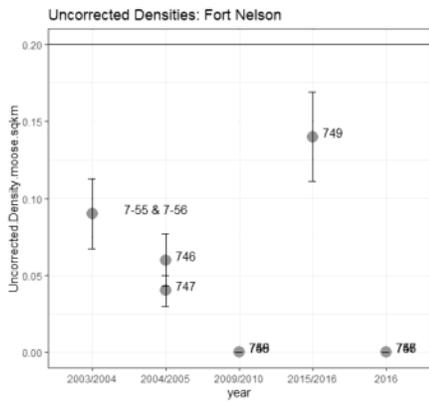
North East Rockies



Liard



Fort Nelson



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Withheld pursuant to/removed as

s.13

Bridger Comments	GMZ	MU	Extrapolated MU	WILDLIFE_MG MT_UNIT_ID	MU Area Square Meters	MU Area Km squared	Survey Period	Season	Survey Type	Survey Area (km2)	Whole MU (Y/N)	Uncorrected Density (moose/sq.km.)	90%CI (±%)	Bull/Cow	Calf/Cow	SCF	Corrected Density (moose/sq.km.)	Degrees of Freedom	Total estimated pop
7-20 is not comparable for extrapolation to 7-19. The habitat differs greatly through much of 7-20 (Ag. zone and deciduous)	South Peace	7-19	7-20	7-19	4376928492	4376.928492	2016/2017	W	SRB	4356	Yes	0.52	17.30%	0.29	0.35	1.2	0.61	20	2669.92638
We should be showing trends here. This MU increased by 53% since it's last survey. Yet it has the highest hunting pressure of all South Peace MUs.	South Peace	7-20	N/A	7-20	4366346867	4366.346867	2016/2017	W	SRB	4356	Yes	0.52	17.30%	0.29	0.35	1.2	0.61	20	2663.471589
This is a caribou recovery area. Should be targeting a density <0.3 moose/km2	South Peace	7-21	7-20	7-21	6731326271	6731.326271	2016/2017	W	SRB	4356	Yes	0.52	17.30%	0.29	0.35	1.2	0.61	20	4106.109025
This is a caribou recovery area. Should be targeting a density <0.3 moose/km2	South Peace	7-22	7-31	7-22	4159522683	4159.522683	2016/2017	W	Comp	N/R	No	0.36	29.60%	0.45	0.38	N/A	N/A	N/A	1497.428166
This is a caribou recovery area. Should be targeting a density <0.3 moose/km2	South Peace	7-31E	N/A	7-31	5397753013	5397.753013	2017/2018	W	SRB	2431	No	0.36	29.60%	0.44	0.21	1.18	0.44		2375.011326
Worth mentioning that this MU increased by 14% from 2012 to 2018, yet it receives the 2nd highest hunting pressure of all MUs in the region.	North Peace	7-32	N/A	7-32	3683444207	3683.444207	2017/2018	W	SRB	3684	Yes	0.82	14.10%	0.41	0.44	1.16	0.94	23	3462.437554
Why are we extrapolating here? 7-32 is quite different from 7-33, but more importantly, we just had a survey completed in this MU and reported our highest regional moose density of 1.18 moose/km2. Why was this not included? This population increased by 24% from 2006 to 2019, yet it receives the highest hunting pressure of all MUs in the Peace region.	North Peace	7-33	7-32	7-33	5780512751	5780.512751	2017/2018	W	SRB	3684	Yes	0.82	14.10%	0.41	0.44	1.16	0.94	23	5433.681985
This MU certainly appeared to be in a declining trend.	North Peace	7-34	N/A	7-34	1509268133	1509.268133	2015/2016	W	SRB	1467	Yes	0.60	15.23%	0.22	0.34	1.23	0.74	18	1116.858418
With a SCF applied, this MU would have a density of > 1 moose/km2	North Peace	7-35	N/A	7-35	2375507652	2375.507652	2013/2014	W	SRB	2376	Yes	0.835	15.77%	0.376	0.301	N/AV	N/AV	25	1983.548889
	North Peace	7-44	N/A	7-44	2369068573	2369.068573	2012/2013	W	SRB	2368	Yes	0.98	24.50%	0.2	0.38	1.35	1.32	20	3127.170516
	North Peace	7-45	7-34	7-45	6213899316	6213.899316	2015/2016	W	SRB	1467	Yes	0.60	15.23%	0.22	0.34	1.23	0.74	18	4598.285493
Extrapolation here is likely leading to an overestimate. Much of this MU is not good moose habitat. This MU is subject to wolf reduction now.	Northeast Rockies	7-36	7-43	7-36	3389485533	3389.485533	2019/20	W	SRB	2430	Yes	0.27	19.90%	0.58	0.39	1.54	0.42		1423.583924
This MU was certainly on a declining trend. But appeared to be an issue with calf recruitment. Not harvest pressure. This is also a caribou recovery area under wolf reduction now.	Northeast Rockies	7-42	N/A	7-42	6065820764	6065.820764	2014/15	W	SRB	5905	Yes		12.92%	0.45	0.12	1.20	0.24	53	1455.796983
Caribou recovery area, subject to wolf reduction.	Northeast Rockies	7-43	N/A	7-43	3033443375	3033.443375	2019/20	W	SRB	2430	Yes	0.27	19.90%	0.58	0.39	1.54	0.42		1274.046217
	Northeast Rockies	7-50	N/A	7-50	6807040364	6807.040364	2021	W	SRB	1193.13	No	0.18		0.62	0.4	1.57	0.27808		1892.901784
Caribou recovery area, subject to wolf reduction.	Northeast Rockies	7-57	N/A	7-57	2522791325	2522.791325	2016/2017	W	Comp	N/R	N/R	0.25	13.20%	0.58	0.07	N/A	N/A	N/R	630.6978313
Caribou recovery area, subject to wolf reduction.	Northeast Rockies	7-58	N/A	7-58	788285212.5	788.2852125	2016/2017	W	Comp	N/R	Yes	0.25	13.20%	0.23	0.14	N/A	N/A	N/R	197.0713031
Caribou recovery area, subject to wolf reduction.	Northeast Rockies	7-57/7-58	N/A				2016/2017	W	SRB	2723	Yes	0.25	13.20%	0.41	0.13	1.39	0.35	21	0
Caribou recovery area, subject to wolf reduction.	Ft. Nelson	7-46	7-47	7-46	6146159345	6146.159345	2016	W	Distance	4275	No	N/A	23.80%	0.68	0.38	N/A	0.157	N/A	964.9470172
	Ft. Nelson	7-48	7-48	7-48	7042262141	7042.262141	2021	W	SRB		No	0.11		0.92	0.58	1.57	0.17		
	Ft. Nelson	7-49	N/A	7-49	11030046874	11030.046874	2015/2016	W	Distance	11,022	Yes	0.14	20.60%	0.51	0.23	N/A	N/A	N/A	1544.206562
	Ft. Nelson	7-55	7-55	7-55	18166993554	18166.993554	2016	W	distance	1058	No	N/A	22.40%	0.48	0.44	N/A	0.07	N/A	1271.689549
	Ft. Nelson	7-47	7-47	7-47	9886087101	9886.087101	2016	W	Distance	4275	No	N/A	23.80%	0.68	0.38	N/A	0.157	N/A	1552.115675
	Ft. Nelson	7-55	7-55	7-55	18166993554	18166.993554	2016	W	Distance	5303	No	N/A	19.00%	0.47	0.48	N/A	0.074	N/A	1344.357523
	Ft. Nelson	7-56	7-56	7-56	15904988655	15904.988655	2016	W	Distance	5303	No	N/A	19.00%	0.47	0.48	N/A	0.074	N/A	1176.96916
	Liard	7-51/52	7-52	7-52	17530503490	17530.50349	2012/2013	W	SRB	5675	No	0.34	37.80%	1.05	0.22	1.82	0.61	N/A	10693.60713
	Liard	7-53	7-53	7-53	9884140824	9884.140824	2020	W	SRB	1625.48	Yes	0.046	25.00%	0.88	0.3	2.73	0.13		454.6704779
	Liard	7-54	7-56	7-56	15904988655	15904.988655	1999/2000	W	SRB	8917	Yes	0.11	17.20%	0.73	0.29	N/A	N/A	16	1749.548752
																			60660.13923
Why don't we include harvest and harvest rates here? We have all of that information tabulated already. It tells a much more full story.																			
Based on the best available data, the overall harvest rates (avg. from 2012-2019) by GMZ are as follows: South Peace 3.2%, North Peace 3.0%, Northeast Rockies 3.7%, Fort Nelson 2.4%, and Liard 2.4%. These harvest rates are calculated after applying a 5% FNs harvest rate to the population estimates.																			
One takeaway is that the three MUs that are subjected to the highest harvest pressure have all shown population increases in the past 5-20 years, ranging from 14% - 53% increase.																			

Total estimated pop min	Total estimated pop Max	Estimated Cows	Min Cow	Max Cows	Estimated Bulls	Min Bulls	Max Bulls	Estimated calves	Min Calves	Max Calves	
2208.029116	3131.823644	1628.00389	1346.359217	1909.648563	472.1211282	390.444173	553.7980834	569.8013616	471.225726	668.3769972	yellow=extrapolated MU with old data
2202.691004	3124.252173	1624.068042	1343.104271	1905.031813	470.9797321	389.5002385	552.4592258	568.4238146	470.0864947	666.7611346	Orange= corrected densities used
3395.752164	4816.465886	2503.725015	2070.580588	2936.869443	726.0802544	600.4683704	851.6921384	876.3037553	724.7032057	1027.904305	
1054.189429	1940.666903	818.2667572	576.0597971	1060.473717	368.2200407	259.2269087	477.2131728	310.9413677	218.9027229	402.9800126	
1672.007973	3078.014678	1439.400803	1013.338166	1865.463441	633.3363535	445.8687929	820.8039142	302.2741687	212.8010148	391.7473227	
2974.233859	3950.641249	1871.587867	1607.693978	2135.481756	767.3510255	659.1545309	875.5475201	823.4986615	707.3853502	939.6119728	
4667.532826	6199.831145	2937.125398	2522.990716	3351.260079	1204.221413	1034.426194	1374.016632	1292.335175	1110.115915	1474.554435	
946.760881	1286.955955	715.9348834	606.8980006	824.9717661	157.5056743	133.5175601	181.4937885	243.4178603	206.3453202	280.4904005	
1670.74323	2296.354549	1182.795998	996.2690695	1369.322927	444.7312954	374.5971701	514.8654207	356.0215955	299.8769899	412.1662012	
2361.01374	3893.327293	1979.221846	1494.312494	2464.131198	395.8443692	298.8624987	492.8262396	752.1043014	567.8387476	936.3698552	
3897.966613	5298.604374	2947.618906	2498.696547	3396.541265	648.4761593	549.7132403	747.2390784	1002.190428	849.5568259	1154.82403	
1140.290723	1706.877124	722.6314333	578.8277781	866.4350886	419.1262313	335.7201113	502.5323514	281.826259	225.7428335	337.9096845	
1267.708013	1643.885953	927.259225	807.4573331	1047.061117	417.2666512	363.3557999	471.1775026	111.271107	96.89487997	125.647334	
1020.51102	1527.581415	646.7239682	518.0258985	775.4220378	375.0999015	300.4550211	449.7447819	252.2223476	202.0301004	302.4145948	
1892.901784	1892.901784	937.0800913	937.0800913	937.0800913	580.9896566	580.9896566	580.9896566	374.8320365	374.8320365	374.8320365	
547.4457175	713.949945	382.2411098	331.7852833	432.6969363	221.6998437	192.4354643	250.9642231	26.75687769	23.22496983	30.28878554	
171.0578911	223.0847151	143.8476665	124.8597745	162.8355585	33.0849633	28.71774814	37.45217845	20.13867331	17.48036843	22.79697819	
0	0	0	0	0	0	0	0	0	0	0	
735.2896271	1194.604407	468.4208821	356.9367122	579.9050521	318.5261998	242.7169643	394.3354354	177.9999352	135.6359506	220.3639198	
0	0	0	0	0	0	0	0	0	0	0	
1226.10001	1862.313114	887.4750358	704.6551784	1070.294893	452.6122683	359.374141	545.8503955	204.1192582	162.070691	246.1678254	
986.8310899	1556.548008	662.3383067	513.974526	810.7020873	317.9223872	246.7077725	389.1370019	291.4288549	226.1487914	356.7089184	
1182.712144	1921.519205	753.4542111	574.1321088	932.7763133	512.3488635	390.409834	634.287893	286.3126002	218.1702014	354.454999	
1088.929594	1599.785452	689.4141144	558.4254326	820.4027961	324.0246337	262.4599533	385.5893142	330.9187749	268.0442077	393.7933421	
953.34502	1400.593301	603.5739284	488.894882	718.2529748	283.6797464	229.7805946	337.5788982	289.7154856	234.6695434	344.7614279	
6651.423634	14735.79062	4710.840145	2930.14257	6491.53772	4946.382152	3076.649699	6816.114606	1036.384832	644.6313654	1428.138298	
341.0028584	568.3380974	208.5644394	156.4233296	260.7055493	183.5367067	137.65253	229.4208834	62.56933182	46.92699887	78.21166478	
1448.626367	2050.471137	866.1132436	717.1417657	1015.084721	632.2626678	523.5134889	741.0118467	251.1728406	207.971112	294.3745692	
47705.09633	73615.18213	33257.72721	26375.06551	40140.38891	16307.43032	12406.71846	20208.14218	11094.9817	8923.312364	13266.65105	

MU	WILDLIFE_MGMT_UNIT_ID	Area Square Meters			WILDLIFE_MGMT_UNIT_ID	Area Square Meters
7-19	7-19	4376928492			7-1	2220647575
7-20	7-20	4366346867			7-10	1563137563
7-21	7-21	6731326271			7-11	1899206020
7-22	7-22	4159522683			7-12	5279943715
7-31E	7-31	5397753013			7-13	2774543537
					7-14	1684307533
7-32	7-33	5780512751			7-15	2310193828
7-33	7-34	1509268133			7-16	3787261433
7-34	7-35	2375507652			7-17	2735833682
7-35	7-35	2375507652			7-18	3943327931
7-44	7-44	2369068573			7-19	4376928492
7-45	7-45	6213899316			7-2	3340307250
					7-20	4366346867
7-36	7-36	3389485533			7-21	6731326271
7-42	7-42	6065820764			7-22	4159522683
7-43	7-43	3033443375			7-23	4346519205
7-50	7-50	6807040364			7-24	5095499552
7-57	7-57	2522791325			7-25	4777061508
7-58	7-58	788285212.5			7-26	3342340994
7-57/7-58	7-57	2522791325			7-27	5659034793
	7-45	6213899316			7-28	7717925272
	7-46	6146159345			7-29	3611647512
7-49	7-49	11030046874			7-3	3798232428
7-55	7-55	18166993554			7-30	2411048387
7-47	7-47	9886087101			7-31	5397753013
7-55	7-55	18166993554			7-32	3683444207
7-56	7-56	15904988655			7-33	5780512751
	7-51	18490995571			7-34	1509268133
7-51/52	7-52	17530503490			7-35	2375507652
7-53	7-53	9884140824			7-36	3389485533
7-53	7-53	9884140824			7-37	6463474135
7-54	7-56	15904988655			7-38	13080626638
					7-39	8820147734
					7-4	2690339541
					7-40	7527165698
					7-41	7939880073
					7-42	6065820764
					7-43	3033443375
					7-44	2369068573
					7-45	6213899316
					7-46	6146159345
					7-47	9886087101
					7-48	7042262141
					7-49	11030046874
					7-5	3014228047
					7-50	6807040364
					7-51	18490995571
					7-52	17530503490
					7-53	9884140824
					7-54	7516628844
					7-55	18166993554
					7-56	15904988655
					7-57	2522791325
					7-58	788285212.5
					7-6	2014071882
					7-7	3002861495
					7-8	1934014954
					7-9	1751929929

																Target 35 days
Game Management Zone/ WMU	Pop'n Estimate	Date of Estimate	First Nations Harvest Rate	Harvestable Pop'n after FN's Harvest	Max. Licensed Harvest Rate	Max. AAH (licensed)	B:C Ratio	Bull Pop'n Estimate	Bull Pop'n Estimate After FN's Harvest	Max. Licensed Bull Harvest Rate	Max. Annual Licensed Bull Harvest	Average Annual Harvest (Avg. 2012-19)	Average Annual Harvest Rate (2012-19)	Average Annual Bull Harvest Rate (2012-19)	Average Annual Hunter Effort (Days 2012-19)	Average Annual Days per Kill (2012-19)
South Peace																
7-19	585	2010	5%	556	5%	28	42%	120	108	20%	22	19	3.5%	18.2%	576	30
7-20	2660	2017	5%	2527	5%	126	29%	440	396	20%	79	136	5.4%	34.2%	5779	43
7-21	2730	2006	5%	2594	5%	130	51%	696	626	20%	125	59	2.3%	9.4%	4588	78
7-22	1820	Extrapolated	5%	1729	5%	86	45%	409	368	20%	74	38	2.2%	10.3%	1899	50
7-31	1070	2018	5%	1017	5%	51	44%	326	293	20%	59	58	5.7%	19.8%	2302	40
Overall	8865		5%	8422	5%	421	42%	1991	1792	20%	358	310	3.7%	17.3%	15144	49
North Peace																
7-32	3463	2018	5%	3290	5%	164	41%	766	689	20%	138	156	4.7%	21.5%	7096	46
7-33	6773	2019	5%	6434	5%	322	29%	982	884	20%	177	199	3.1%	21.8%	6866	34
7-34	1085	2016	5%	1031	5%	52	22%	154	139	20%	28	38	3.7%	25.7%	2266	60
7-35	2380	2014	5%	2261	5%	113	37%	440	396	20%	79	51	2.3%	13.0%	2453	48
7-44	3125	2013	5%	2969	5%	148	20%	313	282	20%	56	41	1.4%	14.5%	1838	45
7-45	1426	2019	5%	1355	5%	68	32%	244	220	20%	44	59	4.4%	27.0%	2791	47
Overall	18252		5%	17339	5%	867	30%	2899	2609	20%	522	545	3.1%	20.2%	23310	43
Northeast Rockies																
7-36	609	Extrapolated	5%	579	5%	29	40%	122	110	20%	22	9	1.5%	6.9%	303	36
7-42	1417	2015	5%	1346	5%	67	45%	420	378	20%	76	60	4.4%	15.8%	2491	42
7-43	1020	2020	5%	969	5%	48	40%	258	232	20%	46	26	2.7%	11.4%	1338	51
7-50	1653	Extrapolated	5%	1570	5%	79	40%	330	297	20%	59	56	3.6%	18.9%	2054	37
7-57/58	953	2017	5%	905	5%	45	41%	301	271	20%	54	24	2.6%	8.7%	1591	67
Overall	5652		5%	5369	5%	268	41%	1431	1288	20%	258	174	3.2%	13.5%	7777	45
Fort Nelson																
7-46	461	2005	5%	438	5%	22	54%	140	126	20%	25	33	7.4%	25.9%	1016	31
7-47	516	2016	5%	490	5%	25	68%	200	180	20%	36	4	0.7%	2.0%	167	46
7-48	1232	Extrapolated	5%	1170	5%	59	61%	429	386	20%	77	13	1.1%	3.5%	553	41
7-49	1543	2016	5%	1466	5%	73	51%	450	405	20%	81	43	3.0%	10.7%	2093	48
7-55	1453	2016	5%	1380	5%	69	48%	349	314	20%	63	15	1.1%	4.9%	242	16
7-56	1177	2016	5%	1118	5%	56	83%	558	502	20%	100	29	2.6%	5.8%	536	18
Overall	6382		5%	6063	5%	303	61%	2126	1913	20%	383	138	2.3%	7.2%	4607	34
Liard																
7-51	2615	2013	5%	2484	5%	124	105%	1150	1035	20%	207	61	2.5%	5.9%	1227	20
7-52	2680	2013	5%	2546	5%	127	105%	1180	1062	20%	212	58	2.3%	5.5%	1312	22
7-53	988	1997	5%	939	5%	47	116%	434	391	20%	78	6	0.6%	1.5%	267	46
7-54	827	2000	5%	786	5%	39	73%	302	272	20%	54	14	1.8%	5.3%	497	35
Overall	7110		5%	6755	5%	338	100%	3066	2759	20%	552	140	2.1%	5.1%	3304	24
TOTALS/AVERAGE	46261		5%	43948	5%	2197	55%	11513	10362	20%	2072	1305	3.0%	12.4%	54141	41

2019										2018									
	Resident Harvest Estimate	Non-Resident Harvest	Licensed Cow Harvest	Licensed Calf Harvest	Total Moose Harvest	Harvest Rate	Total Bull Harvest Rate	Hunter Days	Days per Kill		Resident Harvest Estimate	Non-Resident Harvest	Licensed Cow Harvest	Licensed Calf Harvest	Total Moose Harvest	Harvest Rate	Total Bull Harvest Rate	Hunter Days	Days per Kill
South Peace										South Peace									
	7-19	18			18	3.2%	16.7%	767	43		7-19	16	6	0	0	22	4.0%	20.4%	624
	7-20	138			138	5.5%	34.8%	5954	43		7-20	141	0	0	0	141	5.6%	35.6%	5155
	7-21	49			49	1.9%	7.8%	4997	102		7-21	41	2	0	0	43	1.7%	6.9%	4415
	7-22	67			67	3.9%	18.2%	2865	43		7-22	28	0	0	0	28	1.6%	7.6%	1642
	7-31	64			64	6.3%	21.8%	2449	38		7-31	76	1	0	0	77	7.6%	26.2%	3172
	Overall	336			336	4.0%	18.8%	17032	51		Overall	302	9	0	0	311	3.7%	17.4%	15008
North Peace *										North Peace *									
	7-32	216			216	6.6%	31.3%	8792	41		7-32	145	0	0	0	145	4.4%	21.0%	6804
	7-33	232			232	3.6%	26.3%	5484	24		7-33	174	0	0	0	174	2.7%	19.7%	6405
	7-34	37			37	3.6%	26.7%	2570	69		7-34	36	0	0	0	36	3.5%	26.0%	2546
	7-35	49			49	2.2%	12.4%	2327	47		7-35	72	2	0	0	74	3.3%	18.7%	3200
	7-44	44			44	1.5%	15.6%	1293	29		7-44	44	0	0	0	44	1.5%	15.6%	1796
	7-45	65			65	4.8%	29.6%	3278	50		7-45	70	0	0	0	70	5.2%	31.9%	2582
	Overall	643			643	3.7%	24.6%	23744	37		Overall	541	2	0	0	543	3.1%	20.8%	23333
Northeast Rockies										Northeast Rockies									
	7-36	5			5	0.9%	4.6%	183	37		7-36	0	2	0	0	2	0.3%	1.8%	516
	7-42	22			22	1.6%	5.8%	1694	77		7-42	25	10	0	0	35	2.6%	9.3%	2396
	7-43	20			20	2.1%	8.6%	1257	63		7-43	19	6	0	0	25	2.6%	10.8%	1929
	7-50	39			39	2.5%	13.1%	1322	34		7-50	27	12	0	0	39	2.5%	13.1%	1451
	7-57/58	12			12	1.3%	4.4%	1625	135		7-57/58	16	0	0	0	16	1.8%	5.9%	1640
	Overall	98			98	1.8%	7.6%	6081	62		Overall	87	30	0	0	117	2.2%	9.1%	7932
Fort Nelson										Fort Nelson									
	7-46	33			33	7.5%	26.2%	886	27		7-46	23	1	0	0	24	5.5%	19.0%	756
	7-47	0			0	0.0%	0.0%	126			7-47	4	0	0	0	4	0.8%	2.2%	32
	7-48	12			12	1.0%	3.1%	817	68		7-48	21	6	0	0	27	2.3%	7.0%	671
	7-49	14			14	1.0%	3.5%	1548	111		7-49	5	4	0	0	9	0.6%	2.2%	1721
	7-55	19			19	1.4%	6.0%	313	16		7-55	27	0	0	0	27	2.0%	8.6%	421
	7-56	45			45	4.0%	9.0%	777	17		7-56	21	0	0	0	21	1.9%	4.2%	555
	Overall	123			123	2.0%	6.4%	4467	36		Overall	101	11	0	0	112	1.8%	5.9%	4156
Liard										Liard									
	7-51	16			16	0.6%	1.5%	783	49		7-51	16	39	0	0	55	2.2%	5.3%	1407
	7-52	23			23	0.9%	2.2%	1209	53		7-52	16	26	0	0	42	1.6%	4.0%	1186
	7-53	0			0	0.0%	0.0%	67			7-53	4	3	0	0	7	0.7%	1.8%	315
	7-54	6			6	0.8%	2.2%	269	45		7-54	0	8	0	0	8	1.0%	2.9%	306
	Overall	45			45	0.7%	1.6%	2328	52		Overall	36	76	0	0	112	1.7%	4.1%	3214
TOTAL/AVERAGE	1200	0	0	0	1200	2.7%	11.6%	53652	45		TOTAL/AVERAGE	1067	128	0	0	1195	2.7%	11.5%	53643

											target 35											
	2017											2016										
Days per Kill	Resident Harvest Estimate	Non-Resident Harvest	Licensed Cow Harvest	Licensed Calf Harvest	Total Moose Harvest	Harvest Rate	Total Bull Harvest Rate	Hunter Days	Days per Kill		Resident Harvest Estimate	Non-Resident Harvest	Licensed Cow Harvest	Licensed Calf Harvest	Total Moose Harvest	Harvest Rate	Total Bull Harvest Rate	Hunter Days	Days per Kill			
	South Peace											South Peace										
28	7-19	4	4	0	0	8	1.4%	7.4%	559	70	7-19	5	8	0	0	13	2.3%	12.0%	609			
37	7-20	124	1	0	0	125	4.9%	31.6%	5653	45	7-20	134	0	0	134	5.3%	33.8%	5560				
103	7-21	66	1	0	0	67	2.6%	10.7%	4716	70	7-21	39	1	0	0	40	1.5%	6.4%	3995			
59	7-22	34	0	0	0	34	2.0%	9.2%	2022	59	7-22	28	2	0	0	30	1.7%	8.1%	2142			
41	7-31	54	0	0	0	54	5.3%	18.4%	2178	40	7-31	32	0	0	0	32	3.1%	10.9%	1803			
48	Overall	282	6	0	0	288	3.4%	16.1%	15128	53	Overall	238	11	0	0	249	3.0%	13.9%	14109			
	North Peace *											North Peace *										
47	7-32	116	0	0	0	116	3.5%	16.8%	6225	54	7-32	112	0	0	6	112	3.4%	15.4%	6370			
37	7-33	204	3	0	0	207	3.2%	23.4%	7132	34	7-33	128	0	0	0	128	2.0%	14.5%	8404			
71	7-34	32	0	0	0	32	3.1%	23.1%	2574	80	7-34	21	0	0	0	21	2.0%	15.2%	2168			
43	7-35	56	3	0	0	59	2.6%	14.9%	2361	40	7-35	38	2	0	0	40	1.8%	10.1%	1891			
41	7-44	42	0	0	0	42	1.4%	14.9%	1767	42	7-44	35	0	0	0	35	1.2%	12.4%	1827			
37	7-45	47	0	0	0	47	3.5%	21.4%	2648	56	7-45	79	0	0	0	79	5.8%	36.0%	3204			
43	Overall	497	6	0	0	503	2.9%	19.3%	22707	45	Overall	413	2	0	6	415	2.4%	15.7%	23864			
	Northeast Rockies											Northeast Rockies										
258	7-36	10	0	0	0	10	1.7%	2.5%	336	34	7-36	0	3	0	0	3	0.5%	2.7%	204			
68	7-42	49	15	0	0	64	4.8%	16.9%	2945	46	7-42	28	20	0	0	48	3.6%	12.7%	2597			
77	7-43	14	1	0	0	15	1.5%	6.5%	1196	80	7-43	19	3	0	0	22	2.3%	9.5%	1118			
37	7-50	28	18	0	0	46	2.9%	15.5%	2371	52	7-50	29	3	0	0	32	2.0%	10.8%	2184			
103	7-57/58	18	1	0	0	19	2.1%	7.0%	1460	77	7-57/58	29	0	0	0	29	3.2%	10.7%	825			
68	Overall	119	35	0	0	154	2.9%	12.0%	8308	54	Overall	105	29	0	0	134	2.5%	10.4%	6928			
	Fort Nelson											Fort Nelson										
32	7-46	28	1	0	0	29	6.6%	23.0%	904	31	7-46	43	6	0	0	49	11.2%	38.9%	849			
8	7-47	0	0	0	0	0	0.0%	0.0%	72	0	7-47	0	0	0	0	0	0.0%	0.0%	69			
25	7-48	5	8	0	0	13	1.1%	3.4%	533	41	7-48	4	5	0	0	9	0.8%	2.3%	254			
191	7-49	38	9	0	0	47	3.2%	11.6%	2396	51	7-49	33	0	0	0	33	2.3%	8.1%	1936			
16	7-55	17	0	0	0	17	1.2%	5.4%	352	21	7-55	6	0	0	0	6	0.4%	1.9%	91			
26	7-56	30	0	0	0	30	2.7%	6.0%	780	26	7-56	32	0	0	0	32	2.9%	6.4%	856			
37	Overall	118	18	0	0	136	2.2%	7.1%	5037	37	Overall	118	11	0	0	129	2.1%	6.7%	4055			
	Liard											Liard										
26	7-51	32	46	0	0	78	3.1%	7.5%	1518	19	7-51	22	30	0	0	52	2.1%	5.0%	1141			
28	7-52	46	30	0	0	76	3.0%	7.2%	1389	18	7-52	54	30	0	0	84	3.3%	7.9%	1410			
45	7-53	0	6	0	0	6	0.6%	1.5%	385	64	7-53	9	8	0	0	17	1.8%	4.4%	411			
38	7-54	4	5	0	0	9	1.1%	3.3%	573	64	7-54	5	8	0	0	13	1.7%	4.8%	482			
29	Overall	82	87	0	0	169	2.5%	6.1%	3865	23	Overall	90	76	0	0	166	2.5%	6.0%	3444			
45	TOTAL/AVERAGE	1098	152	0	0	1250	2.8%	12.1%	55045	44	TOTAL/AVERAGE	964	129	0	6	1093	2.5%	10.5%	52400			
											* First year of shortened August season in North Peace GMZ											

target 35										target 35										
Days per Kill	2015										2014									
	Resident Harvest Estimate	Non-Resident Harvest	License d Cow Harvest	License d Calf Harvest	Total Moose Harvest	Harvest Rate	Total Bull Harvest Rate	Hunter Days	Days per Kill	Resident Harvest Estimate	Non-Resident Harvest	License d Cow Harvest	License d Calf Harvest	Total Moose Harvest	Harvest Rate	Total Bull Harvest Rate	Hunter Days	Days per Kill		
	South Peace										South Peace									
47	7-19	18	5	0	0	23	4.1%	21.3%	934	41	7-19	24	7	0	0	31	5.6%	28.7%	460	15
41	7-20	115	1	0	0	116	4.6%	29.3%	7698	66	7-20	124	0	0	0	124	4.9%	31.3%	6602	53
100	7-21	88	0	0	0	88	3.4%	14.0%	5009	57	7-21	48	0	0	0	48	1.9%	7.7%	4281	89
71	7-22	47	1	0	0	48	2.8%	13.0%	2369	49	7-22	45	7	0	0	52	3.0%	14.1%	1625	31
56	7-31	66	1	0	0	67	6.6%	22.8%	2622	39	7-31	63	1	0	0	64	6.3%	21.8%	2430	38
57	Overall	334	8	0	0	342	4.1%	19.1%	18632	54	Overall	304	15	0	0	319	3.8%	17.8%	15398	48
	North Peace										North Peace									
57	7-32	100	0	0	5	100	3.0%	13.8%	8795	88	7-32	207	0	0	18	207	6.3%	27.4%	7151	35
66	7-33	194	1	0	12	195	3.0%	20.7%	7847	40	7-33	174	0	0	14	174	2.7%	18.1%	7921	46
103	7-34	54	0	0	12	54	5.2%	30.3%	2452	45	7-34	44	0	0	6	44	4.3%	27.4%	2185	50
47	7-35	32	0	0	0	32	1.4%	8.1%	3014	94	7-35	37	0	0	0	37	1.6%	9.3%	2556	69
52	7-44	33	0	0	0	33	1.1%	11.7%	1891	57	7-44	38	0	0	0	38	1.3%	13.5%	2183	57
41	7-45	34	1	0	0	35	2.6%	15.9%	2405	69	7-45	50	0	0	0	50	3.7%	22.8%	2812	56
58	Overall	447	2	0	29	449	2.6%	16.1%	26404	59	Overall	550	0	0	38	550	3.2%	19.6%	24808	45
	Northeast Rockies										Northeast Rockies									
68	7-36	13	3	0	0	16	2.8%	14.6%	275	17	7-36	12	6	0	0	18	3.1%	16.4%	402	22
54	7-42	44	11	0	0	55	4.1%	14.6%	2649	48	7-42	58	16	0	0	74	5.5%	19.6%	2942	40
51	7-43	26	1	0	0	27	2.8%	11.6%	1630	60	7-43	47	5	0	0	52	5.4%	22.4%	1389	27
68	7-50	74	21	0	0	95	6.0%	32.0%	2763	29	7-50	37	26	0	0	63	4.0%	21.2%	1640	26
28	7-57/58	4	0	0	0	4	0.4%	1.5%	1344	336	7-57/58	19	0	0	0	19	2.1%	7.0%	1657	87
52	Overall	161	36	0	0	197	3.7%	15.3%	8661	44	Overall	173	53	0	0	226	4.2%	17.5%	8030	36
	Fort Nelson										Fort Nelson									
17	7-46	22	4	0	0	26	5.9%	20.6%	1355	52	7-46	12	4	0	0	16	3.7%	12.7%	1289	81
	7-47	0	3	0	0	3	0.6%	1.7%	333	111	7-47	0	1	0	0	1	0.2%	0.6%	208	208
28	7-48	10	3	0	0	13	1.1%	3.4%	738	57	7-48	6	4	0	0	10	0.9%	2.6%	517	52
59	7-49	83	0	0	0	83	5.7%	20.5%	3055	37	7-49	62	0	0	0	62	4.2%	15.3%	2112	34
15	7-55	23	0	0	0	23	1.7%	7.3%	182	8	7-55	14	0	0	0	14	1.0%	4.5%	370	26
27	7-56	9	0	0	0	9	0.8%	1.8%	72	8	7-56	20	0	0	0	20	1.8%	4.0%	263	13
31	Overall	147	10	0	0	157	2.6%	8.2%	5735	37	Overall	114	9	0	0	123	2.0%	6.4%	4759	39
	Liard										Liard									
22	7-51	22	46	0	0	68	2.7%	6.6%	1392	20	7-51	30	39	0	0	69	2.8%	6.7%	1413	20
17	7-52	30	38	0	0	68	2.7%	6.4%	1447	21	7-52	16	43	0	0	59	2.3%	5.6%	1097	19
24	7-53	0	7	0	0	7	0.7%	1.8%	187	27	7-53	0	0	0	0	0	0.0%	0.0%	222	
37	7-54	6	12	0	0	18	2.3%	6.6%	377	21	7-54	7	7	0	0	14	1.8%	5.2%	644	46
21	Overall	58	103	0	0	161	2.4%	5.8%	3403	21	Overall	53	89	0	0	142	2.1%	5.1%	3376	24
48	TOTAL/AVERAGE	1147	159	0	29	1306	3.0%	12.3%	62835	48	TOTAL/AVERAGE	1194	166	0	38	1360	3.1%	12.8%	56371	41

2013										2012									
	Resident Harvest Estimate	Non-Resident Harvest	Licensed Cow Harvest	Licensed Calf Harvest	Total Moose Harvest	Harvest Rate	Total Bull Harvest Rate	Hunter Days	Days per Kill		Resident Harvest Estimate	Non-Resident Harvest	Licensed Cow Harvest	Licensed Calf Harvest	Total Moose Harvest	Harvest Rate	Total Bull Harvest Rate	Hunter Days	Days per Kill
South Peace										South Peace									
7-19	17	9	0	0	26	4.7%	24.1%	272	10	7-19	8	8	0	0	16	2.9%	14.8%	386	24
7-20	116	1	0	0	117	4.6%	29.5%	5269	45	7-20	177	12	0	0	189	7.5%	47.7%	4340	23
7-21	61	1	0	0	62	2.4%	9.9%	5346	86	7-21	72	2	0	0	74	2.9%	11.8%	3944	53
7-22	24	0	0	0	24	1.4%	6.5%	1357	57	7-22	20	1	0	0	21	1.2%	5.7%	1171	56
7-31	44	2	0	0	46	4.5%	15.7%	1957	43	7-31	57	3	0	0	60	5.9%	20.4%	1804	30
Overall	262	13	0	0	275	3.3%	15.3%	14201	52	Overall	334	26	0	0	360	4.3%	20.1%	11645	32
North Peace										North Peace									
7-32	126	0	0	5	126	3.8%	17.6%	6862	54	7-32	225	0	0	29	225	6.8%	28.4%	5770	26
7-33	176	0	0	18	176	2.7%	17.9%	6356	36	7-33	308	0	0	12	308	4.8%	33.5%	5375	17
7-34	15	0	0	0	15	1.5%	10.8%	1834	122	7-34	64	0	0	0	64	6.2%	46.2%	1799	28
7-35	64	0	0	0	64	2.8%	16.2%	2497	39	7-35	55	1	0	0	56	2.5%	14.1%	1779	32
7-44	44	0	0	0	44	1.5%	15.6%	2222	51	7-44	47	0	0	0	47	1.6%	16.7%	1727	37
7-45	68	0	0	0	68	5.0%	31.0%	2912	43	7-45	59	1	0	0	60	4.4%	27.3%	2488	41
Overall	493	0	0	23	493	2.8%	18.0%	22683	46	Overall	758	2	0	41	760	4.4%	27.6%	18938	25
Northeast Rockies										Northeast Rockies									
7-36	0	4	0	0	4	0.7%	3.6%	299	75	7-36	5	5	0	0	10	1.7%	9.1%	205	21
7-42	51	21	0	0	72	5.3%	19.0%	2426	34	7-42	66	42	0	0	108	8.0%	28.6%	2278	21
7-43	19	11	0	0	30	3.1%	12.9%	1052	35	7-43	18	2	0	0	20	2.1%	8.6%	1131	57
7-50	54	25	0	0	79	5.0%	26.6%	2789	35	7-50	31	24	0	0	55	3.5%	18.5%	1912	35
7-57/58	38	0	0	0	38	4.2%	14.0%	2511	66	7-57/58	52	0	0	0	52	5.7%	19.2%	1669	32
Overall	162	61	0	0	223	4.2%	17.3%	9077	41	Overall	172	73	0	0	245	4.6%	19.0%	7195	29
Fort Nelson										Fort Nelson									
7-46	37	6	0	0	43	9.8%	34.1%	1099	26	7-46	38	3	0	0	41	9.4%	32.5%	991	24
7-47	5	3	0	0	8	1.6%	4.4%	287	36	7-47	13	0	0	0	13	2.7%	7.2%	206	16
7-48	8	0	0	0	8	0.7%	2.1%	450	56	7-48	15	0	0	0	15	1.3%	3.9%	447	30
7-49	42	1	0	0	43	2.9%	10.6%	2306	54	7-49	52	4	0	0	56	3.8%	13.8%	1671	30
7-55	0	0	0	0	0	0.0%	0.0%	54	54	7-55	17	0	0	0	17	1.2%	5.4%	150	9
7-56	29	0	0	0	29	2.6%	5.8%	439	15	7-56	47	0	0	0	47	4.2%	9.4%	543	12
Overall	121	10	0	0	131	2.2%	6.8%	4635	35	Overall	182	7	0	0	189	3.1%	9.9%	4008	21
Liard										Liard									
7-51	41	43	0	0	84	3.4%	8.1%	1135	14	7-51	32	34	0	0	66	2.7%	6.4%	1030	16
7-52	26	24	0	0	50	2.0%	4.7%	1522	30	7-52	39	26	0	0	65	2.6%	6.1%	1238	19
7-53	0	1	0	0	1	0.1%	0.3%	299	299	7-53	8	0	0	0	8	0.9%	2.0%	248	31
7-54	21	11	0	0	32	4.1%	11.8%	713	22	7-54	8	7	0	0	15	1.9%	5.5%	613	41
Overall	88	79	0	0	167	2.5%	6.1%	3669	22	Overall	87	67	0	0	154	2.3%	5.6%	3129	20
TOTAL/AVERAGE	1126	163	0	23	1289	2.9%	12.2%	54265	42	TOTAL/AVERAGE	1533	175	0	41	1708	3.9%	16.1%	44915	26

From: Schindler, Heidi FLNR:EX <Heidi.Schindler@gov.bc.ca>
Sent: May 27, 2021 4:56 PM
To: Procter, Chris FLNR:EX; Lavallee, Michel FLNR:EX; Bohm, Holger FLNR:EX; Vander Vennen, Luke FLNR:EX; MacIver, Stephen FLNR:EX; Lirette, Daniel FLNR:EX; Blythe, Emily FLNR:EX
Cc: Harrison, Dominica FLNR:EX; Johnson, Marianne FLNR:EX; Thiessen, Conrad D FLNR:EX; Larden, Troy P FLNR:EX; Kriss, Krystal FLNR:EX
Subject: RE: Request for review - R7B Moose regulation change proposal

Hi there,

Thanks Michel for the opportunity to comment. There are many variables to consider if a region is contemplating a regulation change of this magnitude, and I do appreciate having the chance to weigh in.

I am quite time limited this week to provide a more fulsome response, but I will provide additional comments early next week.

s.13

Thanks for putting this info package together for us to review, and again. for the chance to comment.

Heidi



Heidi Schindler, BSc, RPBio
Wildlife Biologist, Skeena Region
Forests, Lands, Natural Resource Operations and Rural Development
Bag 5000, 3726 Alfred Avenue, Smithers, BC V0J 2N0
Phone: *NEW* 250-876-7079 Email: Heidi.Schindler@gov.bc.ca

From: Procter, Chris FLNR:EX <Chris.Procter@gov.bc.ca>
Sent: May 26, 2021 5:54 PM
To: Lavallee, Michel FLNR:EX <Michel.Lavallee@gov.bc.ca>; Bohm, Holger FLNR:EX <Holger.Bohm@gov.bc.ca>; Vander Vennen, Luke FLNR:EX <Luke.VanderVennen@gov.bc.ca>; Schindler, Heidi FLNR:EX <Heidi.Schindler@gov.bc.ca>; MacIver, Stephen FLNR:EX <Stephen.MacIver@gov.bc.ca>; Lirette, Daniel FLNR:EX <Daniel.Lirette@gov.bc.ca>; Blythe, Emily FLNR:EX <Emily.Blythe@gov.bc.ca>
Cc: Harrison, Dominica FLNR:EX <Dominica.Harrison@gov.bc.ca>; Johnson, Marianne FLNR:EX <Marianne.Johnson@gov.bc.ca>
Subject: RE: Request for review - R7B Moose regulation change proposal

Thanks for the opportunity to comment Michel. I had a look through the proposal and attached data and have some comments. Sorry if it's long winded, I provide all my comments here and not on the documents themselves. I mean no disrespect to whoever wrote the proposal with any of my comments below.

s.13

Let me know if there are any questions about any of the above and thanks again for the opportunity to comment on this proposal.

Chris Procter
Wildlife Biologist
Kamloops, BC
250-312-6635

From: Lavallee, Michel FLNR:EX <Michel.Lavallee@gov.bc.ca>

Sent: May 20, 2021 3:26 PM

To: Bohm, Holger FLNR:EX <Holger.Bohm@gov.bc.ca>; Vander Vennen, Luke FLNR:EX <Luke.VanderVennen@gov.bc.ca>; Schindler, Heidi FLNR:EX <Heidi.Schindler@gov.bc.ca>; MacIver, Stephen FLNR:EX <Stephen.MacIver@gov.bc.ca>; Lirette, Daniel FLNR:EX <Daniel.Lirette@gov.bc.ca>; Blythe, Emily FLNR:EX <Emily.Blythe@gov.bc.ca>; Procter, Chris FLNR:EX <Chris.Procter@gov.bc.ca>

Cc: Harrison, Dominica FLNR:EX <Dominica.Harrison@gov.bc.ca>; Johnson, Marianne FLNR:EX <Marianne.Johnson@gov.bc.ca>

Subject: Request for review - R7B Moose regulation change proposal

Good afternoon,

The Northeast Region has been working through the moose data available. Dominica has used known moose densities within the different MUs and Game Management Zones to estimate moose populations where we don't have inventories or the data is too old to be reliable (excel sheet). She completed non-linear regression analysis, population, and hunting effort summaries for each GMZ.

We reviewed some recent food security research for First Nation communities along the Peace River to estimate potential First Nation moose subsistence needs in the region, Hunter Survey harvest estimates, and different ways of calculating the AAH.

We are expecting this will receive a lot of public feedback and we would like to be fairly confident we are heading in the right direction and have considered our options before starting engagement in the Northeast.

Can you review the calculations/analysis and draft regulation proposal? Feel free to contact Dominica or me if you have questions, comments, or suggested edits.

Please don't distribute these documents further.



Michel Lavallée, M.SEM., R.P.Bio.

Head | Fish, Wildlife, and Ecosystems Section

Ministry of Forests, Lands, Natural Resource Operations, and Rural Development

Suite 100, 10003-110th Avenue, Fort St. John, BC, V1J 6M7

Ph: 778-576-1139

Conservation means development as much as it does protection – T. Roosevelt

From: Lavallee, Michel FLNR:EX <Michel.Lavallee@gov.bc.ca>
Sent: May 25, 2021 3:02 PM
To: Burwash, Michael FLNR:EX
Subject: Resource request - R7B Moose Regulation
Attachments: R7B_2022-Moose from GOS to LEH.docx

Good afternoon Michael,

I attached an early draft of one of our Region's proposed regulation changes. We are expecting this will generate a lot of comment from stakeholders (BCWF and guide-outfitters) and the public through regional discussion and AHTE. Do you have someone available to support engagement for this proposal?



Michel Lavallée, M.SEM., R.P.Bio.

Head | Fish, Wildlife, and Ecosystems Section

Ministry of Forests, Lands, Natural Resource Operations, and Rural Development

Suite 100, 10003-110th Avenue, Fort St. John, BC, V1J 6M7

Ph: 778-576-1139

Conservation means development as much as it does protection – T. Roosevelt



2022-2024 REGULATION CHANGE REQUEST FORM

HQ Use Only		
Executive Summary	<input type="checkbox"/>	LEH Proposal <input type="checkbox"/>
Wildlife Mgr. Approval	<input type="checkbox"/>	H&T Proposal <input type="checkbox"/>
Director Approval	<input type="checkbox"/>	Synopsis edited <input type="checkbox"/>
Regulations drafted	<input type="checkbox"/>	AHTE drafted <input type="checkbox"/>
Map (for synopsis)	<input type="checkbox"/>	AHTE posted <input type="checkbox"/>

Contact: Michel Lavallee	Phone: 778-576-1139	Region: 7B
SUBJECT: Replace Moose GOS with LEH		
Management Units: 7-19, 7-20, 7-21A, 7-31A, 7-32, 7-33, 7-35, 7-36, 7-42, 7-43, 7-46 to 7-56	Date of Submission: October 1, 2021	

Species: Moose

Choose applicable one(s): General Open Season Limited Entry Hunting Trapping
 Motor Vehicle Prohibition Firearm Restriction Other (describe) _____

Who is the regional contact for communications issues?
 (someone with authority to deal with media requests if requested by Public Affairs)
 Name: Greg Van Dolah Phone: 250-795-4158

PART A: BACKGROUND

1. What is currently in the synopsis? (exact wording preferred)

Moose	7-21B, 7-22, 7-31B	Bulls	Aug 15 – Aug 31
	7-19, 7-20, 7-21A, 7-31A, 7-32, 7-33, 7-35, 7-36, 7-42, 7-43, 7-46 to 7-56 ▲	Bulls	Aug 23 – Aug 31
	7-19, 7-21B, 7-22, 7-31, 7-36, 7-42, 7-43, 7-46 to 7-56+▲	*Bulls	Sept 1 – Oct 31
	7-20, 7-21A, 7-32 to 7-35, 7-44, 7-45, 7-57, 7-58	*Bulls	Sept 1 – Sept 30
	7-20, 7-21A, 7-32 to 7-35, 7-44, 7-45, 7-57, 7-58	*Bulls	Oct 16 – Oct 31
Bow Only	7-20, 7-21A, 7-32 to 7-35, 7-44, 7-45, 7-57, 7-58	*Bulls	Oct 1 – Oct 15

2. Briefly describe the proposed wording in the synopsis:

GOS

Moose	7-21B, 7-22, 7-31B	Bulls	Aug 15 – Aug 31
	7-21B, 7-22, 7-31B	*Bulls	Sept 1 – Oct 31
Bow Only	7-20, 7-21A, 7-32 to 7-35, 7-44, 7-45, 7-57, 7-58	*Bulls	Oct 1 – Oct 15

LEH

Moose; youth only	7-19, 7-20, 7-21A, 7-31A, 7-32, 7-33, 7-34, 7-35, 7-36, 7-42, 7-43, 7-46 to 7-56▲	Bulls	Aug 23 – Aug 31
Moose; shared hunt	7-19, 7-20, 7-21A, 7-31A, 7-32, 7-33, 7-34, 7-35, 7-36, 7-42, 7-43, 7-46 to 7-56 ▲	Bulls	Sept 1 – Sept 30
	7-19, 7-20, 7-21A, 7-31A, 7-32, 7-33, 7-34, 7-35, 7-36, 7-42, 7-43, 7-46 to 7-56+ ▲	Bulls	Oct 16 – Oct 31

3. Map associated with the proposed regulation. Yes No

- This map may be used to form the regulation. It should be digital and professional. Please provide shapefiles if available.

4. Reason for proposal (rationale in plain language): IMPORTANT – this is what goes on the public engagement website (AHTE) verbatim

Moose populations are stable to declining across most of the Northeast Region. Stakeholders and First Nations are concerned about the populations ability to support First Nation sustenance harvest, licenced harvest, and non-consumptive values due to the pressures of landscape changes and hunting practices. A series of regulation changes were implemented to reduce licenced moose harvest during the last 6 years; moose populations do not appear to be stabilizing with these changes. Addressing habitat concerns is a long process and industry specific; moving moose from General Open Season to Limited Entry Hunt is intended to maintain moose harvest opportunity while providing more oversight of the number of moose harvested within the Region. Changing part of the Northeast Region to LEH while keeping other areas GOS risks moving hunters into areas with lower hunting pressure and increasing moose harvest in currently stable populations. The Youth LEH season is intended to provide opportunity for youth to harvest moose before returning to school and having reduced opportunity during the remaining seasons. The two LEH opportunities (September 1 – September 30 and October 16 – October 31) are intended to balance harvest pressure before and after the rut to support reproductive success; the number of authorizations can be adjusted to maintain post-hunt bull to cow ratios. All three LEH opportunities are Any Bull to distribute harvest pressure across the different age classes and offset loss of harvest opportunity by increasing the number of moose that could be legally harvested.

PART B: ANALYSIS

1. Describe surveys used for conservation issues and their results as they relate to this submission:

Moose inventory data in the Northeast Region does not have the required frequency or coverage to estimate population trends for most of the management units. The recent inventories (2015-2021), demographics, and densities were calculated for each management unit and extrapolated into management units that do not have current inventory data using available information within each Game Management Zone. The result of this work indicates the Northeast Region has 60,660 moose (minimum 47,705 and a maximum of 73,615 moose); the Northeast Region contains an estimated 16,307 (12,406 – 20,208) bulls, 33,257 (26,375 – 40,140) cows, and 11,094 (8,923 – 13,266) calves).

Work completed by Kuzyk and colleagues in 2018¹ modelled moose population trends across the Province and found each Northeast Game Management Zone has a decreasing population trend ($\lambda < 1$) between 2006 and 2015; a change from the 1996-2005 period where only one Game Management Zone had a declining population trend. This perspective is supported by all the Northeast Region's First Nations who have indicated moose populations are decreasing and harvesting is becoming challenging. Declining hunter effort in the Big Game Harvest Survey is likely a hunter response to declining moose populations and declining success rates.

Research completed by Natcher and colleagues² in 2021 indicates First Nation communities harvest annually 2.1 – 2.4 moose per household. There is a minimum of 677 First Nation residences in the Northeast Region and an unknown number of households from transboundary First Nations (Kaska Daylu Council, Dene Tha' First Nation, Horselake First Nation, McLeod Lake Indian Band) that may hunt in the Region. Approximately 1,421 to 1,624 moose are harvested by First Nations assuming every household is actively harvesting moose and the estimate for households that don't harvest is balanced by harvest from First Nations bordering the Region. First Nations prefer to harvest bull moose to protect the cows and support a sustainable population; exceptions are made for dry cows since they did not successfully reproduce and would be harvested for sustenance purposes. The First Nation harvest distribution can be adjusted to 75% of the moose harvested are bull (1,066 – 1,218) and 25% of the harvest is are dry cows (355 – 406).

Licensed hunters harvested an estimated 1,489 moose in 2019. The combined licensed and First Nation subsistence harvest may be 2,910 – 3,113 moose annually (2,555 – 2,707 bull moose assuming First Nation bull harvest is 75% of the total First Nation harvest).

The Harvest Management Principles described in the Provincial Moose Management Framework suggest the maximum moose population growth of 15% occurs when wolf populations are controlled. A minimum of 32 calves per 100 cows is required to compensate for natural mortality. The maximum harvest rate suggested is 10-11% of the population when harvest is distributed across bulls, cows, and calves. First Nation subsistence practices favors harvesting bull moose and licensed harvest is restricted to bulls with further restrictions based on antler configuration. Even distribution across the population does not occur under the current cultural practices and regulatory requirements which requires a lower maximum allowable harvest rate to account for the selective harvest practices; a recommendation is 5% of the population (3,033 ± 348). The annual estimated combined harvest of licensed hunters and First Nations is approximately 4.9% (ranges from 4.1% to 6.3%) of the total population. This harvest rate requires higher calf recruitment of 30-45 calves per 100 cows to maintain stable populations.

Calf recruitment in the Northeast Region ranges from 7 calves per 100 cows (MU 7-57 in 2017) to 68 calves per 100 cows (MU 7-47 in 2016) with a regional average of 32 calves per 100 cows. The regional moose recruitment has remained in this range during the last 20 years. This recruitment level indicates regional moose populations are likely to continue declining under current the wildlife management practice. Changing to LEH may provide the Province the flexibility required to maintain the bull composition and slow the population declines while long-term measures are implemented to change the main population drivers.

Kuzyk and colleagues¹ publication indicates a maximum bull harvest of 20% would be sustainable for most moose populations in the Province. Based on the current population estimates, the Northeast Region could support the harvest of 3,261 (± 780) bull moose annually which is approximately equal to current harvest rates.

Local overharvesting is challenging to avoid through General Open Season since hunters have the flexibility to harvest moose based on hunter preference and access. Antler restrictions have not stabilized the moose populations; moving to Limited Entry Hunt provides the Province the ability to distribute harvest pressure across the Region to reduce the risk of overharvesting in certain areas. The proposed Any Bull LEH is intended to support hunters' opportunity to successfully harvest moose while addressing potential enforcement challenges and unlawful harvest encountered when hunters do not accurately count points on the antler.

The Any Bull LEH would distribute harvest pressure across more age classes rather than the current focused harvest on young bulls (spike-fork) or older bulls (tri-palm, 10 point).

Management Units 7-21B, 7-22, and 7-31B overlap the South Peace Caribou recovery efforts and wolf control zones. Keeping these Management Units as GOS will encourage moose harvest within the caribou recovery areas and slow moose population growth.

The Moose LEH Shared hunt allows family or friends to continue moose hunting together without increasing the number of authorizations issued to support the continuation of this practice and knowledge transfer to newer hunters.

¹ Kuzyk, G., I. Hatter, S. Marshall, C. Procter, B. Cadsand, D. Lirette, H. Schindler, M. Bridger, P. Stent, A. Walker, and M. Klaczek. 2018. Moose population dynamics during 20 years of declining harvest in British Columbia. *Alces* 54:101-119

² Natcher, D., S. Ingram, A-M. Bogdan, and A. Rice. 2021. Conservation and Indigenous subsistence hunting in the Peace River Region of Canada. *Human Ecology*. 49:109-120

2. Alternatives to regulation considered:

The Northeast Region has implemented more restrictive hunting regulations to address declining moose populations, but these have not generated the expected change.

Alternatives considered:

- Current regulation structure – moose populations have been declining for over 20 years. The current regulations have been inadequate to stabilize the populations.
 - The calf recruitment is low across the Region and is inadequate to stabilize the population. The main driver behind low calf recruitment and survival is predation. Increasing the wolf bag limit to 10 has been proposed and not supported since licenced hunters currently can harvest 3 wolves annually and few hunters consistently harvest wolves. Increasing the limit is unlikely to have a direct, consistent, and sustainable benefit for moose.
 - Implementing a predator control program in specific Game Management Zones to enhance calf moose survival. The Management Plan for Grey Wolf (*Canis lupus*) in British Columbia is clear (section 7.4) that implementing predator control to enhance ungulate populations for hunting is contrary to policy. Licenced hunting opportunities will need to be closed before this alternative can be considered.
-

3. Pros/Cons analysis undertaken & results:

Pros:

- Low calf recruitment indicates moose declines are likely to continue, LEH provides the ability to collect hunter success data and adjust LEH authorizations and quota before the maximum harvest declines below current harvest levels.
- First Nations requested the Province management moose under LEH; this is responsive to their requests
- Responds to First Nations' local and traditional knowledge regarding moose populations
- The Province will need to explicitly consider First Nation Treaty 8 right to hunt when making quota and LEH decisions
- The Province would be able to distribute harvest across the region and reduce the risk of localized overharvesting
- Regional staff and Branch have more control over moose harvest and can adjust LEH authorizations to support management objectives
- Precautionary approach for management units without current inventory data to reduce risk of moose becoming a species of conservation concern

Cons:

- LEH is unlikely to stabilize or increase the moose populations without addressing habitat and predation
 - Licenced hunting community harvests moose for food. A moose provides approximately 200kg of meat for the cost of a hunting licence (\$32) and species licence (\$25). There are additional, variable costs associated with hunting – fuel, travel, accommodations, cut & wrap – that are harder to incorporate since this varies between hunters. Replacing 220kg of moose meat with 220kg of beef would cost approximately \$3,370³ using beef's 2020 weighted average of \$15.31/kg.
 - Licenced hunters may be upset on the reduced opportunity.
 - Northeast licenced hunters will have reduced opportunity under the current LEH system
 - Updating the licencing system to include the new LEH codes will take time and resources
 - Additional staff time to calculate annual LEH and quota recommendations
 - First Nations may expect this change will stop or reverse moose population declines
 - Decreased number of hunters traveling from other Regions to the Northeast for moose hunting
 - Increased harvest pressure in the other Regions that have moose general open season
-

³ Agriculture and Agri-Food Canada. Red Meat and Livestock Market Information – Prices. <https://www.agr.gc.ca/eng/canadas-agriculture-sectors/animal-industry/red-meat-and-livestock-market-information/prices/annual-retail-beef-and-historical-pork-prices/?id=1520539054104>

4. Identify risks of NOT implementing the new provision:

The risks associated with not implementing the regulation change could be the non-recoverable collapse of the moose population within the Peace Region. If the general open season continues to operate, the moose population may decrease past a recoverable population. Alternatively, it could lead to a recoverable population, that would require either a LEH or a closed season to allow the population to recuperate. This would also frustrate hunters and stakeholders.

If the government does not listen to the Traditional Knowledge of the local First Nations, there may be a potential violation of Treaty 8 rights, as the population of moose continues to decrease, and sustenance harvest is affected, a lawsuit may be initiated.

5. Comments by Reviewers: *(if relevant)*

Use separate page, as comments may not be included in the final OIC/MO Package.
Copies of email correspondence may be attached.

PART D: STAKEHOLDER CONSULTATION

ADEQUATE CONSULTATION AND ENGAGEMENT MUST BE RECORDED, OR THE FORM WILL BE RETURNED TO THE ORIGINATOR.

Please attach supporting documentation, such as letters, meeting minutes, etc.

Identify who was consulted and when consultations took place.

Who raised concerns and what was the nature of their concerns?

Has the regulation been changed to respond to Stakeholders' Concerns?

Organization	Contact Name	Date and type of Consultation & Engagement	Supported? (If no, attach an explanation) N/A = Proposal not applicable to organization
CO Service			<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A Note: CO service consultation is required BEFORE submission is sent to Wildlife & Habitat Branch. Only rarely is this consultation not required. COS verification is required for safety related regulation proposals.
Other Regions			<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A

Wildlife & Habitat Branch (Victoria) Note: If proposed regulation is for a CITES species, Stephen MacIver (Management Authority for CITES) must be consulted.	Holger Bohm	May 4, 2021 - Discussed proposal and methodology	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A Note: Consultation is required BEFORE submission is sent to Wildlife & Habitat Branch. Only rarely is this consultation not required. Consultation for: Ungulates: Holger.Bohm@gov.bc.ca Birds: Gerad.Hales@gov.bc.ca Wildlife Health: Caeley.Thacker@gov.bc.ca Furbearers/small game: Gerad.Hales@gov.bc.ca Large Carnivores: Garth.Mowat@gov.bc.ca Motor Vehicle Prohibitions: Depends on the purpose of the closure, if the purpose is related to a specific species contact the species specialist above. Habitat related proposals: Steve.Gordon@gov.bc.ca .
BC Parks, if applicable			<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A
Other Gov't agencies (list) (Highways, Forests)			<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A
BCWF (Zone Representative)			<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A
GOABC or local organization			<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A
BCTA or local organization			<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A
Other organization: (name)			<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A
Public Meetings:	(attendees)		<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A

PART E: INDIGENOUS CONSULTATION AND ENGAGEMENT

Please attach supporting documentation, such as letters, meeting minutes, etc.

When did initial consultation and engagement period begin? _____

a) Does this proposed change have implications (impact or of interest to) Indigenous Peoples?	<input type="checkbox"/> NO - If no, please explain <hr/> <input type="checkbox"/> YES - If yes, please complete items (b) to (e) if applicable <hr/>
b) Does this proposed change relate to the Calls to Action of the Truth and Reconciliation Commission?	<input type="checkbox"/> NO <input type="checkbox"/> YES - If yes, please indicate which of the calls and how <hr/>

<p>c) Does this proposed change relate to any of the following legal or other government obligations?</p> <ul style="list-style-type: none"> • modern treaty obligations to notify, discuss or consult, • common law consultation obligations, • contractual commitments, • under the <i>Declaration on the Rights of Indigenous Peoples Act</i>? 	<p><input type="checkbox"/> NO</p> <p><input type="checkbox"/> YES – If yes, please explain how</p> <hr/> <p>Please review the following to help you with your analysis: ILR Reference Document: Indigenous Legal Relations Review of Cabinet Submissions*; UN Declaration Reference Document*; Provincial Legislation Engagement with Treaty Nations Guide</p> <p>*Note: You may have to request permission to the site from the Ministry of Attorney General.</p>
<p>d) Does this proposed change affect Indigenous peoples' modern or historic treaty rights or Aboriginal rights, including any Aboriginal title?</p>	<p><input type="checkbox"/> NO</p> <p><input type="checkbox"/> YES – If yes, please indicate how.</p> <p>Was the consultation sufficient for the purposes of the constitutional obligations?</p> <hr/>
<p>e) Have Indigenous peoples, including Indigenous organizations, been involved in the development of the proposed change, and will they be involved in its implementation?</p>	<p><input type="checkbox"/> NO - If no, please explain why not</p> <hr/> <p><input type="checkbox"/> YES - If yes, what views were expressed or how will they be sought?</p> <hr/> <p>Please review the Policy Framework for Advancing Reconciliation with Indigenous Peoples for guidance on involving Indigenous peoples in your policy development.</p> <p>If you would like further support with this section, please contact Legislative Alignment and Process.</p>

Indigenous Peoples

We require the name of each Indigenous group engaged and individuals within the group. When did the engagement and consultation take place and in what forum (letter, fax, meeting, etc.)? What was the response or outcome of engagement (band by band or tribal association)? What might be the anticipated impact of this proposal on the Indigenous peoples ability to practice their Aboriginal Interests?

If consultation/engagement with Indigenous peoples is incomplete/ongoing indicate the anticipated completion date.

Page 066 of 460 to/à Page 071 of 460

Withheld pursuant to/removed as

NR

RE: FYI FW: Antlerless moose DN

From: Van Dolah, Greg FLNR:EX <Greg.VanDolah@gov.bc.ca>
To: Johnson, Marianne FLNR:EX <Marianne.Johnson@gov.bc.ca>, Lavallee, Michel FLNR:EX <Michel.Lavallee@gov.bc.ca>, Jones, Aviva FLNR:EX <Aviva.Jones@gov.bc.ca>
Cc: Van Tassel, Mark A FLNR:EX <Mark.VanTassel@gov.bc.ca>, Vince, Karrilyn M FLNR:EX <Karrilyn.Vince@gov.bc.ca>
Sent: April 6, 2021 9:24:38 AM PDT
Attachments: image002.png, image005.png, image004.png
Good Morning All:

I believe I have provided my thoughts to this already but in case there is any confusion on this subject. I am not opposed to regulation changes that are sensitive in nature but as this will become quite political the only way that I will consider an antlerless season regulation change is once full engagement has occurred.

So, what does that mean....

s.16

2. Engagement with the public is also critical, as with First Nation communities, the exchange of current and reliable information is a must. We must fully understand the overall cow/calf moose inventory within the considered management units. We need to have specific targets not just an estimate or percentage of the inventory to be harvested. I want to stress that what we are considering is a culling of moose to protect caribou. So we should ask the question, why allow a regulation to hunt cow/calf when we could complete the cull by government. s.13
s.13

Thus the reason for the engagement.

3. Engagement with stakeholders and industry. We need a plan to support the longer term commitment to see this succeed. These one off, where we see a few years of cow/calf harvesting isn't the goal. We need to see real change in how this is measured and supported by stakeholders and industry. The forest industry plays a critical role in the management of habitat. We need to see real change in the legislation and commitments for this to be successful

4. s.13

. Not even

sure all parties would agree of this success.

If the caribou team is really wanting to begin the engagement and provide the necessary work required for the region to support a recommendation they have little time to have this started. We are roughly 1-year away from the on-cycle regulation change, that is if we believe an open season is the way to go.

Hope this helps.

Greg



Greg Van Dolah
Peace Resource District
District Manager
Phone (250) 795-4158 | Cell (250) 719-5379

Regional Operations/Northeast Region
Forests, Lands and Natural Resource Operations and Rural Development

CONSIDER A CAREER IN B.C.'s NORTH

From: Johnson, Marianne FLNR:EX <Marianne.Johnson@gov.bc.ca>
Sent: April 1, 2021 2:44 PM
To: Van Dolah, Greg FLNR:EX <Greg.VanDolah@gov.bc.ca>

Cc: Lavallee, Michel FLNR:EX <Michel.Lavallee@gov.bc.ca>; Jones, Aviva FLNR:EX <Aviva.Jones@gov.bc.ca>
Subject: FYI FW: Antlerless moose DN

Hello Greg

As per our conversation here is the DN and information Michel received today

Michel mentioned that the NE Caribou Team may be developing a proposal for the NE Region for next regulation cycle.

Respectfully



Marianne Johnson
Resource Manager, Stewardship

Peace Natural Resource District | Northeast Region
Desk Phone (250) 784-1245 | UC phone – (250) 795-4177
Ministry of Forests, Lands, Natural Resource Operations and Rural Development

From: Lavallee, Michel FLNR:EX <Michel.Lavallee@gov.bc.ca>
Sent: April 1, 2021 2:00 PM
To: Johnson, Marianne FLNR:EX <Marianne.Johnson@gov.bc.ca>
Subject: Antlerless moose DN

As discussed.



Michel Lavallée, M.SEM., R.P.Bio.
Head | Fish, Wildlife, and Ecosystems Section
Ministry of Forests, Lands, Natural Resource Operations, and Rural Development
Suite 400, 10003-110th Avenue, Fort St. John, BC, V1J 6M7
Ph: 778-576-1139

Conservation means development as much as it does protection – T. Roosevelt

RE: Hunting reg proposals

From: Harrison, Dominica FLNR:EX <Dominica.Harrison@gov.bc.ca>
To: Bridger, Michael C FLNR:EX <Michael.Bridger@gov.bc.ca>, Scheck, Joelle L FLNR:EX <Joelle.Scheck@gov.bc.ca>
Cc: Lavallee, Michel FLNR:EX <Michel.Lavallee@gov.bc.ca>
Sent: April 20, 2021 4:27:00 PM PDT
Attachments: image001.png, image002.jpg
Hello Michael (Mike?),

Awesome, that all sounds good to me! I'll explain this in the precedent email to the internal meeting but we've prioritized the list of changes, many of those either changes don't have enough meat or we don't have enough time. This is the primary reason I want other peoples input to have these convos about said list.

Will follow up with a group email soon.

Thanks!
Dominica

From: Bridger, Michael C FLNR:EX <Michael.Bridger@gov.bc.ca>
Sent: April 20, 2021 4:05 PM
To: Harrison, Dominica FLNR:EX <Dominica.Harrison@gov.bc.ca>; Scheck, Joelle L FLNR:EX <Joelle.Scheck@gov.bc.ca>
Cc: Lavallee, Michel FLNR:EX <Michel.Lavallee@gov.bc.ca>
Subject: RE: Hunting reg proposals

Hey Dominica,

Thanks for looping us in. I just had another look at the proposal tracker. I think it still captures everything I had in mind, or had heard from the public.

Oh, I did actually add one more on the list, but it's more just for us to look into, it may not result in any change. But I had heard from a few local hunters around Chetwynd that the road closure for Trapper Mtn was either not mapped correctly in the synopsis, or was implemented in a way that was ineffective. They had relayed to me that the motor vehicle closure still enable hunters to drive right close to the mountain goat habitat. I have no idea if this is the case or not, but something to look into.

Nothing for moose (relative to caribou recovery) at this point in time. We're still doing background work on that.

Keep us posted regarding meetings, etc.

Thanks!

MB

Mike Bridger
Wildlife Biologist
FLNRORD Northeast Region
Phone: (778)576-8933



From: Harrison, Dominica FLNR:EX <Dominica.Harrison@gov.bc.ca>
Sent: April 20, 2021 2:28 PM
To: Scheck, Joelle L FLNR:EX <Joelle.Scheck@gov.bc.ca>; Bridger, Michael C FLNR:EX <Michael.Bridger@gov.bc.ca>
Cc: Lavallee, Michel FLNR:EX <Michel.Lavallee@gov.bc.ca>
Subject: Hunting reg proposals

Hello Joelle and Michael,

I am leading the hunting reg changes this cycle, and since it is pretty late, and I'm new, we have decided to scale it back a lot. I plan to have an internal meeting the second week in May with a bunch of our biologists, hopefully including both of you. However, I wanted to reach out to discuss what proposals you think are necessary/ a must-do for this year. I already have the Pink mountain archery in the top priorities, but any other proposals around moose, wolves, etc.? Anything that isn't in the proposal tracker?

Chris Lewis has already drafted a BH sheep proposal. So I think that is almost ready to go.

Any insight into any of this would be great! The next steps will be starting up the PAC meeting to inform FN stakeholders and the public, so that's coming soon.

Thank you,
Dominica

Dominica Harrison
Ecosystems Biologist
Ministry of Forests, Lands, Natural Resource Operations, and Rural Development

Internal meeting email

From: Harrison, Dominica FLNR:EX <Dominica.Harrison@gov.bc.ca>
To: Lavallee, Michel FLNR:EX <Michel.Lavallee@gov.bc.ca>, Jones, Aviva FLNR:EX <Aviva.Jones@gov.bc.ca>, Johnson, Marianne FLNR:EX <Marianne.Johnson@gov.bc.ca>
Sent: April 22, 2021 1:25:36 PM PDT
Attachments: s.13

Hello Michel, Marianne, and Aviva,

Below is what I want to send to the internal meeting group. I just wanted to run it by you three first and let me know if there need to be any changes??

Thank you, and I hope you are all enjoying this awesome Thursday afternoon!
Dominica

Hello Everyone,

I am scheduling a meeting to discuss the upcoming hunting regulation procedures and how we will be moving forward with the 2022-2024 regulation change procedures. I am arranging this meeting to get some internal comments, advice, and suggestions on the proposed changes and explain how we will proceed with this cycle of changes. Also, there will be external meetings with FN and stakeholders to inform them on how we will be approaching this reg change, including a PAC meeting... so any help with that will be gladly accepted!

I have attached a priority list of the regulations brought forward earlier this year with a brief explanation and "to do's" for each. Please take a look at [s.13](#) and contact me directly about any concerns or topics you would like to discuss with these changes for this meeting (or any other not on this list!).

I have also added a Microsoft forms to find the best day and time for everyone for the second week in May.

https://forms.office.com/Pages/ResponsePage.aspx?id=bbBQGQ2s4U0aXoDug3PLL2zJi0P_EwNRMi4CZPkLK6UBUOUxKRiAzTFBJRjZWSkRUNjdLTFVUQII3RS4u

Thank you!
Dominica Harrison

Dominica Harrison
Ecosystems Biologist
Ministry of Forests, Lands, Natural Resource Operations, and Rural Development

Page 077 of 460 to/à Page 078 of 460

Withheld pursuant to/removed as

s.13

RE: Moose numbers-rough

From: Harrison, Dominica FLNR:EX <Dominica.Harrison@gov.bc.ca>
To: Lavallee, Michel FLNR:EX <Michel.Lavallee@gov.bc.ca>
Sent: May 7, 2021 5:01:29 PM PDT
Attachments: Copy of Population estimates- Moose Survey Summaries Peace Region.xlsx
Ok this is the correct with the appropriate bull and calf estimates and including data from 753, 750 and 748

Total estimated pop min	Total estimated pop Max	Estimated Cows	Min Cow	Max Cows	Estimated Bulls	M
47705.09633	73615.18213	33257.72721	26375.06551	40140.38891	16307.43032	1

From: Lavallee, Michel FLNR:EX <Michel.Lavallee@gov.bc.ca>
Sent: May 7, 2021 2:49 PM
To: Harrison, Dominica FLNR:EX <Dominica.Harrison@gov.bc.ca>
Subject: RE: Moose numbers-rough

I'm still drafting the proposal and will change numbers later. You can use the 2020 7-53 moose inventory results, Eco-Web and I are comfortable with the report and are calling it done.

Michel

From: Harrison, Dominica FLNR:EX <Dominica.Harrison@gov.bc.ca>
Sent: May 7, 2021 2:24 PM
To: Lavallee, Michel FLNR:EX <Michel.Lavallee@gov.bc.ca>
Subject: RE: Moose numbers-rough

s.13

From: Harrison, Dominica FLNR:EX
Sent: May 7, 2021 12:51 PM
To: Lavallee, Michel FLNR:EX <Michel.Lavallee@gov.bc.ca>
Subject: Moose numbers-rough

Hi Michel,

I can explain this to you it's pretty simple...I'm reading a couple of papers to see there is a more statistically sound way of going about this. I also haven't included 748 and 750 so it'll go up a little ...but just as a quick reference for your writing for now.

Column S to X I did super basic population calculations bases on the area of the MU...Below is the sum of each column

s.13

Page 080 of 460 to/à Page 082 of 460

Withheld pursuant to/removed as

s.13

RE: Draft - Moose LEH reg proposal

From: Morgan, James FLNR:EX <James.Morgan@gov.bc.ca>
To: Lewis, Christopher J FLNR:EX <Christopher.J.Lewis@gov.bc.ca>, Lavallee, Michel FLNR:EX <Michel.Lavallee@gov.bc.ca>, Harrison, Dominica FLNR:EX <Dominica.Harrison@gov.bc.ca>
Sent: May 11, 2021 3:04:59 PM PDT
Attachments: R7B_2022-Moose from GOS to LEH_CJL_2.0 +JM.docx, image001.png

I added a few things to Chris' thoughts. s.13

s.13

From: Lewis, Christopher J FLNR:EX <Christopher.J.Lewis@gov.bc.ca>
Sent: May 11, 2021 2:53 PM
To: Lavallee, Michel FLNR:EX <Michel.Lavallee@gov.bc.ca>; Harrison, Dominica FLNR:EX <Dominica.Harrison@gov.bc.ca>; Morgan, James FLNR:EX <James.Morgan@gov.bc.ca>
Subject: RE: Draft - Moose LEH reg proposal

See thoughts in red.

From: Lavallee, Michel FLNR:EX <Michel.Lavallee@gov.bc.ca>
Sent: May 11, 2021 11:10 AM
To: Harrison, Dominica FLNR:EX <Dominica.Harrison@gov.bc.ca>; Lewis, Christopher J FLNR:EX <Christopher.J.Lewis@gov.bc.ca>; Morgan, James FLNR:EX <James.Morgan@gov.bc.ca>
Subject: RE: Draft - Moose LEH reg proposal

Thank you for the feedback/edits/comments and for Chris catching my typo that would have had an Any Bull LEH through the rut.

I've rejigged the proposal based on your comments. I would be interested in adding Dominica's regression analysis to support the comment antler configuration isn't enough.

Michel

From: Harrison, Dominica FLNR:EX <Dominica.Harrison@gov.bc.ca>
Sent: May 11, 2021 9:16 AM
To: Lewis, Christopher J FLNR:EX <Christopher.J.Lewis@gov.bc.ca>; Lavallee, Michel FLNR:EX <Michel.Lavallee@gov.bc.ca>; Morgan, James FLNR:EX <James.Morgan@gov.bc.ca>
Subject: RE: Draft - Moose LEH reg proposal

I've added a couple thing.. s.13

s.13

Excited this is going forward and FN will be happy!

From: Lewis, Christopher J FLNR:EX <Christopher.J.Lewis@gov.bc.ca>
Sent: May 11, 2021 8:49 AM
To: Lavallee, Michel FLNR:EX <Michel.Lavallee@gov.bc.ca>; Harrison, Dominica FLNR:EX <Dominica.Harrison@gov.bc.ca>; Morgan, James FLNR:EX <James.Morgan@gov.bc.ca>
Subject: RE: Draft - Moose LEH reg proposal

Hey Michel,

Thanks for sending this along. I like/support the overall idea/concept of these changes.

I have added a few comments and questions that may help of just be white noise. I'll leave it up to you folks to decide

Chris

From: Lavallee, Michel FLNR:EX <Michel.Lavallee@gov.bc.ca>
Sent: May 10, 2021 4:30 PM
To: Harrison, Dominica FLNR:EX <Dominica.Harrison@gov.bc.ca>; Lewis, Christopher J FLNR:EX <Christopher.J.Lewis@gov.bc.ca>; Morgan, James FLNR:EX <James.Morgan@gov.bc.ca>
Subject: Draft - Moose LEH reg proposal

Good afternoon Dominica, Chris, and James,

Can you take a look at the draft proposal? Feel free to edit and poke holes in the rationale. I need to keep working on the later sections (alternatives, risks, etc.) but the main rationale should be roughed in.



Michel Lavallée, M.SEM., R.P.Bio.

Head | Fish, Wildlife, and Ecosystems Section

Ministry of Forests, Lands, Natural Resource Operations, and Rural Development

Suite 400, 10003-110th Avenue, Fort St. John, BC, V1J 6M7

Ph: 778-576-1139

Conservation means development as much as it does protection – T. Roosevelt



**2022-2024
REGULATION CHANGE
REQUEST FORM**

HQ Use Only		
Executive Summary	<input type="checkbox"/>	LEH Proposal <input type="checkbox"/>
Wildlife Mgr. Approval	<input type="checkbox"/>	H&T Proposal <input type="checkbox"/>
Director Approval	<input type="checkbox"/>	Synopsis edited <input type="checkbox"/>
Regulations drafted	<input type="checkbox"/>	AHTE drafted <input type="checkbox"/>
Map (for synopsis)	<input type="checkbox"/>	AHTE posted <input type="checkbox"/>

Contact: Michel Lavallee **Phone:** 778-576-1139 **Region:** 7B

SUBJECT: Replace Moose GOS with LEH

Management Units: 7-19, 7-20, 7-21A, 7-31A, 7-32, 7-33, 7-35, 7-36, 7-42, 7-43, 7-46 to 7-56 **Date of Submission:** October 1, 2021

Species: Moose

Choose applicable one(s): General Open Season Limited Entry Hunting Trapping
 Motor Vehicle Prohibition Firearm Restriction Other (describe) _____

Who is the regional contact for communications issues?
 (someone with authority to deal with media requests if requested by Public Affairs)
 Name: Greg Van Dolah Phone: 250-795-4158

PART A: BACKGROUND

1. What is currently in the synopsis? (exact wording preferred)

Moose	7-21B, 7-22, 7-31B	Bulls	Aug 15 – Aug 31
	7-19, 7-20, 7-21A, 7-31A, 7-32, 7-33, 7-35, 7-36, 7-42, 7-43, 7-46 to 7-56 ▲	Bulls	Aug 23 – Aug 31
	7-19, 7-21B, 7-22, 7-31, 7-36, 7-42, 7-43, 7-46 to 7-56+▲	*Bulls	Sept 1 – Oct 31
	7-20, 7-21A, 7-32 to 7-35, 7-44, 7-45, 7-57, 7-58	*Bulls	Sept 1 – Sept 30
	7-20, 7-21A, 7-32 to 7-35, 7-44, 7-45, 7-57, 7-58	*Bulls	Oct 16 – Oct 31
Bow Only	7-20, 7-21A, 7-32 to 7-35, 7-44, 7-45, 7-57, 7-58	*Bulls	Oct 1 – Oct 15

2. Briefly describe the proposed wording in the synopsis:

GOS

Moose	7-21B, 7-22, 7-31B	Bulls	Aug 15 – Aug 31
	7-19, 7-20, 7-21A, 7-31A, 7-32, 7-33, 7-34, 7-35, 7-36, 7-42, 7-43, 7-46 to 7-56 ▲	Bulls	Aug 23 – Aug 31
	7-21B, 7-22, 7-31B	*Bulls	Sept 1 – Oct 31
Bow Only	7-20, 7-21A, 7-32 to 7-35, 7-44, 7-45, 7-57, 7-58	*Bulls	Oct 1 – Oct 15

LEH (Shared Hunts)

Moose	7-19, 7-20, 7-21A, 7-31A, 7-32, 7-33, 7-34, 7-35, 7-36, 7-42, 7-43, 7-46 to 7-56 ▲	Bulls	Sept 1 – Sept 30
	7-19, 7-20, 7-21A, 7-31A, 7-32, 7-33, 7-34, 7-35, 7-36, 7-42, 7-43, 7-46 to 7-56+ ▲	Bulls	Oct 16 – Oct 31

3. Map associated with the proposed regulation. Yes No

- This map may be used to form the regulation. It should be digital and professional. [Please provide shapefiles if available.](#)

4. Reason for proposal (rationale in plain language): IMPORTANT – this is what goes on the public engagement website (AHTE) verbatim

Moose populations are stable to declining across most of the Northeast Region. Stakeholders and First Nations are concerned about the populations ability to support First Nation sustenance harvest, licenced harvest, and non-consumptive values due to the pressures of landscape changes and hunting practices. A series of regulation changes were implemented to reduce licenced moose harvest during the last 6 years; moose populations do not appear to be stabilizing with these changes. Addressing habitat concerns is a long process and industry specific; moving moose from General Open Season to Limited Entry Hunt is intended to maintain moose harvest opportunity while providing more oversight of the number of moose harvested within the Region. Changing part of the Northeast Region to LEH while keeping other areas GOS risks moving hunters into areas with lower hunting pressure and increasing moose harvest in currently stable populations.

PART B: ANALYSIS

1. Describe surveys used for conservation issues and their results as they relate to this submission:

Moose inventory data in the Northeast Region does not have the required frequency or coverage to estimate population trends for most of the management units. The recent inventories (2015-2021), demographics, and densities were calculated for each management unit and extrapolated into management units that do not have current inventory data using available information within each Game Management Zone. The result of this work indicates the Northeast Region has 60,660 moose (minimum 47,705 and a maximum of 73,615 moose); the Northeast Region contains an estimated 16,307 (12,406 – 20,208) bulls, 33, 257 (26,375 – 40,140) cows, and 11,094 (8,923 – 13,266) calves).

Work completed by Kuzyk and colleagues in 2018¹ modelled moose population trends across the Province and found each Northeast Game Management Zone has a decreasing population trend ($\lambda < 1$) between 2006 and 2015; a change from the 1996-2005 period where only one Game Management Zone had a declining population trend. This perspective is supported by all the Northeast Region's First Nations who have indicated moose populations are decreasing and harvesting is becoming challenging. Declining hunter effort in the Big Game Harvest Survey is likely a hunter response to declining moose populations and declining success rates.

Research completed by Natcher and colleagues² in 2021 indicates First Nation communities harvest annually 2.1 – 2.4 moose per household. There is a minimum of 677 First Nation residences in the Northeast Region and an unknown number of households from transboundary First Nations (Kaska Daylu Council, Dene Tha' First Nation, Horselake First Nation, McLeod Lake Indian Band) that may hunt in the Region. Approximately 1,421 to 1,624 moose are harvested by First Nations assuming every household is actively harvesting moose and the estimate for households that don't harvest is balanced by harvest from First Nations bordering the Region. First Nations prefer to harvest bull moose to protect the cows and support a sustainable population; exceptions are made for dry cows since they did not successfully reproduce and would be harvested for sustenance purposes. The First Nation harvest distribution can be adjusted to 75% of the moose harvested are bull (1,066 – 1,218) and 25% of the harvest is are dry cows (355 – 406).

Licensed hunters harvested an estimated 1,489 moose in 2019. The combined licenced and First Nation subsistence harvest may be 2,910 – 3,113 moose annually (2,555 – 2,707 with First Nation bull harvest reduced to 75% of total harvest).

The Harvest Management Principles described in the Provincial Moose Management Framework suggest the maximum moose population growth of 15% occurs when wolf populations are controlled. A minimum of 32 calves per 100 cows is required to compensate for natural mortality. The maximum harvest rate suggested is 10-11% of the population when harvest is distributed across bulls, cows, and calves; however, First Nation subsistence practices favors harvesting bull moose and licenced harvest is restricted to bulls with further restrictions based on antler configuration. The annual estimated harvest rate between licensed hunters and First Nations is approximately 5% of the total population; this harvest level requires higher calf recruitment of 30-45 calves per 100 cows to maintain stable populations. Calf recruitment in the Northeast Region ranges from 7 calves per 100 cows (MU 7-57 in 2017) to 68 calves per 100 cows (MU 7-47 in 2016) with a regional average of 32 calves per 100 cows and has remained in this range during the last 20 years.

Kuzyk and colleagues¹ publication indicates a maximum bull harvest of 20% would be sustainable for most moose populations in the Province. Based on the current population estimates, the Northeast Region could support the harvest of 3,261 bull moose annually which is approximately equal to current harvest rates.

Local overharvesting is challenging to avoid through General Open Season since hunters have the flexibility to harvest moose based on hunter preference and access. Antler restrictions have not stabilized the moose populations; moving to Limited Entry Hunt provides the Province the ability to distribute harvest pressure across the Region to reduce the risk of overharvesting in certain areas. The proposed Any Bull LEH is intended to support hunters' opportunity to successfully harvest moose while addressing potential enforcement challenges and unlawful harvest encountered when hunters do not accurately count points on the antler. The Any Bull LEH would distribute harvest pressure across more age classes rather than the current focused harvest on young bulls (spike-fork) or older bulls (tri-palm, 10 point).

Management Units 7-21B, 7-22, and 7-31B overlap the South Peace Caribou recovery efforts and wolf control zones. Keeping these Management Units as GOS will encourage moose harvest within the caribou recovery areas and slow moose population growth.

The Moose LEH Shared hunt allows family or friends to continue moose hunting together without increasing the number of authorizations issued to support the continuation of this practice and knowledge transfer to newer hunters.

¹ Kuzyk, G., I. Hatter, S. Marshall, C. Procter, B. Cadsand, D. Lirette, H. Schindler, M. Bridger, P. Stent, A. Walker, and M. Klaczek. 2018. Moose population dynamics during 20 years of declining harvest in British Columbia. *Alces* 54:101-119

² Natcher, D., S. Ingram, A-M. Bogdan, and A. Rice. 2021. Conservation and Indigenous subsistence hunting in the Peace River Region of Canada. *Human Ecology*. 49:109-120

2. Alternatives to regulation considered:

The Northeast Region has implemented more restrictive hunting regulations to address declining moose populations, but these have not generated the expected change.

Alternatives considered:

- Current regulation structure – moose populations have been declining for over 20 years. The current regulations have been inadequate to stabilize the populations.
- The calf recruitment is low across the Region and is inadequate to stabilize the population. The main driver behind low calf recruitment and survival is predation. Increasing the wolf bag limit to 10 has been proposed and not supported since licenced hunters currently can harvest 3 wolves annually and few hunters consistently harvest wolves. Increasing the limit is unlikely to have a direct, consistent, and sustainable benefit for moose.
- Implementing a predator control program in specific Game Management Zones to enhance calf moose survival. The Management Plan for Grey Wolf (*Canis lupus*) in British Columbia is clear (section 7.4) that implementing predator control to enhance ungulate populations for hunting is contrary to policy. Licenced hunting opportunities will need to be closed before this alternative can be considered.

3. Pros/Cons analysis undertaken & results:

Pros:

- Low calf recruitment indicates moose declines are likely to continue, LEH provides the ability to collect hunter success data and adjust LEH authorizations and quota before the maximum harvest declines below current harvest levels.
- First Nations requested the Province management moose under LEH; this is responsive to their requests
- Responds to First Nations' local and traditional knowledge regarding moose populations
- The Province will need to explicitly consider First Nation Treaty 8 right to hunt when making quota and LEH decisions
- The Province would be able to distribute harvest across the region and reduce the risk of localized overharvesting
- Regional staff and Branch have more control over moose harvest and can adjust LEH authorizations to support management objectives
- Precautionary approach for management units without current inventory data to reduce risk of moose becoming a species of conservation concern

Cons:

- LEH is unlikely to stabilize or increase the moose populations without addressing habitat and predation
- Licenced hunting community harvests moose for food. A moose provides approximately 200kg of meat for the cost of a hunting licence (\$32) and species licence (\$25). Replacing moose with beef would cost over \$3,000 to purchase an equivalent weight from grocery stores.
- Licenced hunters may be upset on the reduced opportunity.
- Northeast licenced hunters will have reduced opportunity under the current LEH system
- Updating the licencing system to include the new LEH codes will take time and resources
- Additional staff time to calculate annual LEH and quota recommendations
- First Nations may expect this change will stop or reverse moose population declines
- Decreased number of hunters traveling from other Regions to the Northeast for moose hunting.

4. Identify risks of NOT implementing the new provision:

The risks associated with not implementing the regulation change could be the non-recoverable collapse of the moose population within the Peace Region. If the general open season continues to operate, the moose population may decrease past a recoverable population. Alternatively, it could lead to a recoverable population, that would require either a LEH or a closed season to allow the population to recuperate. This would also frustrate hunters and stakeholders.

If the government does not listen to the Traditional Knowledge of the local First Nations, there may be a potential violation of Treaty 8 rights, as the population of moose continues to decrease, and sustenance harvest is affected, a lawsuit may be initiated.

5. Comments by Reviewers: (if relevant)

Use separate page, as comments may not be included in the final OIC/MO Package.
Copies of email correspondence may be attached.

PART D: STAKEHOLDER CONSULTATION

ADEQUATE CONSULTATION AND ENGAGEMENT MUST BE RECORDED, OR THE FORM WILL BE RETURNED TO THE ORIGINATOR.

Please attach supporting documentation, such as letters, meeting minutes, etc.

Identify who was consulted and when consultations took place.

Who raised concerns and what was the nature of their concerns?

Has the regulation been changed to respond to Stakeholders' Concerns?

Organization	Contact Name	Date and type of Consultation & Engagement	Supported? (If no, attach an explanation) N/A = Proposal not applicable to organization
CO Service			<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A Note: CO service consultation is required BEFORE submission is sent to Wildlife & Habitat Branch. Only rarely is this consultation not required. COS verification is required for safety related regulation proposals.
Other Regions			<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A

Wildlife & Habitat Branch (Victoria) Note: If proposed regulation is for a CITES species, Stephen MacIver (Management Authority for CITES) must be consulted.	Holger Bohm	May 4, 2021 - Discussed proposal and methodology	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A Note: Consultation is required BEFORE submission is sent to Wildlife & Habitat Branch. Only rarely is this consultation not required. Consultation for: Ungulates: Holger.Bohm@gov.bc.ca Birds: Gerad.Hales@gov.bc.ca Wildlife Health: Caeley.Thacker@gov.bc.ca Furbearers/small game: Geard.Hales@gov.bc.ca Large Carnivores: Garth.Mowat@gov.bc.ca Motor Vehicle Prohibitions: Depends on the purpose of the closure, if the purpose is related to a specific species contact the species specialist above. Habitat related proposals: Steve.Gordon@gov.bc.ca .
BC Parks, if applicable			<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A
Other Gov't agencies (list) (Highways, Forests)			<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A
BCWF (Zone Representative)			<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A
GOABC or local organization			<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A
BCTA or local organization			<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A
Other organization: (name)			<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A
Public Meetings:	(attendees)		<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A

PART E: INDIGENOUS CONSULTATION AND ENGAGEMENT

Please attach supporting documentation, such as letters, meeting minutes, etc.

When did initial consultation and engagement period begin? _____

a) Does this proposed change have implications (impact or of interest to) Indigenous Peoples?	<input type="checkbox"/> NO - If no, please explain _____ <input type="checkbox"/> YES - If yes, please complete items (b) to (e) if applicable _____
b) Does this proposed change relate to the Calls to Action of the Truth and Reconciliation Commission?	<input type="checkbox"/> NO <input type="checkbox"/> YES - If yes, please indicate which of the calls and how _____

<p>c) Does this proposed change relate to any of the following legal or other government obligations?</p> <ul style="list-style-type: none"> • modern treaty obligations to notify, discuss or consult, • common law consultation obligations, • contractual commitments, under the <i>Declaration on the Rights of Indigenous Peoples Act</i>? 	<p><input type="checkbox"/> NO</p> <p><input type="checkbox"/> YES – If yes, please explain how</p> <hr/> <p>Please review the following to help you with your analysis: ILR Reference Document: Indigenous Legal Relations Review of Cabinet Submissions*; UN Declaration Reference Document*; Provincial Legislation Engagement with Treaty Nations Guide</p> <p>*Note: You may have to request permission to the site from the Ministry of Attorney General.</p>
<p>d) Does this proposed change affect Indigenous peoples' modern or historic treaty rights or Aboriginal rights, including any Aboriginal title?</p>	<p><input type="checkbox"/> NO</p> <p><input type="checkbox"/> YES – If yes, please indicate how.</p> <p>Was the consultation sufficient for the purposes of the constitutional obligations?</p> <hr/>
<p>e) Have Indigenous peoples, including Indigenous organizations, been involved in the development of the proposed change, and will they be involved in its implementation?</p>	<p><input type="checkbox"/> NO - If no, please explain why not</p> <hr/> <p><input type="checkbox"/> YES - If yes, what views were expressed or how will they be sought?</p> <hr/> <p>Please review the Policy Framework for Advancing Reconciliation with Indigenous Peoples for guidance on involving Indigenous peoples in your policy development.</p> <p>If you would like further support with this section, please contact Legislative Alignment and Process.</p>

Indigenous Peoples

We require the name of each Indigenous group engaged and individuals within the group. When did the engagement and consultation take place and in what forum (letter, fax, meeting, etc.)? What was the response or outcome of engagement (band by band or tribal association)? What might be the anticipated impact of this proposal on the Indigenous peoples ability to practice their Aboriginal Interests?

If consultation/engagement with Indigenous peoples is incomplete/ongoing indicate the anticipated completion date.

PART F: APPROVAL

**RECORD OF APPROVALS FOR REGULATION CHANGES
UNDER THE WILDLIFE ACT
BC REGULATION [title] [reg #] [section #]
SUBJECT: [subject]**

Region: _____

Contact Name: _____

Telephone Number: _____

APPROVAL is sought for the following documents, to be submitted as part of the OIC/MO package:
- [LIST DOCUMENTS & ATTACHMENTS]

1. Section Head, Originating Office (GIVE LOCATION)

Reviewed by: _____

Date: _____

Signature: _____

Supported *Not Supported

*If not supported, please provide reason.

2. Regional Manager

Reviewed by: _____

Date: _____

Signature: _____

Supported *Not Supported

*If not supported, please provide reason.

Page 093 of 460

Withheld pursuant to/removed as

s.13

FW: Additional Moose Compulsory Inspection - Guides

From: Morgan, James FLNR:EX <James.Morgan@gov.bc.ca>
To: Lavallee, Michel FLNR:EX <Michel.Lavallee@gov.bc.ca>, Harrison, Dominica FLNR:EX <Dominica.Harrison@gov.bc.ca>
Sent: May 17, 2021 12:51:05 PM PDT
Attachments: image001.jpg, image002.jpg
Hey Michel,

Darryl made a good point when I asked for his thoughts on the Moose CI Changes. Who should I contact in the PHTAT about the change to get the ball rolling?

From: Struthers, Darryl J ENV:EX <Darryl.Struthers@gov.bc.ca>
Sent: May 17, 2021 12:48 PM
To: Morgan, James FLNR:EX <James.Morgan@gov.bc.ca>
Subject: RE: Additional Moose Compulsory Inspection - Guides

No red flags,^{s.13}
s.13

Inspector Darryl J. Struthers

OIC Peace Liard Region| BC Conservation Officer Service
1201-103rd Avenue Dawson Creek BC V1G 4J2
Phone: (250) 784-2305 Fax: (250) 784-2510

From: Morgan, James FLNR:EX <James.Morgan@gov.bc.ca>
Sent: Monday, May 17, 2021 11:19 AM
To: Struthers, Darryl J ENV:EX <Darryl.Struthers@gov.bc.ca>
Subject: Additional Moose Compulsory Inspection - Guides

Good Morning Darryl,

I am reaching out to you for your thoughts on the proposed change to include Moose hunted via guides/outfitters in the 7B Region for compulsory inspections. I have drafted the proposed reg change as follows:

“Persons who use the services of a licensed guide for the purpose of hunting a mountain goat, mountain sheep, or moose in Region 7B must submit such animals for inspection within 30 days after the last day of the continuous season in which the animal was taken and by December 5 of the year of the kills, whichever occurs first.”

This would be included on page 21 under the Compulsory Inspection and Reporting title. From the enforcement side, does this raise any red flags for you?

Coming from Alberta, these compulsory checks are new to me. From my understanding, this reg change would alleviate some stress for the guides in the Northern Section of the region where Inspectors may not be as readily available.

I am available to discuss over the phone as well.

Thanks,



James Morgan

Fish and Wildlife Biologist, Northeast Region
Ministry of Forests, Lands, Natural Resource Operations and Rural Development
100 10003 110 Avenue Fort St. John BC V1J 6M7
Phone: 778-576-1194 Email: james.morgan@gov.bc.ca

RE: Moose CI Reg Change form

From: Morgan, James FLNR:EX <James.Morgan@gov.bc.ca>
To: Lavallee, Michel FLNR:EX <Michel.Lavallee@gov.bc.ca>
Sent: May 19, 2021 1:36:42 PM PDT
Attachments: image003.jpg, image004.jpg, image001.jpg, image002.png
Okay Awesome, thanks Michel. If it's not I can go back into the proposal and return It to a regional Proposal.

From: Lavallee, Michel FLNR:EX <Michel.Lavallee@gov.bc.ca>
Sent: May 19, 2021 1:36 PM
To: Morgan, James FLNR:EX <James.Morgan@gov.bc.ca>
Subject: RE: Moose CI Reg Change form

I can connect with Steve to see if this is a Northeast proposal or one Branch will adopt.

Michel

From: Morgan, James FLNR:EX <James.Morgan@gov.bc.ca>
Sent: May 19, 2021 1:25 PM
To: Lavallee, Michel FLNR:EX <Michel.Lavallee@gov.bc.ca>
Subject: FW: Moose CI Reg Change form

Hey Michel,

Mike attached his comments on the Moose CI Proposal. See his comments below and on the proposal. ^{s.13}
s.13 I'm not too sure how that logistically works, but
I'm assuming it means more folks need to have a look at it.

Thanks,

James

From: Bridger, Michael C FLNR:EX <Michael.Bridger@gov.bc.ca>
Sent: May 19, 2021 1:19 PM
To: Morgan, James FLNR:EX <James.Morgan@gov.bc.ca>
Subject: RE: Moose CI Reg Change form

Hey James,

I just added a couple of comments to the document. ^{s.13}
s.13 Maybe just check with Michel and Steve MacIver. We could probably also add
caribou to the list, or any other CI'd species that may be relevant in other regions.

Cheers,

Mike

Mike Bridger
Wildlife Biologist
FLNRORD Northeast Region
Phone: (778)576-8933



From: Morgan, James FLNR:EX <James.Morgan@gov.bc.ca>

Sent: May 17, 2021 11:09 AM

To: Bridger, Michael C FLNR:EX <Michael.Bridger@gov.bc.ca>

Subject: Moose CI Reg Change form

Good Morning Michael,

I've attached the draft version of the regulation change form for the Moose CI for Region 7B. It looks like Michel did most of the heavy lifting on the writing. I've added how I think the regulation should be included in the new regulations. If you are free in the next couple of weeks it would be great to go over this change with you to potentially beef up this document a bit more.

Let me know if there is a time I can fit in to discuss.

Sincerely,



James Morgan

Fish and Wildlife Biologist, Northeast Region
Ministry of Forests, Lands, Natural Resource Operations and Rural Development
100 10003 110 Avenue Fort St. John BC V1J 6M7
Phone: 778-576-1194 Email: james.morgan@gov.bc.ca

RE: Draft - Moose GOS to LEH proposal

From: Johnson, Marianne FLNR:EX <Marianne.Johnson@gov.bc.ca>
To: Lavallee, Michel FLNR:EX <Michel.Lavallee@gov.bc.ca>, Van Dolah, Greg FLNR:EX <Greg.VanDolah@gov.bc.ca>
Sent: May 19, 2021 5:56:31 PM PDT
Attachments: image007.png, image002.png, image004.png, image001.png
Hello Michel

I talked with Greg.

Yes please share this with other biologists internally in government for their perspective.



Marianne Johnson
Resource Manager, Stewardship

Peace Natural Resource District | Northeast (Peace) Region
Phone – (250) 795-4177
Ministry of Forests, Lands, Natural Resource Operations and Rural Development

From: Lavallee, Michel FLNR:EX <Michel.Lavallee@gov.bc.ca>
Sent: May 19, 2021 3:14 PM
To: Van Dolah, Greg FLNR:EX <Greg.VanDolah@gov.bc.ca>; Johnson, Marianne FLNR:EX <Marianne.Johnson@gov.bc.ca>
Subject: RE: Draft - Moose GOS to LEH proposal

I revised the draft moose proposal to incorporate Marianne's questions. Can I share the draft with the provincial specialist for his perspective and another moose data biologist to double check Dominica's calculations?

Michel

From: Van Dolah, Greg FLNR:EX <Greg.VanDolah@gov.bc.ca>
Sent: May 12, 2021 11:56 AM
To: Lavallee, Michel FLNR:EX <Michel.Lavallee@gov.bc.ca>; Johnson, Marianne FLNR:EX <Marianne.Johnson@gov.bc.ca>
Subject: RE: Draft - Moose GOS to LEH proposal

Michel:

Thanks for your work on this project. The draft looks really promising and I think moving in the right direction. The clarification that is provided by Marianne's questions and your responses are really helpful. I would like to set up a meeting late next week to final our approach and to discuss and finalize the plan for engagement.

Please include yourself, Marianne, Aviva, Dominica and James Morgan for learning purposes to this meeting.



Greg Van Dolah
Peace Resource District
District Manager
Phone (250) 795-4158 | Cell (250) 719-5379

Regional Operations/Northeast Region
Forests, Lands and Natural Resource Operations and Rural Development

CONSIDER A CAREER IN B.C.'s NORTH

From: Lavallee, Michel FLNR:EX <Michel.Lavallee@gov.bc.ca>
Sent: May 11, 2021 4:05 PM
To: Johnson, Marianne FLNR:EX <Marianne.Johnson@gov.bc.ca>; Van Dolah, Greg FLNR:EX <Greg.VanDolah@gov.bc.ca>

Subject: RE: Draft - Moose GOS to LEH proposal

Some thoughts are below.

Michel

From: Johnson, Marianne FLNR:EX <Marianne.Johnson@gov.bc.ca>

Sent: May 11, 2021 1:50 PM

To: Lavallee, Michel FLNR:EX <Michel.Lavallee@gov.bc.ca>; Van Dolah, Greg FLNR:EX <Greg.VanDolah@gov.bc.ca>

Subject: RE: Draft - Moose GOS to LEH proposal

Hi Michel

Reading this document these questions and comments popped up for me.

s.13



Marianne Johnson
Resource Manager, Stewardship

Peace Natural Resource District | Northeast (Peace) Region
Phone – (250) 795-4177

Ministry of Forests, Lands, Natural Resource Operations and Rural Development

From: Lavallee, Michel FLNR:EX <Michel.Lavallee@gov.bc.ca>

Sent: May 11, 2021 12:14 PM

To: Van Dolah, Greg FLNR:EX <Greg.VanDolah@gov.bc.ca>; Johnson, Marianne FLNR:EX <Marianne.Johnson@gov.bc.ca>

Subject: Draft - Moose GOS to LEH proposal

Good afternoon Greg,

Are you comfortable with the direction this regulation proposal is going? I will reach out to other Regions to have a couple of their moose biologists take a look at the rationale if you are comfortable with this draft.



Michel Lavallée, M.SEM., R.P.Bio.

Head | Fish, Wildlife, and Ecosystems Section

Ministry of Forests, Lands, Natural Resource Operations, and Rural Development

Suite 400, 10003-110th Avenue, Fort St. John, BC, V1J 6M7

Ph: 778-576-1139

Conservation means development as much as it does protection – T. Roosevelt

FW: DRAFT - R7B moose CI reg proposal

From: Maclver, Stephen FLNR:EX <Stephen.Maclver@gov.bc.ca>
To: Lavallee, Michel FLNR:EX <Michel.Lavallee@gov.bc.ca>
Cc: Morgan, James FLNR:EX <James.Morgan@gov.bc.ca>, Larden, Troy P FLNR:EX <Troy.Larden@gov.bc.ca>
Sent: May 20, 2021 9:07:49 AM PDT
Attachments: R7B_2022-Moose Compulsory Inspection Extension.docx, image001.png
Hi Michel, James,

Thanks for the opportunity to weigh in.

s.13

Troy, can we discuss this at the next SH call?

Steve

From: Lavallee, Michel FLNR:EX <Michel.Lavallee@gov.bc.ca>
Sent: May 19, 2021 1:40 PM
To: Maclver, Stephen FLNR:EX <Stephen.Maclver@gov.bc.ca>
Cc: Morgan, James FLNR:EX <James.Morgan@gov.bc.ca>
Subject: DRAFT - R7B moose CI reg proposal

Good afternoon Steve,

James has been working on the moose CI regulation proposal. This is likely to impact CI requirements in multiple regions – is this easier for us to coordinate with R7A and R6 or as a Branch proposal for provincial consistency?



Michel Lavallée, M.SEM., R.P.Bio.

Head | Fish, Wildlife, and Ecosystems Section

Ministry of Forests, Lands, Natural Resource Operations, and Rural Development

Suite 100, 10003-110th Avenue, Fort St. John, BC, V1J 6M7

Ph: 778-576-1139

Conservation means development as much as it does protection – T. Roosevelt



2022-2024
REGULATION CHANGE
REQUEST FORM

HQ Use Only		
Executive Summary	<input type="checkbox"/>	LEH Proposal <input type="checkbox"/>
Wildlife Mgr. Approval	<input type="checkbox"/>	H&T Proposal <input type="checkbox"/>
Director Approval	<input type="checkbox"/>	Synopsis edited <input type="checkbox"/>
Regulations drafted	<input type="checkbox"/>	AHTE drafted <input type="checkbox"/>
Map (for synopsis)	<input type="checkbox"/>	AHTE posted <input type="checkbox"/>

Contact: Michel Lavallee Phone: 778-576-1139 Region: 7B Northeast

SUBJECT: Amend Compulsory Inspection for Guide Outfitter

Management Units: Province Date of Submission: October 1, 2021

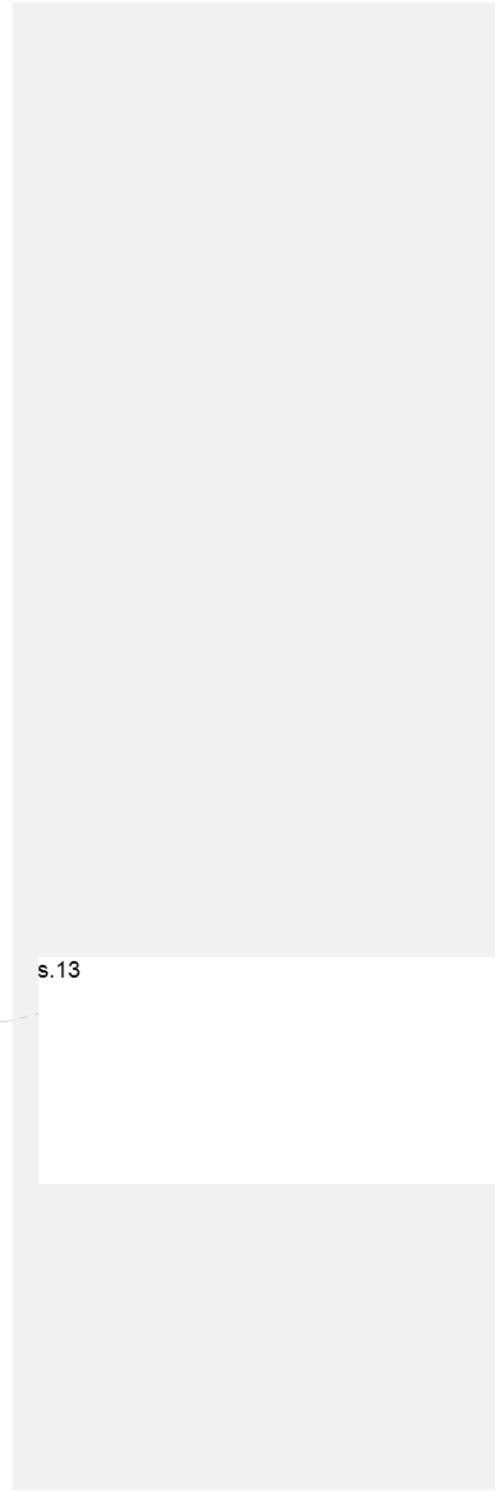
Species: Moose and Caribou

Choose applicable one(s): General Open Season Limited Entry Hunting Trapping
Motor Vehicle Prohibition Firearm Restriction Other (describe) Add moose to Compulsory
Inspection extension for guide-outfitters (Hunting Regulation Division 6 section 2.2(b))

Who is the regional contact for communications issues?
(someone with authority to deal with media requests if requested by Public Affairs)
Name: Greg Van Dolah Phone: 250-795-4158

PART A: BACKGROUND

s.13; s.16



s.13

Page 102 of 460

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s.13 ; s.16

Page 103 of 460

Withheld pursuant to/removed as

s.13

Page 104 of 460 to/à Page 106 of 460

Withheld pursuant to/removed as

s.13 ; s.16

RE: Moose Regulation Proposals in the Northeast

From: Johnson, Marianne FLNR:EX <Marianne.Johnson@gov.bc.ca>
To: Bridger, Michael C FLNR:EX <Michael.Bridger@gov.bc.ca>, Lavallee, Michel FLNR:EX <Michel.Lavallee@gov.bc.ca>
Cc: Scheck, Joelle L FLNR:EX <Joelle.Scheck@gov.bc.ca>, Burwash, Michael FLNR:EX <Michael.Burwash@gov.bc.ca>
Sent: May 21, 2021 4:44:23 PM PDT
Attachments: image005.jpg, image010.png, image012.png, image002.png, image011.jpg, image009.png, image004.png

Hi Mike

As previously stated we will share information with you in the near future once it has undergone this review.



Marianne Johnson
Resource Manager, Stewardship

Peace Natural Resource District | Northeast (Peace) Region
Phone – (250) 795-4177
Ministry of Forests, Lands, Natural Resource Operations and Rural Development

From: Bridger, Michael C FLNR:EX <Michael.Bridger@gov.bc.ca>
Sent: May 21, 2021 11:40 AM
To: Johnson, Marianne FLNR:EX <Marianne.Johnson@gov.bc.ca>; Lavallee, Michel FLNR:EX <Michel.Lavallee@gov.bc.ca>
Cc: Scheck, Joelle L FLNR:EX <Joelle.Scheck@gov.bc.ca>; Burwash, Michael FLNR:EX <Michael.Burwash@gov.bc.ca>
Subject: RE: Moose Regulation Proposals in the Northeast

I'm just requesting a copy of the initial information package that was sent out for review so I can take a look at it myself. Not looking for feedback from the review at this point.

Thanks.

MB

Mike Bridger
Wildlife Biologist
FLNRORD Northeast Region
Phone: (778)576-8933



From: Johnson, Marianne FLNR:EX <Marianne.Johnson@gov.bc.ca>
Sent: May 21, 2021 11:31 AM
To: Bridger, Michael C FLNR:EX <Michael.Bridger@gov.bc.ca>; Lavallee, Michel FLNR:EX <Michel.Lavallee@gov.bc.ca>
Cc: Scheck, Joelle L FLNR:EX <Joelle.Scheck@gov.bc.ca>; Burwash, Michael FLNR:EX <Michael.Burwash@gov.bc.ca>
Subject: RE: Moose Regulation Proposals in the Northeast

Hello Mike

We will send you the information once it has undergone the provincial review. There are some pieces we are still scoping out and wanted provincial experts input on so it may shift.



Marianne Johnson
Resource Manager, Stewardship

Peace Natural Resource District | Northeast (Peace) Region
Phone – (250) 795-4177
Ministry of Forests, Lands, Natural Resource Operations and Rural Development

From: Bridger, Michael C FLNR:EX <Michael.Bridger@gov.bc.ca>
Sent: May 21, 2021 11:27 AM
To: Johnson, Marianne FLNR:EX <Marianne.Johnson@gov.bc.ca>; Lavallee, Michel FLNR:EX <Michel.Lavallee@gov.bc.ca>
Cc: Scheck, Joelle L FLNR:EX <Joelle.Scheck@gov.bc.ca>; Burwash, Michael FLNR:EX <Michael.Burwash@gov.bc.ca>
Subject: RE: Moose Regulation Proposals in the Northeast

That would be great. Thanks.

Could you please send me a copy of the information that was compiled and sent out to for review?

Cheers,

Mike

Mike Bridger
Wildlife Biologist
FLNRORD Northeast Region
Phone: (778)576-8933



From: Johnson, Marianne FLNR:EX <Marianne.Johnson@gov.bc.ca>
Sent: May 21, 2021 10:28 AM
To: Bridger, Michael C FLNR:EX <Michael.Bridger@gov.bc.ca>; Lavallee, Michel FLNR:EX <Michel.Lavallee@gov.bc.ca>
Cc: Scheck, Joelle L FLNR:EX <Joelle.Scheck@gov.bc.ca>; Burwash, Michael FLNR:EX <Michael.Burwash@gov.bc.ca>
Subject: RE: Moose Regulation Proposals in the Northeast

Hello Mike

Thank you for reaching out and highlighting the caribou interest.

Right now the information that has been compiled is being peer reviewed provincially to verify the data analysis is valid and suggested changes make sense from a moose management lens. Once that is done we plan to arrange a meeting with Caribou group to review the proposal and discuss options of how we may adjust it to support Caribou Program interests. At that time we can discuss the potential opportunity to add in the antlerless season as well to support Caribou. I suspect this meeting will be arranged in June.

We recognize this is a shift in management and will require engagement and increases workload.

Please keep this confidential within government at this time as it is still early stages and is being scoped out.

Respectfully



Marianne Johnson
Resource Manager, Stewardship

Peace Natural Resource District | Northeast (Peace) Region
Phone – (250) 795-4177
Ministry of Forests, Lands, Natural Resource Operations and Rural Development

From: Bridger, Michael C FLNR:EX <Michael.Bridger@gov.bc.ca>

Sent: May 21, 2021 10:04 AM

To: Lavallee, Michel FLNR:EX <Michel.Lavallee@gov.bc.ca>; Johnson, Marianne FLNR:EX <Marianne.Johnson@gov.bc.ca>

Cc: Scheck, Joelle L FLNR:EX <Joelle.Scheck@gov.bc.ca>; Burwash, Michael FLNR:EX <Michael.Burwash@gov.bc.ca>

Subject: Moose Regulation Proposals in the Northeast

Good morning Michel and Marianne,

s.13; s.16

Thanks, look forward to chatting about this soon.

Mike

Mike Bridger, M.Sc., R.P.Bio.



Wildlife Biologist | Northeast Region

Ministry of Forests, Lands, Natural Resource Operations and Rural Development

Suite 400, 10003-110th Avenue, Fort St. John, BC, V1J 6M7

Ph: 778-576-8933



RE: Hunting reg summary

From: Bridger, Michael C FLNR:EX <Michael.Bridger@gov.bc.ca>
To: Harrison, Dominica FLNR:EX <Dominica.Harrison@gov.bc.ca>, Lavallee, Michel FLNR:EX <Michel.Lavallee@gov.bc.ca>
Cc: Johnson, Marianne FLNR:EX <Marianne.Johnson@gov.bc.ca>
Sent: May 26, 2021 2:36:13 PM PDT
Attachments: image001.png, R7B_2022-Moose from GOS to LEH_Bridger.docx, image003.jpg, MOOSE Harvest Tracking.xlsx

Hey Dominica and Michel,

s.13

Let me know if you'd like to discuss at some point.

Cheers,

Mike

Mike Bridger
Wildlife Biologist
FLNRORD Northeast Region
Phone: (778)576-8933





**2022-2024
REGULATION CHANGE
REQUEST FORM**

HQ Use Only		
Executive Summary	<input type="checkbox"/>	LEH Proposal <input type="checkbox"/>
Wildlife Mgr. Approval	<input type="checkbox"/>	H&T Proposal <input type="checkbox"/>
Director Approval	<input type="checkbox"/>	Synopsis edited <input type="checkbox"/>
Regulations drafted	<input type="checkbox"/>	AHTE drafted <input type="checkbox"/>
Map (for synopsis)	<input type="checkbox"/>	AHTE posted <input type="checkbox"/>

Contact: Michel Lavallee **Phone:** 778-576-1139 **Region:** 7B

SUBJECT: Replace Moose GOS with LEH

Management Units: 7-19, 7-20, 7-21A, 7-31A, 7-32, 7-33, 7-35, 7-36, 7-42, 7-43, 7-46 to 7-56 **Date of Submission:** October 1, 2021

Species: Moose

Choose applicable one(s): General Open Season Limited Entry Hunting Trapping
 Motor Vehicle Prohibition Firearm Restriction Other (describe) _____

Who is the regional contact for communications issues?
 (someone with authority to deal with media requests if requested by Public Affairs)
 Name: Greg Van Dolah Phone: 250-795-4158

PART A: BACKGROUND

1. What is currently in the synopsis? (exact wording preferred)

Moose	7-21B, 7-22, 7-31B	Bulls	Aug 15 – Aug 31
	7-19, 7-20, 7-21A, 7-31A, 7-32, 7-33, 7-35, 7-36, 7-42, 7-43, 7-46 to 7-56 ▲	Bulls	Aug 23 – Aug 31
	7-19, 7-21B, 7-22, 7-31, 7-36, 7-42, 7-43, 7-46 to 7-56+▲	*Bulls	Sept 1 – Oct 31
	7-20, 7-21A, 7-32 to 7-35, 7-44, 7-45, 7-57, 7-58	*Bulls	Sept 1 – Sept 30
	7-20, 7-21A, 7-32 to 7-35, 7-44, 7-45, 7-57, 7-58	*Bulls	Oct 16 – Oct 31
Bow Only	7-20, 7-21A, 7-32 to 7-35, 7-44, 7-45, 7-57, 7-58	*Bulls	Oct 1 – Oct 15

2. Briefly describe the proposed wording in the synopsis:

GOS

Moose	7-21B, 7-22, 7-31B	Bulls	Aug 15 – Aug 31
	7-21B, 7-22, 7-31B	*Bulls	Sept 1 – Oct 31
Bow Only	7-20, 7-21A, 7-32 to 7-35, 7-44, 7-45, 7-57, 7-58	*Bulls	Oct 1 – Oct 15

LEH

Moose; youth only	7-19, 7-20, 7-21A, 7-31A, 7-32, 7-33, 7-34, 7-35, 7-36, 7-42, 7-43, 7-46 to 7-56▲	Bulls	Aug 23 – Aug 31
Moose; shared hunt	7-19, 7-20, 7-21A, 7-31A, 7-32, 7-33, 7-34, 7-35, 7-36, 7-42, 7-43, 7-46 to 7-56 ▲	Bulls	Sept 1 – Sept 30
	7-19, 7-20, 7-21A, 7-31A, 7-32, 7-33, 7-34, 7-35, 7-36, 7-42, 7-43, 7-46 to 7-56+ ▲	Bulls	Oct 16 – Oct 31

s.13

3. Map associated with the proposed regulation. Yes No

- This map may be used to form the regulation. It should be digital and professional. [Please provide shapefiles if available.](#)

4. Reason for proposal (rationale in plain language): IMPORTANT – this is what goes on the public engagement website (AHTE) verbatim

Moose populations are stable to declining across most of the Northeast Region. Stakeholders and First Nations are concerned about the populations ability to support First Nation sustenance harvest, licenced harvest, and non-consumptive values due to the pressures of landscape changes and hunting practices. A series of regulation changes were implemented to reduce licenced moose harvest during the last 6 years; moose populations do not appear to be stabilizing with these changes. Addressing habitat concerns is a long process and industry specific; moving moose from General Open Season to Limited Entry Hunt is intended to maintain moose harvest opportunity while providing more oversight of the number of moose harvested within the Region. Changing part of the Northeast Region to LEH while keeping other areas GOS risks moving hunters into areas with lower hunting pressure and increasing moose harvest in currently stable populations. The Youth LEH season is intended to provide opportunity for youth to harvest moose before returning to school and having reduced opportunity during the remaining seasons. The two LEH opportunities (September 1 – September 30 and October 16 – October 31) are intended to balance harvest pressure before and after the rut to support reproductive success; the number of authorizations can be adjusted to maintain post-hunt bull to cow ratios. All three LEH opportunities are Any Bull to distribute harvest pressure across the different age classes and offset loss of harvest opportunity by increasing the number of moose that could be legally harvested.

s.13

PART B: ANALYSIS

1. Describe surveys used for conservation issues and their results as they relate to this submission:

s.13

Moose inventory data in the Northeast Region does not have the required frequency or coverage to estimate population trends for most of the management units. The recent inventories (2015-2021), demographics, and densities were calculated for each management unit and extrapolated into management units that do not have current inventory data using available information within each Game Management Zone. The result of this work indicates the Northeast Region has 60,660 moose (minimum 47,705 and a maximum of 73,615 moose); the Northeast Region contains an estimated 16,307 (12,406 – 20,208) bulls, 33, 257 (26,375 – 40,140) cows, and 11,094 (8,923 – 13,266) calves).

Work completed by Kuzyk and colleagues in 2018¹ modelled moose population trends across the Province and found each Northeast Game Management Zone has a decreasing population trend ($\lambda < 1$) between 2006 and 2015; a change from the 1996-2005 period where only one Game Management Zone had a declining population trend. This perspective is supported by all the Northeast Region's First Nations who have indicated moose populations are decreasing and harvesting is becoming challenging. Declining hunter effort in the Big Game Harvest Survey is likely a hunter response to declining moose populations and declining success rates.

Research completed by Natcher and colleagues² in 2021 indicates First Nation communities harvest annually 2.1 – 2.4 moose per household. There is a minimum of 677 First Nation residences in the Northeast Region and an unknown number of households from transboundary First Nations (Kaska Daylu Council, Dene Tha' First Nation, Horselake First Nation, McLeod Lake Indian Band) that may hunt in the Region. Approximately 1,421 to 1,624 moose are harvested by First Nations assuming every household is actively harvesting moose and the estimate for households that don't harvest is balanced by harvest from First Nations bordering the Region. First Nations prefer to harvest bull moose to protect the cows and support a sustainable population; exceptions are made for dry cows since they did not successfully reproduce and would be harvested for sustenance purposes. The First Nation harvest distribution can be adjusted to 75% of the moose harvested are bull (1,066 – 1,218) and 25% of the harvest is are dry cows (355 – 406).

Licensed hunters harvested an estimated 1,489 moose in 2019. The combined licensed and First Nation subsistence harvest may be 2,910 – 3,113 moose annually (2,555 – 2,707 bull moose assuming First Nation bull harvest is 75% of the total First Nation harvest).

The Harvest Management Principles described in the Provincial Moose Management Framework suggest the maximum moose population growth of 15% occurs when wolf populations are controlled. A minimum of 32 calves per 100 cows is required to compensate for natural mortality. The maximum harvest rate suggested is 10-11% of the population when harvest is distributed across bulls, cows, and calves. First Nation subsistence practices favors harvesting bull moose and licensed harvest is restricted to bulls with further restrictions based on antler configuration. Even distribution across the population does not occur under the current cultural practices and regulatory requirements which requires a lower maximum allowable harvest rate to account for the selective harvest practices; a recommendation is 5% of the population (3,033 ± 348). The annual estimated combined harvest of licensed hunters and First Nations is approximately 4.9% (ranges from 4.1% to 6.3%) of the total population. This harvest rate requires higher calf recruitment of 30-45 calves per 100 cows to maintain stable populations.

Calf recruitment in the Northeast Region ranges from 7 calves per 100 cows (MU 7-57 in 2017) to 68 calves per 100 cows (MU 7-47 in 2016) with a regional average of 32 calves per 100 cows. The regional moose recruitment has remained in this range during the last 20 years. This recruitment level indicates regional moose populations are likely to continue declining under current the wildlife management practice. Changing to LEH may provide the Province the flexibility required to maintain the bull composition and slow the population declines while long-term measures are implemented to change the main population drivers.

Kuzyk and colleagues¹ publication indicates a maximum bull harvest of 20% would be sustainable for most moose populations in the Province. Based on the current population estimates, the Northeast Region could support the harvest of 3,261 (± 780) bull moose annually which is approximately equal to current harvest rates.

Local overharvesting is challenging to avoid through General Open Season since hunters have the flexibility to harvest moose based on hunter preference and access. Antler restrictions have not stabilized the moose populations; moving to Limited Entry Hunt provides the Province the ability to distribute harvest pressure across the Region to reduce the risk of overharvesting in certain areas. The proposed Any Bull LEH is intended to support hunters' opportunity to successfully harvest moose while addressing potential enforcement challenges and unlawful harvest encountered when hunters do not accurately count points on the antler.

The Any Bull LEH would distribute harvest pressure across more age classes rather than the current focused harvest on young bulls (spike-fork) or older bulls (tri-palm, 10 point).

Management Units 7-21B, 7-22, and 7-31B overlap the South Peace Caribou recovery efforts and wolf control zones. Keeping these Management Units as GOS will encourage moose harvest within the caribou recovery areas and slow moose population growth.

The Moose LEH Shared hunt allows family or friends to continue moose hunting together without increasing the number of authorizations issued to support the continuation of this practice and knowledge transfer to newer hunters.

¹ Kuzyk, G., I. Hatter, S. Marshall, C. Procter, B. Cadsand, D. Lirette, H. Schindler, M. Bridger, P. Stent, A. Walker, and M. Klaczek. 2018. Moose population dynamics during 20 years of declining harvest in British Columbia. *Alces* 54:101-119

² Natcher, D., S. Ingram, A-M. Bogdan, and A. Rice. 2021. Conservation and Indigenous subsistence hunting in the Peace River Region of Canada. *Human Ecology*. 49:109-120

s.13

2. Alternatives to regulation considered:

The Northeast Region has implemented more restrictive hunting regulations to address declining moose populations, but these have not generated the expected change.

Alternatives considered:

- Current regulation structure – moose populations have been declining for over 20 years. The current regulations have been inadequate to stabilize the populations.
- The calf recruitment is low across the Region and is inadequate to stabilize the population. The main driver behind low calf recruitment and survival is predation. Increasing the wolf bag limit to 10 has been proposed and not supported since licenced hunters currently can harvest 3 wolves annually and few hunters consistently harvest wolves. Increasing the limit is unlikely to have a direct, consistent, and sustainable benefit for moose.
- Implementing a predator control program in specific Game Management Zones to enhance calf moose survival. The Management Plan for Grey Wolf (*Canis lupus*) in British Columbia is clear (section 7.4) that implementing predator control to enhance ungulate populations for hunting is contrary to policy. Licenced hunting opportunities will need to be closed before this alternative can be considered.

3. Pros/Cons analysis undertaken & results:

Pros:

- Low calf recruitment indicates moose declines are likely to continue, LEH provides the ability to collect hunter success data and adjust LEH authorizations and quota before the maximum harvest declines below current harvest levels.
- First Nations requested the Province management moose under LEH; this is responsive to their requests
- Responds to First Nations' local and traditional knowledge regarding moose populations
- The Province will need to explicitly consider First Nation Treaty 8 right to hunt when making quota and LEH decisions
- The Province would be able to distribute harvest across the region and reduce the risk of localized overharvesting
- Regional staff and Branch have more control over moose harvest and can adjust LEH authorizations to support management objectives
- Precautionary approach for management units without current inventory data to reduce risk of moose becoming a species of conservation concern

Cons:

- LEH is unlikely to stabilize or increase the moose populations without addressing habitat and predation
- Licenced hunting community harvests moose for food. A moose provides approximately 200kg of meat for the cost of a hunting licence (\$32) and species licence (\$25). There are additional, variable costs associated with hunting – fuel, travel, accommodations, cut & wrap – that are harder to incorporate since this varies between hunters. Replacing 220kg of moose meat with 220kg of beef would cost approximately \$3,370³ using beef's 2020 weighted average of \$15.31/kg.
- Licenced hunters may be upset on the reduced opportunity.
- Northeast licenced hunters will have reduced opportunity under the current LEH system
- Updating the licencing system to include the new LEH codes will take time and resources
- Additional staff time to calculate annual LEH and quota recommendations
- First Nations may expect this change will stop or reverse moose population declines
- Decreased number of hunters traveling from other Regions to the Northeast for moose hunting
- Increased harvest pressure in the other Regions that have moose general open season

³ Agriculture and Agri-Food Canada. Red Meat and Livestock Market Information – Prices. <https://www.agr.gc.ca/eng/canadas-agriculture-sectors/animal-industry/red-meat-and-livestock-market-information/prices/annual-retail-beef-and-historical-pork-prices/?id=1520539054104>

4. Identify risks of NOT implementing the new provision:

The risks associated with not implementing the regulation change could be the non-recoverable collapse of the moose population within the Peace Region. If the general open season continues to operate, the moose population may decrease past a recoverable population. Alternatively, it could lead to a recoverable population, that would require either a LEH or a closed season to allow the population to recuperate. This would also frustrate hunters and stakeholders.

If the government does not listen to the Traditional Knowledge of the local First Nations, there may be a potential violation of Treaty 8 rights, as the population of moose continues to decrease, and sustenance harvest is affected, a lawsuit may be initiated.

5. Comments by Reviewers: (if relevant)

Use separate page, as comments may not be included in the final OIC/MO Package. Copies of email correspondence may be attached.

PART D: STAKEHOLDER CONSULTATION

ADEQUATE CONSULTATION AND ENGAGEMENT MUST BE RECORDED, OR THE FORM WILL BE RETURNED TO THE ORIGINATOR.

Please attach supporting documentation, such as letters, meeting minutes, etc.

Identify who was consulted and when consultations took place.

Who raised concerns and what was the nature of their concerns?

Has the regulation been changed to respond to Stakeholders' Concerns?

Organization	Contact Name	Date and type of Consultation & Engagement	Supported? (If no, attach an explanation) N/A = Proposal not applicable to organization
CO Service			<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A Note: CO service consultation is required BEFORE submission is sent to Wildlife & Habitat Branch. Only rarely is this consultation not required. COS verification is required for safety related regulation proposals.
Other Regions			<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A

Wildlife & Habitat Branch (Victoria) Note: If proposed regulation is for a CITES species, Stephen MacIver (Management Authority for CITES) must be consulted.	Holger Bohm	May 4, 2021 - Discussed proposal and methodology	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A Note: Consultation is required BEFORE submission is sent to Wildlife & Habitat Branch. Only rarely is this consultation not required. Consultation for: Ungulates: Holger.Bohm@gov.bc.ca Birds: Gerad.Hales@gov.bc.ca Wildlife Health: Caeley.Thacker@gov.bc.ca Furbearers/small game: Geard.Hales@gov.bc.ca Large Carnivores: Garth.Mowat@gov.bc.ca Motor Vehicle Prohibitions: Depends on the purpose of the closure, if the purpose is related to a specific species contact the species specialist above. Habitat related proposals: Steve.Gordon@gov.bc.ca .
BC Parks, if applicable			<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A
Other Gov't agencies (list) (Highways, Forests)			<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A
BCWF (Zone Representative)			<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A
GOABC or local organization			<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A
BCTA or local organization			<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A
Other organization: (name)			<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A
Public Meetings:	(attendees)		<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A

PART E: INDIGENOUS CONSULTATION AND ENGAGEMENT

Please attach supporting documentation, such as letters, meeting minutes, etc.

When did initial consultation and engagement period begin? _____

a) Does this proposed change have implications (impact or of interest to) Indigenous Peoples?	<input type="checkbox"/> NO - If no, please explain _____ <input type="checkbox"/> YES - If yes, please complete items (b) to (e) if applicable _____
b) Does this proposed change relate to the Calls to Action of the Truth and Reconciliation Commission?	<input type="checkbox"/> NO <input type="checkbox"/> YES - If yes, please indicate which of the calls and how _____

<p>c) Does this proposed change relate to any of the following legal or other government obligations?</p> <ul style="list-style-type: none"> • modern treaty obligations to notify, discuss or consult, • common law consultation obligations, • contractual commitments, under the <i>Declaration on the Rights of Indigenous Peoples Act</i>? 	<p><input type="checkbox"/> NO</p> <p><input type="checkbox"/> YES – If yes, please explain how</p> <hr/> <p>Please review the following to help you with your analysis: ILR Reference Document: Indigenous Legal Relations Review of Cabinet Submissions*; UN Declaration Reference Document*; Provincial Legislation Engagement with Treaty Nations Guide</p> <p>*Note: You may have to request permission to the site from the Ministry of Attorney General.</p>
<p>d) Does this proposed change affect Indigenous peoples' modern or historic treaty rights or Aboriginal rights, including any Aboriginal title?</p>	<p><input type="checkbox"/> NO</p> <p><input type="checkbox"/> YES – If yes, please indicate how.</p> <p>Was the consultation sufficient for the purposes of the constitutional obligations?</p> <hr/>
<p>e) Have Indigenous peoples, including Indigenous organizations, been involved in the development of the proposed change, and will they be involved in its implementation?</p>	<p><input type="checkbox"/> NO - If no, please explain why not</p> <hr/> <p><input type="checkbox"/> YES - If yes, what views were expressed or how will they be sought?</p> <hr/> <p>Please review the Policy Framework for Advancing Reconciliation with Indigenous Peoples for guidance on involving Indigenous peoples in your policy development.</p> <p>If you would like further support with this section, please contact Legislative Alignment and Process.</p>

Indigenous Peoples

We require the name of each Indigenous group engaged and individuals within the group. When did the engagement and consultation take place and in what forum (letter, fax, meeting, etc.)? What was the response or outcome of engagement (band by band or tribal association)? What might be the anticipated impact of this proposal on the Indigenous peoples ability to practice their Aboriginal Interests?

If consultation/engagement with Indigenous peoples is incomplete/ongoing indicate the anticipated completion date.

PART F: APPROVAL

**RECORD OF APPROVALS FOR REGULATION CHANGES
UNDER THE WILDLIFE ACT
BC REGULATION [title] [reg #] [section #]
SUBJECT: [subject]**

Region: _____

Contact Name: _____

Telephone Number: _____

APPROVAL is sought for the following documents, to be submitted as part of the OIC/MO package:
- [LIST DOCUMENTS & ATTACHMENTS]

1. Section Head, Originating Office (GIVE LOCATION)

Reviewed by: _____

Date: _____

Signature: _____

Supported *Not Supported

*If not supported, please provide reason.

2. Regional Manager

Reviewed by: _____

Date: _____

Signature: _____

Supported *Not Supported

*If not supported, please provide reason.

															Target 35 days	
Game Management Zone/ WMU	Pop'n Estimate	Date of Estimate	First Nations Harvest Rate	Harvestable Pop'n after FN's Harvest	Max. Licensed Harvest Rate	Max. AAH (licensed)	B:C Ratio	Bull Pop'n Estimate	Bull Pop'n Estimate After FN's Harvest	Max. Licensed Bull Harvest Rate	Max. Annual Licensed Bull Harvest	Average Annual Harvest (Avg. 2012-19)	Average Annual Harvest Rate (2012-19)	Average Annual Bull Harvest Rate (2012-19)	Average Annual Hunter Effort (Days 2012-19)	Average Annual Days per Kill (2012-19)
South Peace																
7-19	585	2010	5%	556	5%	28	42%	120	108	20%	22	19	3.5%	18.2%	576	30
7-20	2660	2017	5%	2527	5%	126	29%	440	396	20%	79	136	5.4%	34.2%	5779	43
7-21	2730	2006	5%	2594	5%	130	51%	696	626	20%	125	59	2.3%	9.4%	4588	78
7-22	1820	Extrapolated	5%	1729	5%	86	45%	409	368	20%	74	38	2.2%	10.3%	1899	50
7-31	1070	2018	5%	1017	5%	51	44%	326	293	20%	59	58	5.7%	19.8%	2302	40
Overall	8865		5%	8422	5%	421	42%	1991	1792	20%	358	310	3.7%	17.3%	15144	49
North Peace																
7-32	3463	2018	5%	3290	5%	164	41%	766	689	20%	138	156	4.7%	21.5%	7096	46
7-33	6773	2019	5%	6434	5%	322	29%	982	884	20%	177	199	3.1%	21.8%	6866	34
7-34	1085	2016	5%	1031	5%	52	22%	154	139	20%	28	38	3.7%	25.7%	2266	60
7-35	2380	2014	5%	2261	5%	113	37%	440	396	20%	79	51	2.3%	13.0%	2453	48
7-44	3125	2013	5%	2969	5%	148	20%	313	282	20%	56	41	1.4%	14.5%	1838	45
7-45	1426	2019	5%	1355	5%	68	32%	244	220	20%	44	59	4.4%	27.0%	2791	47
Overall	18252		5%	17339	5%	867	30%	2899	2609	20%	522	545	3.1%	20.2%	23310	43
Northeast Rockies																
7-36	609	Extrapolated	5%	579	5%	29	40%	122	110	20%	22	9	1.5%	6.9%	303	36
7-42	1417	2015	5%	1346	5%	67	45%	420	378	20%	76	60	4.4%	15.8%	2491	42
7-43	1020	2020	5%	969	5%	48	40%	258	232	20%	46	26	2.7%	11.4%	1338	51
7-50	1653	Extrapolated	5%	1570	5%	79	40%	330	297	20%	59	56	3.6%	18.9%	2054	37
7-57/58	953	2017	5%	905	5%	45	41%	301	271	20%	54	24	2.6%	8.7%	1591	67
Overall	5652		5%	5369	5%	268	41%	1431	1288	20%	258	174	3.2%	13.5%	7777	45
Fort Nelson																
7-46	461	2005	5%	438	5%	22	54%	140	126	20%	25	33	7.4%	25.9%	1016	31
7-47	516	2016	5%	490	5%	25	68%	200	180	20%	36	4	0.7%	2.0%	167	46
7-48	1232	Extrapolated	5%	1170	5%	59	61%	429	386	20%	77	13	1.1%	3.5%	553	41
7-49	1543	2016	5%	1466	5%	73	51%	450	405	20%	81	43	3.0%	10.7%	2093	48
7-55	1453	2016	5%	1380	5%	69	48%	349	314	20%	63	15	1.1%	4.9%	242	16
7-56	1177	2016	5%	1118	5%	56	83%	558	502	20%	100	29	2.6%	5.8%	536	18
Overall	6382		5%	6063	5%	303	61%	2126	1913	20%	383	138	2.3%	7.2%	4607	34
Liard																
7-51	2615	2013	5%	2484	5%	124	105%	1150	1035	20%	207	61	2.5%	5.9%	1227	20
7-52	2680	2013	5%	2546	5%	127	105%	1180	1062	20%	212	58	2.3%	5.5%	1312	22
7-53	988	1997	5%	939	5%	47	116%	434	391	20%	78	6	0.6%	1.5%	267	46
7-54	827	2000	5%	786	5%	39	73%	302	272	20%	54	14	1.8%	5.3%	497	35
Overall	7110		5%	6755	5%	338	100%	3066	2759	20%	552	140	2.1%	5.1%	3304	24
TOTALS/AVERAGE	46261		5%	43948	5%	2197	55%	11513	10362	20%	2072	1305	3.0%	12.4%	54141	41

2019										2018										
	Resident Harvest Estimate	Non-Resident Harvest	Licensed Cow Harvest	Licensed Calf Harvest	Total Moose Harvest	Harvest Rate	Total Bull Harvest Rate	Hunter Days	Days per Kill		Resident Harvest Estimate	Non-Resident Harvest	Licensed Cow Harvest	Licensed Calf Harvest	Total Moose Harvest	Harvest Rate	Total Bull Harvest Rate	Hunter Days	Days per Kill	
South Peace										South Peace										
	7-19	18			18	3.2%	16.7%	767	43		7-19	16	6	0	0	22	4.0%	20.4%	624	
	7-20	138			138	5.5%	34.8%	5954	43		7-20	141	0	0	0	141	5.6%	35.6%	5155	
	7-21	49			49	1.9%	7.8%	4997	102		7-21	41	2	0	0	43	1.7%	6.9%	4415	
	7-22	67			67	3.9%	18.2%	2865	43		7-22	28	0	0	0	28	1.6%	7.6%	1642	
	7-31	64			64	6.3%	21.8%	2449	38		7-31	76	1	0	0	77	7.6%	26.2%	3172	
	Overall	336			336	4.0%	18.8%	17032	51		Overall	302	9	0	0	311	3.7%	17.4%	15008	
North Peace *										North Peace *										
	7-32	216			216	6.6%	31.3%	8792	41		7-32	145	0	0	0	145	4.4%	21.0%	6804	
	7-33	232			232	3.6%	26.3%	5484	24		7-33	174	0	0	0	174	2.7%	19.7%	6405	
	7-34	37			37	3.6%	26.7%	2570	69		7-34	36	0	0	0	36	3.5%	26.0%	2546	
	7-35	49			49	2.2%	12.4%	2327	47		7-35	72	2	0	0	74	3.3%	18.7%	3200	
	7-44	44			44	1.5%	15.6%	1293	29		7-44	44	0	0	0	44	1.5%	15.6%	1796	
	7-45	65			65	4.8%	29.6%	3278	50		7-45	70	0	0	0	70	5.2%	31.9%	2582	
	Overall	643			643	3.7%	24.6%	23744	37		Overall	541	2	0	0	543	3.1%	20.8%	23333	
Northeast Rockies										Northeast Rockies										
	7-36	5			5	0.9%	4.6%	183	37		7-36	0	2	0	0	2	0.3%	1.8%	516	
	7-42	22			22	1.6%	5.8%	1694	77		7-42	25	10	0	0	35	2.6%	9.3%	2396	
	7-43	20			20	2.1%	8.6%	1257	63		7-43	19	6	0	0	25	2.6%	10.8%	1929	
	7-50	39			39	2.5%	13.1%	1322	34		7-50	27	12	0	0	39	2.5%	13.1%	1451	
	7-57/58	12			12	1.3%	4.4%	1625	135		7-57/58	16	0	0	0	16	1.8%	5.9%	1640	
	Overall	98			98	1.8%	7.6%	6081	62		Overall	87	30	0	0	117	2.2%	9.1%	7932	
Fort Nelson										Fort Nelson										
	7-46	33			33	7.5%	26.2%	886	27		7-46	23	1	0	0	24	5.5%	19.0%	756	
	7-47	0			0	0.0%	0.0%	126			7-47	4	0	0	0	4	0.8%	2.2%	32	
	7-48	12			12	1.0%	3.1%	817	68		7-48	21	6	0	0	27	2.3%	7.0%	671	
	7-49	14			14	1.0%	3.5%	1548	111		7-49	5	4	0	0	9	0.6%	2.2%	1721	
	7-55	19			19	1.4%	6.0%	313	16		7-55	27	0	0	0	27	2.0%	8.6%	421	
	7-56	45			45	4.0%	9.0%	777	17		7-56	21	0	0	0	21	1.9%	4.2%	555	
	Overall	123			123	2.0%	6.4%	4467	36		Overall	101	11	0	0	112	1.8%	5.9%	4156	
Liard										Liard										
	7-51	16			16	0.6%	1.5%	783	49		7-51	16	39	0	0	55	2.2%	5.3%	1407	
	7-52	23			23	0.9%	2.2%	1209	53		7-52	16	26	0	0	42	1.6%	4.0%	1186	
	7-53	0			0	0.0%	0.0%	67			7-53	4	3	0	0	7	0.7%	1.8%	315	
	7-54	6			6	0.8%	2.2%	269	45		7-54	0	8	0	0	8	1.0%	2.9%	306	
	Overall	45			45	0.7%	1.6%	2328	52		Overall	36	76	0	0	112	1.7%	4.1%	3214	
TOTAL/AVERAGE	1200	0	0	0	1200	2.7%	11.6%	53652	45		TOTAL/AVERAGE	1067	128	0	0	1195	2.7%	11.5%	53643	

											target 35											
	2017											2016										
Days per Kill	Resident Harvest Estimate	Non-Resident Harvest	Licensed Cow Harvest	Licensed Calf Harvest	Total Moose Harvest	Harvest Rate	Total Bull Harvest Rate	Hunter Days	Days per Kill		Resident Harvest Estimate	Non-Resident Harvest	Licensed Cow Harvest	Licensed Calf Harvest	Total Moose Harvest	Harvest Rate	Total Bull Harvest Rate	Hunter Days	Days per Kill			
	South Peace											South Peace										
28	7-19	4	4	0	0	8	1.4%	7.4%	559	70	7-19	5	8	0	0	13	2.3%	12.0%	609			
37	7-20	124	1	0	0	125	4.9%	31.6%	5653	45	7-20	134	0	0	0	134	5.3%	33.8%	5560			
103	7-21	66	1	0	0	67	2.6%	10.7%	4716	70	7-21	39	1	0	0	40	1.5%	6.4%	3995			
59	7-22	34	0	0	0	34	2.0%	9.2%	2022	59	7-22	28	2	0	0	30	1.7%	8.1%	2142			
41	7-31	54	0	0	0	54	5.3%	18.4%	2178	40	7-31	32	0	0	0	32	3.1%	10.9%	1803			
48	Overall	282	6	0	0	288	3.4%	16.1%	15128	53	Overall	238	11	0	0	249	3.0%	13.9%	14109			
	North Peace *											North Peace *										
47	7-32	116	0	0	0	116	3.5%	16.8%	6225	54	7-32	112	0	0	6	112	3.4%	15.4%	6370			
37	7-33	204	3	0	0	207	3.2%	23.4%	7132	34	7-33	128	0	0	0	128	2.0%	14.5%	8404			
71	7-34	32	0	0	0	32	3.1%	23.1%	2574	80	7-34	21	0	0	0	21	2.0%	15.2%	2168			
43	7-35	56	3	0	0	59	2.6%	14.9%	2361	40	7-35	38	2	0	0	40	1.8%	10.1%	1891			
41	7-44	42	0	0	0	42	1.4%	14.9%	1767	42	7-44	35	0	0	0	35	1.2%	12.4%	1827			
37	7-45	47	0	0	0	47	3.5%	21.4%	2648	56	7-45	79	0	0	0	79	5.8%	36.0%	3204			
43	Overall	497	6	0	0	503	2.9%	19.3%	22707	45	Overall	413	2	0	6	415	2.4%	15.7%	23864			
	Northeast Rockies											Northeast Rockies										
258	7-36	10	0	0	0	10	1.7%	2.5%	336	34	7-36	0	3	0	0	3	0.5%	2.7%	204			
68	7-42	49	15	0	0	64	4.8%	16.9%	2945	46	7-42	28	20	0	0	48	3.6%	12.7%	2597			
77	7-43	14	1	0	0	15	1.5%	6.5%	1196	80	7-43	19	3	0	0	22	2.3%	9.5%	1118			
37	7-50	28	18	0	0	46	2.9%	15.5%	2371	52	7-50	29	3	0	0	32	2.0%	10.8%	2184			
103	7-57/58	18	1	0	0	19	2.1%	7.0%	1460	77	7-57/58	29	0	0	0	29	3.2%	10.7%	825			
68	Overall	119	35	0	0	154	2.9%	12.0%	8308	54	Overall	105	29	0	0	134	2.5%	10.4%	6928			
	Fort Nelson											Fort Nelson										
32	7-46	28	1	0	0	29	6.6%	23.0%	904	31	7-46	43	6	0	0	49	11.2%	38.9%	849			
8	7-47	0	0	0	0	0	0.0%	0.0%	72	0	7-47	0	0	0	0	0	0.0%	0.0%	69			
25	7-48	5	8	0	0	13	1.1%	3.4%	533	41	7-48	4	5	0	0	9	0.8%	2.3%	254			
191	7-49	38	9	0	0	47	3.2%	11.6%	2396	51	7-49	33	0	0	0	33	2.3%	8.1%	1936			
16	7-55	17	0	0	0	17	1.2%	5.4%	352	21	7-55	6	0	0	0	6	0.4%	1.9%	91			
26	7-56	30	0	0	0	30	2.7%	6.0%	780	26	7-56	32	0	0	0	32	2.9%	6.4%	856			
37	Overall	118	18	0	0	136	2.2%	7.1%	5037	37	Overall	118	11	0	0	129	2.1%	6.7%	4055			
	Liard											Liard										
26	7-51	32	46	0	0	78	3.1%	7.5%	1518	19	7-51	22	30	0	0	52	2.1%	5.0%	1141			
28	7-52	46	30	0	0	76	3.0%	7.2%	1389	18	7-52	54	30	0	0	84	3.3%	7.9%	1410			
45	7-53	0	6	0	0	6	0.6%	1.5%	385	64	7-53	9	8	0	0	17	1.8%	4.4%	411			
38	7-54	4	5	0	0	9	1.1%	3.3%	573	64	7-54	5	8	0	0	13	1.7%	4.8%	482			
29	Overall	82	87	0	0	169	2.5%	6.1%	3865	23	Overall	90	76	0	0	166	2.5%	6.0%	3444			
45	TOTAL/AVERAGE	1098	152	0	0	1250	2.8%	12.1%	55045	44	TOTAL/AVERAGE	964	129	0	6	1093	2.5%	10.5%	52400			
											* First year of shortened August season in North Peace GMZ											

2015											2014										
Days per Kill	Resident Harvest Estimate	Non-Resident Harvest	License d Cow Harvest	License d Calf Harvest	Total Moose Harvest	Harvest Rate	Total Bull Harvest Rate	Hunter Days	Days per Kill	Resident Harvest Estimate	Non-Resident Harvest	License d Cow Harvest	License d Calf Harvest	Total Moose Harvest	Harvest Rate	Total Bull Harvest Rate	Hunter Days	Days per Kill			
47	7-19	18	5	0	23	4.1%	21.3%	934	41	7-19	24	7	0	31	5.6%	28.7%	460	15			
41	7-20	115	1	0	116	4.6%	29.3%	7698	66	7-20	124	0	0	124	4.9%	31.3%	6602	53			
100	7-21	88	0	0	88	3.4%	14.0%	5009	57	7-21	48	0	0	48	1.9%	7.7%	4281	89			
71	7-22	47	1	0	48	2.8%	13.0%	2369	49	7-22	45	7	0	52	3.0%	14.1%	1625	31			
56	7-31	66	1	0	67	6.6%	22.8%	2622	39	7-31	63	1	0	64	6.3%	21.8%	2430	38			
57	Overall	334	8	0	342	4.1%	19.1%	18632	54	Overall	304	15	0	319	3.8%	17.8%	15398	48			
North Peace											North Peace										
57	7-32	100	0	0	100	3.0%	13.8%	8795	88	7-32	207	0	0	207	6.3%	27.4%	7151	35			
66	7-33	194	1	0	195	3.0%	20.7%	7847	40	7-33	174	0	0	174	2.7%	18.1%	7921	46			
103	7-34	54	0	0	54	5.2%	30.3%	2452	45	7-34	44	0	0	44	4.3%	27.4%	2185	50			
47	7-35	32	0	0	32	1.4%	8.1%	3014	94	7-35	37	0	0	37	1.6%	9.3%	2556	69			
52	7-44	33	0	0	33	1.1%	11.7%	1891	57	7-44	38	0	0	38	1.3%	13.5%	2183	57			
41	7-45	34	1	0	35	2.6%	15.9%	2405	69	7-45	50	0	0	50	3.7%	22.8%	2812	56			
58	Overall	447	2	0	449	2.6%	16.1%	26404	59	Overall	550	0	0	550	3.2%	19.6%	24808	45			
Northeast Rockies											Northeast Rockies										
68	7-36	13	3	0	16	2.8%	14.6%	275	17	7-36	12	6	0	18	3.1%	16.4%	402	22			
54	7-42	44	11	0	55	4.1%	14.6%	2649	48	7-42	58	16	0	74	5.5%	19.6%	2942	40			
51	7-43	26	1	0	27	2.8%	11.6%	1630	60	7-43	47	5	0	52	5.4%	22.4%	1389	27			
68	7-50	74	21	0	95	6.0%	32.0%	2763	29	7-50	37	26	0	63	4.0%	21.2%	1640	26			
28	7-57/58	4	0	0	4	0.4%	1.5%	1344	336	7-57/58	19	0	0	19	2.1%	7.0%	1657	87			
52	Overall	161	36	0	197	3.7%	15.3%	8661	44	Overall	173	53	0	226	4.2%	17.5%	8030	36			
Fort Nelson											Fort Nelson										
17	7-46	22	4	0	26	5.9%	20.6%	1355	52	7-46	12	4	0	16	3.7%	12.7%	1289	81			
	7-47	0	3	0	3	0.6%	1.7%	333	111	7-47	0	1	0	1	0.2%	0.6%	208	208			
28	7-48	10	3	0	13	1.1%	3.4%	738	57	7-48	6	4	0	10	0.9%	2.6%	517	52			
59	7-49	83	0	0	83	5.7%	20.5%	3055	37	7-49	62	0	0	62	4.2%	15.3%	2112	34			
15	7-55	23	0	0	23	1.7%	7.3%	182	8	7-55	14	0	0	14	1.0%	4.5%	370	26			
27	7-56	9	0	0	9	0.8%	1.8%	72	8	7-56	20	0	0	20	1.8%	4.0%	263	13			
31	Overall	147	10	0	157	2.6%	8.2%	5735	37	Overall	114	9	0	123	2.0%	6.4%	4759	39			
Liard											Liard										
22	7-51	22	46	0	68	2.7%	6.6%	1392	20	7-51	30	39	0	69	2.8%	6.7%	1413	20			
17	7-52	30	38	0	68	2.7%	6.4%	1447	21	7-52	16	43	0	59	2.3%	5.6%	1097	19			
24	7-53	0	7	0	7	0.7%	1.8%	187	27	7-53	0	0	0	0	0.0%	0.0%	222				
37	7-54	6	12	0	18	2.3%	6.6%	377	21	7-54	7	7	0	14	1.8%	5.2%	644	46			
21	Overall	58	103	0	161	2.4%	5.8%	3403	21	Overall	53	89	0	142	2.1%	5.1%	3376	24			
48	TOTAL/AVERAGE	1147	159	0	1306	3.0%	12.3%	62835	48	TOTAL/AVERAGE	1194	166	0	1360	3.1%	12.8%	56371	41			

2013										2012									
	Resident Harvest Estimate	Non-Resident Harvest	Licensed Cow Harvest	Licensed Calf Harvest	Total Moose Harvest	Harvest Rate	Total Bull Harvest Rate	Hunter Days	Days per Kill		Resident Harvest Estimate	Non-Resident Harvest	Licensed Cow Harvest	Licensed Calf Harvest	Total Moose Harvest	Harvest Rate	Total Bull Harvest Rate	Hunter Days	Days per Kill
South Peace										South Peace									
7-19	17	9	0	0	26	4.7%	24.1%	272	10	7-19	8	8	0	0	16	2.9%	14.8%	386	24
7-20	116	1	0	0	117	4.6%	29.5%	5269	45	7-20	177	12	0	0	189	7.5%	47.7%	4340	23
7-21	61	1	0	0	62	2.4%	9.9%	5346	86	7-21	72	2	0	0	74	2.9%	11.8%	3944	53
7-22	24	0	0	0	24	1.4%	6.5%	1357	57	7-22	20	1	0	0	21	1.2%	5.7%	1171	56
7-31	44	2	0	0	46	4.5%	15.7%	1957	43	7-31	57	3	0	0	60	5.9%	20.4%	1804	30
Overall	262	13	0	0	275	3.3%	15.3%	14201	52	Overall	334	26	0	0	360	4.3%	20.1%	11645	32
North Peace										North Peace									
7-32	126	0	0	5	126	3.8%	17.6%	6862	54	7-32	225	0	0	29	225	6.8%	28.4%	5770	26
7-33	176	0	0	18	176	2.7%	17.9%	6356	36	7-33	308	0	0	12	308	4.8%	33.5%	5375	17
7-34	15	0	0	0	15	1.5%	10.8%	1834	122	7-34	64	0	0	0	64	6.2%	46.2%	1799	28
7-35	64	0	0	0	64	2.8%	16.2%	2497	39	7-35	55	1	0	0	56	2.5%	14.1%	1779	32
7-44	44	0	0	0	44	1.5%	15.6%	2222	51	7-44	47	0	0	0	47	1.6%	16.7%	1727	37
7-45	68	0	0	0	68	5.0%	31.0%	2912	43	7-45	59	1	0	0	60	4.4%	27.3%	2488	41
Overall	493	0	0	23	493	2.8%	18.0%	22683	46	Overall	758	2	0	41	760	4.4%	27.6%	18938	25
Northeast Rockies										Northeast Rockies									
7-36	0	4	0	0	4	0.7%	3.6%	299	75	7-36	5	5	0	0	10	1.7%	9.1%	205	21
7-42	51	21	0	0	72	5.3%	19.0%	2426	34	7-42	66	42	0	0	108	8.0%	28.6%	2278	21
7-43	19	11	0	0	30	3.1%	12.9%	1052	35	7-43	18	2	0	0	20	2.1%	8.6%	1131	57
7-50	54	25	0	0	79	5.0%	26.6%	2789	35	7-50	31	24	0	0	55	3.5%	18.5%	1912	35
7-57/58	38	0	0	0	38	4.2%	14.0%	2511	66	7-57/58	52	0	0	0	52	5.7%	19.2%	1669	32
Overall	162	61	0	0	223	4.2%	17.3%	9077	41	Overall	172	73	0	0	245	4.6%	19.0%	7195	29
Fort Nelson										Fort Nelson									
7-46	37	6	0	0	43	9.8%	34.1%	1099	26	7-46	38	3	0	0	41	9.4%	32.5%	991	24
7-47	5	3	0	0	8	1.6%	4.4%	287	36	7-47	13	0	0	0	13	2.7%	7.2%	206	16
7-48	8	0	0	0	8	0.7%	2.1%	450	56	7-48	15	0	0	0	15	1.3%	3.9%	447	30
7-49	42	1	0	0	43	2.9%	10.6%	2306	54	7-49	52	4	0	0	56	3.8%	13.8%	1671	30
7-55	0	0	0	0	0	0.0%	0.0%	54	54	7-55	17	0	0	0	17	1.2%	5.4%	150	9
7-56	29	0	0	0	29	2.6%	5.8%	439	15	7-56	47	0	0	0	47	4.2%	9.4%	543	12
Overall	121	10	0	0	131	2.2%	6.8%	4635	35	Overall	182	7	0	0	189	3.1%	9.9%	4008	21
Liard										Liard									
7-51	41	43	0	0	84	3.4%	8.1%	1135	14	7-51	32	34	0	0	66	2.7%	6.4%	1030	16
7-52	26	24	0	0	50	2.0%	4.7%	1522	30	7-52	39	26	0	0	65	2.6%	6.1%	1238	19
7-53	0	1	0	0	1	0.1%	0.3%	299	299	7-53	8	0	0	0	8	0.9%	2.0%	248	31
7-54	21	11	0	0	32	4.1%	11.8%	713	22	7-54	8	7			15	1.9%	5.5%	613	41
Overall	88	79	0	0	167	2.5%	6.1%	3669	22	Overall	87	67	0	0	154	2.3%	5.6%	3129	20
TOTAL/AVERAGE	1126	163	0	23	1289	2.9%	12.2%	54265	42	TOTAL/AVERAGE	1533	175	0	41	1708	3.9%	16.1%	44915	26

RE: Request for review - R7B Moose regulation change proposal

From: Schindler, Heidi FLNR:EX <Heidi.Schindler@gov.bc.ca>
To: Procter, Chris FLNR:EX <Chris.Procter@gov.bc.ca>, Lavallee, Michel FLNR:EX <Michel.Lavallee@gov.bc.ca>, Bohm, Holger FLNR:EX <Holger.Bohm@gov.bc.ca>, Vander Vennen, Luke FLNR:EX <Luke.VanderVennen@gov.bc.ca>, Maclver, Stephen FLNR:EX <Stephen.Maclver@gov.bc.ca>, Lirette, Daniel FLNR:EX <Daniel.Lirette@gov.bc.ca>, Blythe, Emily FLNR:EX <Emily.Blythe@gov.bc.ca>
Cc: Harrison, Dominica FLNR:EX <Dominica.Harrison@gov.bc.ca>, Johnson, Marianne FLNR:EX <Marianne.Johnson@gov.bc.ca>, Thiessen, Conrad D FLNR:EX <Conrad.Thiessen@gov.bc.ca>, Larden, Troy P FLNR:EX <Troy.Larden@gov.bc.ca>, Kriss, Krystal FLNR:EX <Krystal.Kriss@gov.bc.ca>
Sent: May 27, 2021 4:55:33 PM PDT
Attachments: image001.png, image002.jpg, image003.jpg
Hi there,

Thanks Michel for the opportunity to comment. There are many variables to consider if a region is contemplating a regulation change of this magnitude, and I do appreciate having the chance to weigh in.

I am quite time limited this week to provide a more fulsome response, but I will provide additional comments early next week.

s.13

Thanks for putting this info package together for us to review, and again, for the chance to comment.

Heidi



Heidi Schindler, BSc, RPBio

Wildlife Biologist, Skeena Region
Forests, Lands, Natural Resource Operations and Rural Development
Bag 5000, 3726 Alfred Avenue, Smithers, BC V0J 2N0

Phone: *NEW* 250-876-7079 Email: Heidi.Schindler@gov.bc.ca

From: Procter, Chris FLNR:EX <Chris.Procter@gov.bc.ca>
Sent: May 26, 2021 5:54 PM
To: Lavallee, Michel FLNR:EX <Michel.Lavallee@gov.bc.ca>; Bohm, Holger FLNR:EX <Holger.Bohm@gov.bc.ca>; Vander Vennen, Luke FLNR:EX <Luke.VanderVennen@gov.bc.ca>; Schindler, Heidi FLNR:EX <Heidi.Schindler@gov.bc.ca>; Maclver, Stephen FLNR:EX <Stephen.Maclver@gov.bc.ca>; Lirette, Daniel FLNR:EX <Daniel.Lirette@gov.bc.ca>; Blythe, Emily FLNR:EX <Emily.Blythe@gov.bc.ca>
Cc: Harrison, Dominica FLNR:EX <Dominica.Harrison@gov.bc.ca>; Johnson, Marianne FLNR:EX <Marianne.Johnson@gov.bc.ca>
Subject: RE: Request for review - R7B Moose regulation change proposal

Thanks for the opportunity to comment Michel. I had a look through the proposal and attached data and have some comments. Sorry if it's long winded, I provide all my comments here and not on the documents themselves. I mean no disrespect to whoever wrote the proposal with any of my comments below.

Page 125 of 460

Withheld pursuant to/removed as

s.13

Let me know if there are any questions about any of the above and thanks again for the opportunity to comment on this proposal.

Chris Procter
Wildlife Biologist
Kamloops, BC
250-312-6635

From: Lavallee, Michel FLNR:EX <Michel.Lavallee@gov.bc.ca>

Sent: May 20, 2021 3:26 PM

To: Bohm, Holger FLNR:EX <Holger.Bohm@gov.bc.ca>; Vander Vennen, Luke FLNR:EX <Luke.VanderVennen@gov.bc.ca>; Schindler, Heidi FLNR:EX <Heidi.Schindler@gov.bc.ca>; Maclver, Stephen FLNR:EX <Stephen.Maclver@gov.bc.ca>; Lirette, Daniel FLNR:EX <Daniel.Lirette@gov.bc.ca>; Blythe, Emily FLNR:EX <Emily.Blythe@gov.bc.ca>; Procter, Chris FLNR:EX <Chris.Procter@gov.bc.ca>

Cc: Harrison, Dominica FLNR:EX <Dominica.Harrison@gov.bc.ca>; Johnson, Marianne FLNR:EX <Marianne.Johnson@gov.bc.ca>

Subject: Request for review - R7B Moose regulation change proposal

Good afternoon,

The Northeast Region has been working through the moose data available. Dominica has used known moose densities within the different MUs and Game Management Zones to estimate moose populations where we don't have inventories or the data is too old to be reliable (excel sheet). She completed non-linear regression analysis, population, and hunting effort summaries for each GMZ.

We reviewed some recent food security research for First Nation communities along the Peace River to estimate potential First Nation moose subsistence needs in the region, Hunter Survey harvest estimates, and different ways of calculating the AAH.

We are expecting this will receive a lot of public feedback and we would like to be fairly confident we are heading in the right direction and have considered our options before starting engagement in the Northeast.

Can you review the calculations/analysis and draft regulation proposal? Feel free to contact Dominica or me if you have questions, comments, or suggested edits.

Please don't distribute these documents further.



Michel Lavallée, M.SEM., R.P.Bio.

Head | Fish, Wildlife, and Ecosystems Section

Ministry of Forests, Lands, Natural Resource Operations, and Rural Development

Suite 100, 10003-110th Avenue, Fort St. John, BC, V1J 6M7

Ph: 778-576-1139

Conservation means development as much as it does protection – T. Roosevelt

FW: Resource request - R7B Moose Regulation

From: Burwash, Michael FLNR:EX <Michael.Burwash@gov.bc.ca>
To: Lavallee, Michel FLNR:EX <Michel.Lavallee@gov.bc.ca>
Cc: Bohm, Holger FLNR:EX <Holger.Bohm@gov.bc.ca>, MacIver, Stephen FLNR:EX <Stephen.MacIver@gov.bc.ca>
Sent: May 31, 2021 4:19:07 PM PDT
Attachments: R7B_2022-Moose from GOS to LEH.docx, image001.png

Hi Michel,

We can support from both the ungulate specialist position (Holger) and regs lead (Steve).

Thanks,
Michael

From: Lavallee, Michel FLNR:EX <Michel.Lavallee@gov.bc.ca>
Sent: May 25, 2021 3:02 PM
To: Burwash, Michael FLNR:EX <Michael.Burwash@gov.bc.ca>
Subject: Resource request - R7B Moose Regulation

Good afternoon Michael,

I attached an early draft of one of our Region's proposed regulation changes. We are expecting this will generate a lot of comment from stakeholders (BCWF and guide-outfitters) and the public through regional discussion and AHTE. Do you have someone available to support engagement for this proposal?



Michel Lavallée, M.SEM., R.P.Bio.

Head | Fish, Wildlife, and Ecosystems Section

Ministry of Forests, Lands, Natural Resource Operations, and Rural Development

Suite 100, 10003-110th Avenue, Fort St. John, BC, V1J 6M7

Ph: 778-576-1139

Conservation means development as much as it does protection – T. Roosevelt



2022-2024 REGULATION CHANGE REQUEST FORM

HQ Use Only		
Executive Summary	<input type="checkbox"/>	LEH Proposal <input type="checkbox"/>
Wildlife Mgr. Approval	<input type="checkbox"/>	H&T Proposal <input type="checkbox"/>
Director Approval	<input type="checkbox"/>	Synopsis edited <input type="checkbox"/>
Regulations drafted	<input type="checkbox"/>	AHTE drafted <input type="checkbox"/>
Map (for synopsis)	<input type="checkbox"/>	AHTE posted <input type="checkbox"/>

Contact: Michel Lavallee	Phone: 778-576-1139	Region: 7B
SUBJECT: Replace Moose GOS with LEH		
Management Units: 7-19, 7-20, 7-21A, 7-31A, 7-32, 7-33, 7-35, 7-36, 7-42, 7-43, 7-46 to 7-56	Date of Submission: October 1, 2021	

Species: Moose

Choose applicable one(s): General Open Season Limited Entry Hunting Trapping
 Motor Vehicle Prohibition Firearm Restriction Other (describe) _____

Who is the regional contact for communications issues?
 (someone with authority to deal with media requests if requested by Public Affairs)
 Name: Greg Van Dolah Phone: 250-795-4158

PART A: BACKGROUND

1. What is currently in the synopsis? (exact wording preferred)

Moose	7-21B, 7-22, 7-31B	Bulls	Aug 15 – Aug 31
	7-19, 7-20, 7-21A, 7-31A, 7-32, 7-33, 7-35, 7-36, 7-42, 7-43, 7-46 to 7-56 ▲	Bulls	Aug 23 – Aug 31
	7-19, 7-21B, 7-22, 7-31, 7-36, 7-42, 7-43, 7-46 to 7-56+▲	*Bulls	Sept 1 – Oct 31
	7-20, 7-21A, 7-32 to 7-35, 7-44, 7-45, 7-57, 7-58	*Bulls	Sept 1 – Sept 30
	7-20, 7-21A, 7-32 to 7-35, 7-44, 7-45, 7-57, 7-58	*Bulls	Oct 16 – Oct 31
Bow Only	7-20, 7-21A, 7-32 to 7-35, 7-44, 7-45, 7-57, 7-58	*Bulls	Oct 1 – Oct 15

2. Briefly describe the proposed wording in the synopsis:

GOS

Moose	7-21B, 7-22, 7-31B	Bulls	Aug 15 – Aug 31
	7-21B, 7-22, 7-31B	*Bulls	Sept 1 – Oct 31
Bow Only	7-20, 7-21A, 7-32 to 7-35, 7-44, 7-45, 7-57, 7-58	*Bulls	Oct 1 – Oct 15

LEH

Moose; youth only	7-19, 7-20, 7-21A, 7-31A, 7-32, 7-33, 7-34, 7-35, 7-36, 7-42, 7-43, 7-46 to 7-56▲	Bulls	Aug 23 – Aug 31
Moose; shared hunt	7-19, 7-20, 7-21A, 7-31A, 7-32, 7-33, 7-34, 7-35, 7-36, 7-42, 7-43, 7-46 to 7-56 ▲	Bulls	Sept 1 – Sept 30
	7-19, 7-20, 7-21A, 7-31A, 7-32, 7-33, 7-34, 7-35, 7-36, 7-42, 7-43, 7-46 to 7-56+ ▲	Bulls	Oct 16 – Oct 31

3. Map associated with the proposed regulation. Yes No

- This map may be used to form the regulation. It should be digital and professional. Please provide shapefiles if available.

4. Reason for proposal (rationale in plain language): IMPORTANT – this is what goes on the public engagement website (AHTE) verbatim

Moose populations are stable to declining across most of the Northeast Region. Stakeholders and First Nations are concerned about the populations ability to support First Nation sustenance harvest, licenced harvest, and non-consumptive values due to the pressures of landscape changes and hunting practices. A series of regulation changes were implemented to reduce licenced moose harvest during the last 6 years; moose populations do not appear to be stabilizing with these changes. Addressing habitat concerns is a long process and industry specific; moving moose from General Open Season to Limited Entry Hunt is intended to maintain moose harvest opportunity while providing more oversight of the number of moose harvested within the Region. Changing part of the Northeast Region to LEH while keeping other areas GOS risks moving hunters into areas with lower hunting pressure and increasing moose harvest in currently stable populations. The Youth LEH season is intended to provide opportunity for youth to harvest moose before returning to school and having reduced opportunity during the remaining seasons. The two LEH opportunities (September 1 – September 30 and October 16 – October 31) are intended to balance harvest pressure before and after the rut to support reproductive success; the number of authorizations can be adjusted to maintain post-hunt bull to cow ratios. All three LEH opportunities are Any Bull to distribute harvest pressure across the different age classes and offset loss of harvest opportunity by increasing the number of moose that could be legally harvested.

PART B: ANALYSIS

1. Describe surveys used for conservation issues and their results as they relate to this submission:

Moose inventory data in the Northeast Region does not have the required frequency or coverage to estimate population trends for most of the management units. The recent inventories (2015-2021), demographics, and densities were calculated for each management unit and extrapolated into management units that do not have current inventory data using available information within each Game Management Zone. The result of this work indicates the Northeast Region has 60,660 moose (minimum 47,705 and a maximum of 73,615 moose); the Northeast Region contains an estimated 16,307 (12,406 – 20,208) bulls, 33,257 (26,375 – 40,140) cows, and 11,094 (8,923 – 13,266) calves).

Work completed by Kuzyk and colleagues in 2018¹ modelled moose population trends across the Province and found each Northeast Game Management Zone has a decreasing population trend ($\lambda < 1$) between 2006 and 2015; a change from the 1996-2005 period where only one Game Management Zone had a declining population trend. This perspective is supported by all the Northeast Region's First Nations who have indicated moose populations are decreasing and harvesting is becoming challenging. Declining hunter effort in the Big Game Harvest Survey is likely a hunter response to declining moose populations and declining success rates.

Research completed by Natcher and colleagues² in 2021 indicates First Nation communities harvest annually 2.1 – 2.4 moose per household. There is a minimum of 677 First Nation residences in the Northeast Region and an unknown number of households from transboundary First Nations (Kaska Daylu Council, Dene Tha' First Nation, Horselake First Nation, McLeod Lake Indian Band) that may hunt in the Region. Approximately 1,421 to 1,624 moose are harvested by First Nations assuming every household is actively harvesting moose and the estimate for households that don't harvest is balanced by harvest from First Nations bordering the Region. First Nations prefer to harvest bull moose to protect the cows and support a sustainable population; exceptions are made for dry cows since they did not successfully reproduce and would be harvested for sustenance purposes. The First Nation harvest distribution can be adjusted to 75% of the moose harvested are bull (1,066 – 1,218) and 25% of the harvest is are dry cows (355 – 406).

Licensed hunters harvested an estimated 1,489 moose in 2019. The combined licensed and First Nation subsistence harvest may be 2,910 – 3,113 moose annually (2,555 – 2,707 bull moose assuming First Nation bull harvest is 75% of the total First Nation harvest).

The Harvest Management Principles described in the Provincial Moose Management Framework suggest the maximum moose population growth of 15% occurs when wolf populations are controlled. A minimum of 32 calves per 100 cows is required to compensate for natural mortality. The maximum harvest rate suggested is 10-11% of the population when harvest is distributed across bulls, cows, and calves. First Nation subsistence practices favors harvesting bull moose and licensed harvest is restricted to bulls with further restrictions based on antler configuration. Even distribution across the population does not occur under the current cultural practices and regulatory requirements which requires a lower maximum allowable harvest rate to account for the selective harvest practices; a recommendation is 5% of the population (3,033 ± 348). The annual estimated combined harvest of licensed hunters and First Nations is approximately 4.9% (ranges from 4.1% to 6.3%) of the total population. This harvest rate requires higher calf recruitment of 30-45 calves per 100 cows to maintain stable populations.

Calf recruitment in the Northeast Region ranges from 7 calves per 100 cows (MU 7-57 in 2017) to 68 calves per 100 cows (MU 7-47 in 2016) with a regional average of 32 calves per 100 cows. The regional moose recruitment has remained in this range during the last 20 years. This recruitment level indicates regional moose populations are likely to continue declining under current the wildlife management practice. Changing to LEH may provide the Province the flexibility required to maintain the bull composition and slow the population declines while long-term measures are implemented to change the main population drivers.

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Local overharvesting is challenging to avoid through General Open Season since hunters have the flexibility to harvest moose based on hunter preference and access. Antler restrictions have not stabilized the moose populations; moving to Limited Entry Hunt provides the Province the ability to distribute harvest pressure across the Region to reduce the risk of overharvesting in certain areas. The proposed Any Bull LEH is intended to support hunters' opportunity to successfully harvest moose while addressing potential enforcement challenges and unlawful harvest encountered when hunters do not accurately count points on the antler.

The Any Bull LEH would distribute harvest pressure across more age classes rather than the current focused harvest on young bulls (spike-fork) or older bulls (tri-palm, 10 point).

Management Units 7-21B, 7-22, and 7-31B overlap the South Peace Caribou recovery efforts and wolf control zones. Keeping these Management Units as GOS will encourage moose harvest within the caribou recovery areas and slow moose population growth.

The Moose LEH Shared hunt allows family or friends to continue moose hunting together without increasing the number of authorizations issued to support the continuation of this practice and knowledge transfer to newer hunters.

¹ Kuzyk, G., I. Hatter, S. Marshall, C. Procter, B. Cadsand, D. Lirette, H. Schindler, M. Bridger, P. Stent, A. Walker, and M. Klaczek. 2018. Moose population dynamics during 20 years of declining harvest in British Columbia. *Alces* 54:101-119

² Natcher, D., S. Ingram, A-M. Bogdan, and A. Rice. 2021. Conservation and Indigenous subsistence hunting in the Peace River Region of Canada. *Human Ecology*. 49:109-120

2. Alternatives to regulation considered:

The Northeast Region has implemented more restrictive hunting regulations to address declining moose populations, but these have not generated the expected change.

Alternatives considered:

- Current regulation structure – moose populations have been declining for over 20 years. The current regulations have been inadequate to stabilize the populations.
 - The calf recruitment is low across the Region and is inadequate to stabilize the population. The main driver behind low calf recruitment and survival is predation. Increasing the wolf bag limit to 10 has been proposed and not supported since licenced hunters currently can harvest 3 wolves annually and few hunters consistently harvest wolves. Increasing the limit is unlikely to have a direct, consistent, and sustainable benefit for moose.
 - Implementing a predator control program in specific Game Management Zones to enhance calf moose survival. The Management Plan for Grey Wolf (*Canis lupus*) in British Columbia is clear (section 7.4) that implementing predator control to enhance ungulate populations for hunting is contrary to policy. Licenced hunting opportunities will need to be closed before this alternative can be considered.
-

3. Pros/Cons analysis undertaken & results:

Pros:

- Low calf recruitment indicates moose declines are likely to continue, LEH provides the ability to collect hunter success data and adjust LEH authorizations and quota before the maximum harvest declines below current harvest levels.
- First Nations requested the Province management moose under LEH; this is responsive to their requests
- Responds to First Nations' local and traditional knowledge regarding moose populations
- The Province will need to explicitly consider First Nation Treaty 8 right to hunt when making quota and LEH decisions
- The Province would be able to distribute harvest across the region and reduce the risk of localized overharvesting
- Regional staff and Branch have more control over moose harvest and can adjust LEH authorizations to support management objectives
- Precautionary approach for management units without current inventory data to reduce risk of moose becoming a species of conservation concern

Cons:

- LEH is unlikely to stabilize or increase the moose populations without addressing habitat and predation
 - Licenced hunting community harvests moose for food. A moose provides approximately 200kg of meat for the cost of a hunting licence (\$32) and species licence (\$25). There are additional, variable costs associated with hunting – fuel, travel, accommodations, cut & wrap – that are harder to incorporate since this varies between hunters. Replacing 220kg of moose meat with 220kg of beef would cost approximately \$3,370³ using beef's 2020 weighted average of \$15.31/kg.
 - Licenced hunters may be upset on the reduced opportunity.
 - Northeast licenced hunters will have reduced opportunity under the current LEH system
 - Updating the licencing system to include the new LEH codes will take time and resources
 - Additional staff time to calculate annual LEH and quota recommendations
 - First Nations may expect this change will stop or reverse moose population declines
 - Decreased number of hunters traveling from other Regions to the Northeast for moose hunting
 - Increased harvest pressure in the other Regions that have moose general open season
-

³ Agriculture and Agri-Food Canada. Red Meat and Livestock Market Information – Prices. <https://www.agr.gc.ca/eng/canadas-agriculture-sectors/animal-industry/red-meat-and-livestock-market-information/prices/annual-retail-beef-and-historical-pork-prices/?id=1520539054104>

4. Identify risks of NOT implementing the new provision:

The risks associated with not implementing the regulation change could be the non-recoverable collapse of the moose population within the Peace Region. If the general open season continues to operate, the moose population may decrease past a recoverable population. Alternatively, it could lead to a recoverable population, that would require either a LEH or a closed season to allow the population to recuperate. This would also frustrate hunters and stakeholders.

If the government does not listen to the Traditional Knowledge of the local First Nations, there may be a potential violation of Treaty 8 rights, as the population of moose continues to decrease, and sustenance harvest is affected, a lawsuit may be initiated.

5. Comments by Reviewers: (if relevant)

Use separate page, as comments may not be included in the final OIC/MO Package.
Copies of email correspondence may be attached.

PART D: STAKEHOLDER CONSULTATION

ADEQUATE CONSULTATION AND ENGAGEMENT MUST BE RECORDED, OR THE FORM WILL BE RETURNED TO THE ORIGINATOR.

Please attach supporting documentation, such as letters, meeting minutes, etc.

Identify who was consulted and when consultations took place.

Who raised concerns and what was the nature of their concerns?

Has the regulation been changed to respond to Stakeholders' Concerns?

Organization	Contact Name	Date and type of Consultation & Engagement	Supported? (If no, attach an explanation) N/A = Proposal not applicable to organization
CO Service			<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A Note: CO service consultation is required BEFORE submission is sent to Wildlife & Habitat Branch. Only rarely is this consultation not required. COS verification is required for safety related regulation proposals.
Other Regions			<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A

Wildlife & Habitat Branch (Victoria) Note: If proposed regulation is for a CITES species, Stephen MacIver (Management Authority for CITES) must be consulted.	Holger Bohm	May 4, 2021 - Discussed proposal and methodology	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A Note: Consultation is required BEFORE submission is sent to Wildlife & Habitat Branch. Only rarely is this consultation not required. Consultation for: Ungulates: Holger.Bohm@gov.bc.ca Birds: Gerad.Hales@gov.bc.ca Wildlife Health: Caeley.Thacker@gov.bc.ca Furbearers/small game: Geard.Hales@gov.bc.ca Large Carnivores: Garth.Mowat@gov.bc.ca Motor Vehicle Prohibitions: Depends on the purpose of the closure, if the purpose is related to a specific species contact the species specialist above. Habitat related proposals: Steve.Gordon@gov.bc.ca .
BC Parks, if applicable			<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A
Other Gov't agencies (list) (Highways, Forests)			<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A
BCWF (Zone Representative)			<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A
GOABC or local organization			<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A
BCTA or local organization			<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A
Other organization: (name)			<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A
Public Meetings:	(attendees)		<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A

PART E: INDIGENOUS CONSULTATION AND ENGAGEMENT

Please attach supporting documentation, such as letters, meeting minutes, etc.

When did initial consultation and engagement period begin? _____

a) Does this proposed change have implications (impact or of interest to) Indigenous Peoples?	<input type="checkbox"/> NO - If no, please explain _____ <input type="checkbox"/> YES - If yes, please complete items (b) to (e) if applicable _____
b) Does this proposed change relate to the Calls to Action of the Truth and Reconciliation Commission?	<input type="checkbox"/> NO <input type="checkbox"/> YES - If yes, please indicate which of the calls and how _____

<p>c) Does this proposed change relate to any of the following legal or other government obligations?</p> <ul style="list-style-type: none"> • modern treaty obligations to notify, discuss or consult, • common law consultation obligations, • contractual commitments, • under the <i>Declaration on the Rights of Indigenous Peoples Act</i>? 	<p><input type="checkbox"/> NO</p> <p><input type="checkbox"/> YES – If yes, please explain how</p> <hr/> <p>Please review the following to help you with your analysis: ILR Reference Document: Indigenous Legal Relations Review of Cabinet Submissions*; UN Declaration Reference Document*; Provincial Legislation Engagement with Treaty Nations Guide</p> <p>*Note: You may have to request permission to the site from the Ministry of Attorney General.</p>
<p>d) Does this proposed change affect Indigenous peoples' modern or historic treaty rights or Aboriginal rights, including any Aboriginal title?</p>	<p><input type="checkbox"/> NO</p> <p><input type="checkbox"/> YES – If yes, please indicate how.</p> <p>Was the consultation sufficient for the purposes of the constitutional obligations?</p> <hr/>
<p>e) Have Indigenous peoples, including Indigenous organizations, been involved in the development of the proposed change, and will they be involved in its implementation?</p>	<p><input type="checkbox"/> NO - If no, please explain why not</p> <hr/> <p><input type="checkbox"/> YES - If yes, what views were expressed or how will they be sought?</p> <hr/> <p>Please review the Policy Framework for Advancing Reconciliation with Indigenous Peoples for guidance on involving Indigenous peoples in your policy development.</p> <p>If you would like further support with this section, please contact Legislative Alignment and Process.</p>

Indigenous Peoples

We require the name of each Indigenous group engaged and individuals within the group. When did the engagement and consultation take place and in what forum (letter, fax, meeting, etc.)? What was the response or outcome of engagement (band by band or tribal association)? What might be the anticipated impact of this proposal on the Indigenous peoples ability to practice their Aboriginal Interests?

If consultation/engagement with Indigenous peoples is incomplete/ongoing indicate the anticipated completion date.

RE: FN consultation package for hunting regulations

From: Harrison, Dominica FLNR:EX <Dominica.Harrison@gov.bc.ca>
To: O'Brien, Laura FLNR:EX <Laura.O'Brien@gov.bc.ca>
Cc: Lavallee, Michel FLNR:EX <Michel.Lavallee@gov.bc.ca>, Wellstead, James FLNR:EX <James.Wellstead@gov.bc.ca>
Sent: June 23, 2021 1:26:59 PM PDT
Attachments: First Nations Consultation Summary of Proposals.pdf, First Nations Consultation Summary of Proposals.docx

I already found a typo!! Here is the word and pdf version of the written text with the fixed typo

From: Harrison, Dominica FLNR:EX
Sent: June 23, 2021 1:19 PM
To: O'Brien, Laura FLNR:EX <Laura.O'Brien@gov.bc.ca>
Cc: Lavallee, Michel FLNR:EX <Michel.Lavallee@gov.bc.ca>; Wellstead, James FLNR:EX <James.Wellstead@gov.bc.ca>
Subject: FN consultation package for hunting regulations

Hi Laura,

I guess better late than never. In this folder are maps, shape files and the written summary document
Everything can also be found in the shared drive:
N:\Wildlife\HUNTING & TRAPPING REGS\Regs 2022-24

Let me know how I can help in the next steps of the process!

I will be away from June 28 to July 5 (returning on July 6)

Thanks for your patients
Regards,
Dominica

Dominica Harrison
Ecosystems Biologist
Ministry of Forests, Lands, Natural Resource Operations, and Rural Development

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Withheld pursuant to/removed as

s.13 ; s.16

RE: Kaska BC FWWG Call

From: Norm MacLean <nmaclean@lgl.com>
To: Johnson, Marianne FLNR:EX <Marianne.Johnson@gov.bc.ca>
Cc: O'Brien, Laura FLNR:EX <Laura.O'Brien@gov.bc.ca>, Harrison, Dominica FLNR:EX <Dominica.Harrison@gov.bc.ca>
Sent: June 25, 2021 9:42:52 AM PDT
Attachments: image002.png, BC-Kaska FWWG Harvest Mgt Proposal Recommendations Summary Table 2021 v1.docx, image001.png

[EXTERNAL] This email came from an external source. Only open attachments or links that you are expecting from a known sender.

Hi Marianne

We are finalizing our detailed proposal, but I have attached the table of our summarized proposals we talked about on previous calls.

I will be sending out some alternate dates for our FWWG meeting.

Thanks

Norm

Norm MacLean
Senior Wildlife Biologist
LGL Limited
19 Oak Street
Whitehorse, YT Y1A 4A9
nmaclean@lgl.com
867-333-9511



environmental research associates

From: Johnson, Marianne FLNR:EX <Marianne.Johnson@gov.bc.ca>

Sent: June 25, 2021 8:57 AM

To: Norm MacLean <nmaclean@lgl.com>

Cc: O'Brien, Laura FLNR:EX <Laura.O'Brien@gov.bc.ca>; Harrison, Dominica FLNR:EX <Dominica.Harrison@gov.bc.ca>

Subject: RE: Kaska BC FWWG Call

Hello Norm

For the July meeting please add 2022-2024 NE Region Hunting Regulation change proposals to the agenda.

Also I do not recollect receiving the request for changes from Kaska. Was that sent to us in the NE Region and I just missed it?

Respectfully



Marianne Johnson
Resource Manager, Stewardship
Peace Natural Resource District | Northeast (Peace) Region
Phone (250) 795-4177
Ministry of Forests, Lands, Natural Resource Operations and Rural Development

-----Original Appointment-----

From: Norm MacLean <nmaclean@lgl.com>

Sent: March 17, 2021 8:24 AM

To: Norm MacLean; denakayeh@gmail.com; DDCLRO (ddclro@northwestel.net); DRFN Referral; Pillipow, Ray FLNR:EX; Scheideman, Matthew FLNR:EX; Shawna Case; Tanya Ball (tanya.cm.ball@gmail.com); Thiessen, Conrad D FLNR:EX; knrcsea; Johnson, Marianne FLNR:EX

Cc: dki.gistech@gmail.com

Subject: Kaska BC FWWG Call

When: July 26, 2021 1:30 PM-2:30 PM (UTC-08:00) Pacific Time (US & Canada).

Where: s.15; s.17

[EXTERNAL] This email came from an external source. Only open attachments or links that you are expecting from a known sender.

Norm Maclean is inviting you to a scheduled Zoom meeting.

[Join Zoom Meeting](#)

s.15; s.17

Page 166 of 460 to/à Page 172 of 460

Withheld pursuant to/removed as

s.13 ; s.16



environmental research associates

CELEBRATING
50
YEARS

Page 174 of 460 to/à Page 188 of 460

Withheld pursuant to/removed as

s.13 ; s.16

Page 189 of 460

Withheld pursuant to/removed as

s.13



**2022-2024
REGULATION CHANGE
REQUEST FORM**

HQ Use Only		
Executive Summary	<input type="checkbox"/>	LEH Proposal <input type="checkbox"/>
Wildlife Mgr. Approval	<input type="checkbox"/>	H&T Proposal <input type="checkbox"/>
Director Approval	<input type="checkbox"/>	Synopsis edited <input type="checkbox"/>
Regulations drafted	<input type="checkbox"/>	AHTE drafted <input type="checkbox"/>
Map (for synopsis)	<input type="checkbox"/>	AHTE posted <input type="checkbox"/>

Contact: Michel Lavallee **Phone:** 778-576-1139 **Region:** 7B

SUBJECT: Replace Moose GOS with LEH

Management Units: 7-19, 7-20, 7-21A, 7-31A, 7-32, 7-33, 7-35, 7-36, 7-42, 7-43, 7-46 to 7-56 **Date of Submission:** October 1, 2021

Species: Moose

Choose applicable one(s): General Open Season Limited Entry Hunting Trapping
 Motor Vehicle Prohibition Firearm Restriction Other (describe) _____

Who is the regional contact for communications issues?
 (someone with authority to deal with media requests if requested by Public Affairs)
 Name: Greg Van Dolah Phone: 250-795-4158

PART A: BACKGROUND

1. What is currently in the synopsis? (exact wording preferred)

Moose	7-21B, 7-22, 7-31B	Bulls	Aug 15 – Aug 31
	7-19, 7-20, 7-21A, 7-31A, 7-32, 7-33, 7-35, 7-36, 7-42, 7-43, 7-46 to 7-56 ▲	Bulls	Aug 23 – Aug 31
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Bow Only	7-20, 7-21A, 7-32 to 7-35, 7-44, 7-45, 7-57, 7-58	*Bulls	Oct 1 – Oct 15

2. Briefly describe the proposed wording in the synopsis:

GOS

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	7-21B, 7-22, 7-31B	*Bulls	Sept 1 – Oct 31
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LEH

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s.13

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s.13

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Kuzyk and colleagues¹ publication indicates a maximum bull harvest of 20% would be sustainable for most moose populations in the Province. Based on the current population estimates, the Northeast Region could support the harvest of 3,261 (± 780) bull moose annually which is approximately equal to current harvest rates.

Local overharvesting is challenging to avoid through General Open Season since hunters have the flexibility to harvest moose based on hunter preference and access. Antler restrictions have not stabilized the moose populations; moving to Limited Entry Hunt provides the Province the ability to distribute harvest pressure across the Region to reduce the risk of overharvesting in certain areas. The proposed Any Bull LEH is intended to support hunters' opportunity to successfully harvest moose while addressing potential enforcement challenges and unlawful harvest encountered when hunters do not accurately count points on the antler.

The Any Bull LEH would distribute harvest pressure across more age classes rather than the current focused harvest on young bulls (spike-fork) or older bulls (tri-palm, 10 point).

Management Units 7-21B, 7-22, and 7-31B overlap the South Peace Caribou recovery efforts and wolf control zones. Keeping these Management Units as GOS will encourage moose harvest within the caribou recovery areas and slow moose population growth.

The Moose LEH Shared hunt allows family or friends to continue moose hunting together without increasing the number of authorizations issued to support the continuation of this practice and knowledge transfer to newer hunters.

¹ Kuzyk, G., I. Hatter, S. Marshall, C. Procter, B. Cadsand, D. Lirette, H. Schindler, M. Bridger, P. Stent, A. Walker, and M. Klaczek. 2018. Moose population dynamics during 20 years of declining harvest in British Columbia. *Alces* 54:101-119

² Natcher, D., S. Ingram, A-M. Bogdan, and A. Rice. 2021. Conservation and Indigenous subsistence hunting in the Peace River Region of Canada. *Human Ecology*. 49:109-120

2. Alternatives to regulation considered:

The Northeast Region has implemented more restrictive hunting regulations to address declining moose populations, but these have not generated the expected change.

Alternatives considered:

- Current regulation structure – moose populations have been declining for over 20 years. The current regulations have been inadequate to stabilize the populations.
- The calf recruitment is low across the Region and is inadequate to stabilize the population. The main driver behind low calf recruitment and survival is predation. Increasing the wolf bag limit to 10 has been proposed and not supported since licenced hunters currently can harvest 3 wolves annually and few hunters consistently harvest wolves. Increasing the limit is unlikely to have a direct, consistent, and sustainable benefit for moose.
- Implementing a predator control program in specific Game Management Zones to enhance calf moose survival. The Management Plan for Grey Wolf (*Canis lupus*) in British Columbia is clear (section 7.4) that implementing predator control to enhance ungulate populations for hunting is contrary to policy. Licenced hunting opportunities will need to be closed before this alternative can be considered.

3. Pros/Cons analysis undertaken & results:

Pros:

- Low calf recruitment indicates moose declines are likely to continue, LEH provides the ability to collect hunter success data and adjust LEH authorizations and quota before the maximum harvest declines below current harvest levels.
- First Nations requested the Province management moose under LEH; this is responsive to their requests
- Responds to First Nations' local and traditional knowledge regarding moose populations
- The Province will need to explicitly consider First Nation Treaty 8 right to hunt when making quota and LEH decisions
- The Province would be able to distribute harvest across the region and reduce the risk of localized overharvesting
- Regional staff and Branch have more control over moose harvest and can adjust LEH authorizations to support management objectives
- Precautionary approach for management units without current inventory data to reduce risk of moose becoming a species of conservation concern

Cons:

- LEH is unlikely to stabilize or increase the moose populations without addressing habitat and predation
- Licenced hunting community harvests moose for food. A moose provides approximately 200kg of meat for the cost of a hunting licence (\$32) and species licence (\$25). There are additional, variable costs associated with hunting – fuel, travel, accommodations, cut & wrap – that are harder to incorporate since this varies between hunters. Replacing 220kg of moose meat with 220kg of beef would cost approximately \$3,370³ using beef's 2020 weighted average of \$15.31/kg.
- Licenced hunters may be upset on the reduced opportunity.
- Northeast licenced hunters will have reduced opportunity under the current LEH system
- Updating the licencing system to include the new LEH codes will take time and resources
- Additional staff time to calculate annual LEH and quota recommendations
- First Nations may expect this change will stop or reverse moose population declines
- Decreased number of hunters traveling from other Regions to the Northeast for moose hunting
- Increased harvest pressure in the other Regions that have moose general open season

³ Agriculture and Agri-Food Canada. Red Meat and Livestock Market Information – Prices. <https://www.agr.gc.ca/eng/canadas-agriculture-sectors/animal-industry/red-meat-and-livestock-market-information/prices/annual-retail-beef-and-historical-pork-prices/?id=1520539054104>

4. Identify risks of NOT implementing the new provision:

The risks associated with not implementing the regulation change could be the non-recoverable collapse of the moose population within the Peace Region. If the general open season continues to operate, the moose population may decrease past a recoverable population. Alternatively, it could lead to a recoverable population, that would require either a LEH or a closed season to allow the population to recuperate. This would also frustrate hunters and stakeholders.

If the government does not listen to the Traditional Knowledge of the local First Nations, there may be a potential violation of Treaty 8 rights, as the population of moose continues to decrease, and sustenance harvest is affected, a lawsuit may be initiated.

5. Comments by Reviewers: (if relevant)

Use separate page, as comments may not be included in the final OIC/MO Package. Copies of email correspondence may be attached.

PART D: STAKEHOLDER CONSULTATION

ADEQUATE CONSULTATION AND ENGAGEMENT MUST BE RECORDED, OR THE FORM WILL BE RETURNED TO THE ORIGINATOR.

Please attach supporting documentation, such as letters, meeting minutes, etc.

Identify who was consulted and when consultations took place.

Who raised concerns and what was the nature of their concerns?

Has the regulation been changed to respond to Stakeholders' Concerns?

Organization	Contact Name	Date and type of Consultation & Engagement	Supported? (If no, attach an explanation) N/A = Proposal not applicable to organization
CO Service			<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A Note: CO service consultation is required BEFORE submission is sent to Wildlife & Habitat Branch. Only rarely is this consultation not required. COS verification is required for safety related regulation proposals.
Other Regions			<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A

s.13

Wildlife & Habitat Branch (Victoria) Note: If proposed regulation is for a CITES species, Stephen MacIver (Management Authority for CITES) must be consulted.	Holger Bohm	May 4, 2021 - Discussed proposal and methodology	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A Note: Consultation is required BEFORE submission is sent to Wildlife & Habitat Branch. Only rarely is this consultation not required. Consultation for: Ungulates: Holger.Bohm@gov.bc.ca Birds: Gerard.Hales@gov.bc.ca Wildlife Health: Caeley.Thacker@gov.bc.ca Furbearers/small game: Gerard.Hales@gov.bc.ca Large Carnivores: Garth.Mowat@gov.bc.ca Motor Vehicle Prohibitions: Depends on the purpose of the closure, if the purpose is related to a specific species contact the species specialist above. Habitat related proposals: Steve.Gordon@gov.bc.ca .
BC Parks, if applicable			<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A
Other Gov't agencies (list) (Highways, Forests)			<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A
BCWF (Zone Representative)			<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A
GOABC or local organization			<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A
BCTA or local organization			<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A
Other organization: (name)			<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A
Public Meetings:	(attendees)		<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A

PART E: INDIGENOUS CONSULTATION AND ENGAGEMENT

Please attach supporting documentation, such as letters, meeting minutes, etc.

When did initial consultation and engagement period begin? _____

a) Does this proposed change have implications (impact or of interest to) Indigenous Peoples?	<input type="checkbox"/> NO - If no, please explain _____ <input type="checkbox"/> YES - If yes, please complete items (b) to (e) if applicable _____
b) Does this proposed change relate to the Calls to Action of the Truth and Reconciliation Commission?	<input type="checkbox"/> NO <input type="checkbox"/> YES - If yes, please indicate which of the calls and how _____

<p>c) Does this proposed change relate to any of the following legal or other government obligations?</p> <ul style="list-style-type: none"> • modern treaty obligations to notify, discuss or consult, • common law consultation obligations, • contractual commitments, • under the <i>Declaration on the Rights of Indigenous Peoples Act</i>? 	<p><input type="checkbox"/> NO</p> <p><input type="checkbox"/> YES – If yes, please explain how</p> <hr/> <p>Please review the following to help you with your analysis: ILR Reference Document: Indigenous Legal Relations Review of Cabinet Submissions*; UN Declaration Reference Document*; Provincial Legislation Engagement with Treaty Nations Guide</p> <p>*Note: You may have to request permission to the site from the Ministry of Attorney General.</p>
<p>d) Does this proposed change affect Indigenous peoples' modern or historic treaty rights or Aboriginal rights, including any Aboriginal title?</p>	<p><input type="checkbox"/> NO</p> <p><input type="checkbox"/> YES – If yes, please indicate how.</p> <p>Was the consultation sufficient for the purposes of the constitutional obligations?</p> <hr/>
<p>e) Have Indigenous peoples, including Indigenous organizations, been involved in the development of the proposed change, and will they be involved in its implementation?</p>	<p><input type="checkbox"/> NO - If no, please explain why not</p> <hr/> <p><input type="checkbox"/> YES - If yes, what views were expressed or how will they be sought?</p> <hr/> <p>Please review the Policy Framework for Advancing Reconciliation with Indigenous Peoples for guidance on involving Indigenous peoples in your policy development.</p> <p>If you would like further support with this section, please contact Legislative Alignment and Process.</p>

Indigenous Peoples

We require the name of each Indigenous group engaged and individuals within the group. When did the engagement and consultation take place and in what forum (letter, fax, meeting, etc.)? What was the response or outcome of engagement (band by band or tribal association)? What might be the anticipated impact of this proposal on the Indigenous peoples ability to practice their Aboriginal Interests?

If consultation/engagement with Indigenous peoples is incomplete/ongoing indicate the anticipated completion date.

PART F: APPROVAL

**RECORD OF APPROVALS FOR REGULATION CHANGES
UNDER THE WILDLIFE ACT
BC REGULATION [title] [reg #] [section #]
SUBJECT: [subject]**

Region: _____

Contact Name: _____

Telephone Number: _____

APPROVAL is sought for the following documents, to be submitted as part of the OIC/MO package:
- [LIST DOCUMENTS & ATTACHMENTS]

1. Section Head, Originating Office (GIVE LOCATION)

Reviewed by: _____

Date: _____

Signature: _____

Supported *Not Supported

*If not supported, please provide reason.

2. Regional Manager

Reviewed by: _____

Date: _____

Signature: _____

Supported *Not Supported

*If not supported, please provide reason.

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Withheld pursuant to/removed as

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**2022-2024
REGULATION CHANGE
REQUEST FORM**

HQ Use Only		
Executive Summary	<input type="checkbox"/>	LEH Proposal <input type="checkbox"/>
Wildlife Mgr. Approval	<input type="checkbox"/>	H&T Proposal <input type="checkbox"/>
Director Approval	<input type="checkbox"/>	Synopsis edited <input type="checkbox"/>
Regulations drafted	<input type="checkbox"/>	AHTE drafted <input type="checkbox"/>
Map (for synopsis)	<input type="checkbox"/>	AHTE posted <input type="checkbox"/>

s.13

Contact: Michel Lavallee **Phone:** 778-576-1139 **Region:** 7B

SUBJECT: Closure of Moose Lake

Management Units: 7-51 **Date of Submission:** October 1, 2021

Species: Moose (*Alces alces*)

Choose applicable one(s): General Open Season Limited Entry Hunting Trapping
 Motor Vehicle Prohibition Firearm Restriction Other (describe) _____

Who is the regional contact for communications issues?
 (someone with authority to deal with media requests if requested by Public Affairs)
 Name: Greg Van Dolah Phone: 250-795-4158

PART A: BACKGROUND

1. What is currently in the synopsis? (exact wording preferred)

7-19, 7-20, 7-21A, 7-31A, 7-32, 7-33, 7-35, 7-36, 7-42, 7-43, 7-46 to 7-56s Bulls Aug 23 - Aug 31
 7-19, 7-21B, 7-22, 7-31, 7-36, 7-42, 7-43, 7-46 to 7-56* Bulls Sept 1 - Oct 31

*Portion of MUs 7-51,7-52 and 7-53 closed to moose hunting from Oct 1 to Oct 15 (See Maps H27 and H28).

2. Briefly describe the proposed wording in the synopsis:

7-19, 7-20, 7-21A, 7-31A, 7-32, 7-33, 7-35, 7-36, 7-42, 7-43, 7-46 to 7-56* Bulls Aug 23 - Aug 31
 7-19, 7-21B, 7-22, 7-31, 7-36, 7-42, 7-43, 7-46 to 7-56* Bulls Sept 1 - Oct 31

*Portion of MUs 7-52 and 7-53 closed to moose hunting from Oct 1 to Oct 15 (See Maps H27 and H28).

*MU 7-51 complete closure within Moose lake boundary (See Map 9)

3. Map associated with the proposed regulation. Yes No

- This map may be used to form the regulation. It should be digital and professional. Please provide shapefiles if available.

4. Reason for proposal (rationale in plain language): IMPORTANT – this is what goes on the public engagement website (AHTE) verbatim

The Kaska Dena have expressed concerns over the last several decades on licenced hunting pressure in culturally important areas. Since the establishment of the Kaska BC Natural Resource Council, High Cultural Use Areas have been identified as a management concern related to hunting pressures, land use conflicts, and surface/subsurface dispositions. The Moose Lakes have been classified as High Cultural Use Areas. All the areas listed above are located near Kaska communities and are of spiritual, historic, cultural, social, and environmental importance to the Kaska Dena. These areas are the location of culture camps, family cabins and camps, are used to meet sustenance needs, and maintain and exercise traditional practices and cultural

uses. It is important to note these are not all the High Cultural Use Areas in the traditional territory but are candidate areas to work collaboratively to address the conflicts. They could be considered as pilot areas for further management actions in the traditional territory. These areas are of such importance to the communities that Kaska Dena have placed signs near these areas to communicate to licenced hunters about hunting in the areas. These signs are not throughout the territory but a key place such as the above list.

Guide outfitters in the area have also expressed concern regarding overcrowding of resident hunters in the Moose Lakes area. There are safety concerns associated with overcrowding voiced by Conservation officers, First Nations and Guide outfitters. Public safety becomes a major concern and top priority.

From a conservation perspective there is limited data regarding the population levels in the area. The last survey was completed in 2012/2013. The corrected population density for the entire MU 7-51 was 0.61 moose/km² which is considered a high-density population (above 0.2 moose per squared km; Poole and Demars (2015). We do acknowledge this justification regarding this proposal is not a conservation concern but meant to support First Nations harvest and tradiational, while reducing hunter crowding and localized harvest pressure.

Despite the social nature of this rationale there's a three-pronged justification for this proposal. Firstly, in the spirit of reconciliation and because of the classification of Moose Lake to be as High Cultural Use area this complete closure would align with First Nation's interest and request. Second, due to the GOS nature of the North East, hunter overcrowding has been a safety concern for some time. Therefore, this closure would help mitigate this risk. Lastly, the area is quite small and therefore the impact felt to stakeholders is not a significant as the implementation of an entire MU closure.

What is the problem or issue that the regulation change is intended to address or resolve?
Why is government action required at this time?
Write at a professional level. This document may be part of the OIC/MO package and is subject to FOI requests.

s.13

PART B: ANALYSIS

1. Describe surveys used for conservation issues and their results as they relate to this submission:

As mentioned previously this is not a conservation issue. Zone 7-51 A (Map 9) is a small area of MU 7-51, therefore 7-51A population statistics are would be estimates. As to be transparent, we report the population data of MU 7-51 from the 2012/2013 survey: corrected density of 0.61, calf/cow ratio of 0.22 and bull cow ratio of 1.05.

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What were the results of scientific surveys? For example, what population monitoring techniques were used? Anecdotal (hunter comments) and/or scientific information can be used. Be brief and write in plain language. Doesn't require a lot of technical detail. (Reports, technical data can be sent as an attachment.)

2. Alternatives to regulation considered:

Option 1: Close during early season Aug 23 to 31 when moose are potentially more vulnerable. This is an alternative that could potentially increase hunter density even further during the later season

Option 2: Do not implement closure.

If no alternatives were considered, explain why.

What other methods of regulation were considered and rejected and why? (e.g., voluntary codes, self-management, partnerships, etc.)

Could other bodies outside of government ensure standards are met? (e.g., accreditation, certification, auditing, etc.)

3. Pros/Cons analysis undertaken & results:

Pros

- Community members meeting moose sustenance needs in the late summer and fall
- Reduced land use conflicts between licenced hunters and community members during the hunting season
- Reduced conflicts of camps, cabins, and cultural areas being used by licenced hunting camps
- Reduced crowding of hunters
- Protection or avoidance of cultural camps, traditional areas and ensuring the exercising of traditional practices
- Reduced vulnerability of moose, especially bulls, during the rut
- Increased potential for moose to successfully breed and calve in low density northern populations
- A diversity of hunting opportunities and recreational opportunities

Cons

- Complete closure to resident hunters not in their best interest
- Very restrictive measures not fully supported by data

Explain how the benefits outweigh the costs. An example of a pro would be an increase in recreational opportunity or reduced costs. An example of a con would be impact on species population or increased regulatory complexity.

Can the costs or benefits for proposed regulation be quantified? What factors were evaluated to determine this impact?

3. Identify risks of NOT implementing the new provision:

Public safety concerns associated with over crowding of resident hunters.

Eroding FN relationships and trust associated with lack of actions regarding their conservation and cultural concerns

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'Risk' is the potential of loss or damage resulting from a decision. Risks would include conservation issues and relationships with stakeholders. Describe the "worst case scenario". (A risk in the broadest sense is the potential for loss. Risk may be represented by any unintentional event or situation that leads to harm for an organization, group, habitat, species, or individual. The loss might be as simple as the pain of a twisted ankle or as complex as a liability claim ending in a lawsuit.)

5. Comments by Reviewers: (if relevant)

Use separate page, as comments may not be included in the final OIC/MO Package. Copies of email correspondence may be attached.

PART D: STAKEHOLDER CONSULTATION

ADEQUATE CONSULTATION AND ENGAGEMENT MUST BE RECORDED, OR THE FORM WILL BE RETURNED TO THE ORIGINATOR.

Please attach supporting documentation, such as letters, meeting minutes, etc.

Identify who was consulted and when consultations took place.

Who raised concerns and what was the nature of their concerns?

Has the regulation been changed to respond to Stakeholders' Concerns?

Organization	Contact Name	Date and type of Consultation & Engagement	Supported? (If no, attach an explanation) N/A = Proposal not applicable to organization
CO Service			<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A Note: CO service consultation is required BEFORE submission is sent to Wildlife & Habitat Branch. Only rarely is this consultation not required. COS verification is required for safety related regulation proposals.
Other Regions			<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A

Wildlife & Habitat Branch (Victoria) Note: If proposed regulation is for a CITES species, Stephen MacIver (Management Authority for CITES) must be consulted.			<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A Note: Consultation is required BEFORE submission is sent to Wildlife & Habitat Branch. Only rarely is this consultation not required. Consultation for: Ungulates: Holger.Bohm@gov.bc.ca Birds: Gerard.Hales@gov.bc.ca Wildlife Health: Caeley.Thacker@gov.bc.ca Furbearers/small game: Gerard.Hales@gov.bc.ca Large Carnivores: Garth.Mowat@gov.bc.ca Motor Vehicle Prohibitions: Depends on the purpose of the closure, if the purpose is related to a specific species contact the species specialist above. Habitat related proposals: Steve.Gordon@gov.bc.ca .
BC Parks, if applicable			<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A
Other Gov't agencies (list) (Highways, Forests)			<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A
BCWF (Zone Representative)			<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A
GOABC or local organization			<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A
BCTA or local organization			<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A
Other organization: (name)			<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A
Public Meetings:	(attendees)		<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A

PART E: INDIGENOUS CONSULTATION AND ENGAGEMENT

Please attach supporting documentation, such as letters, meeting minutes, etc.

When did initial consultation and engagement period begin? _____

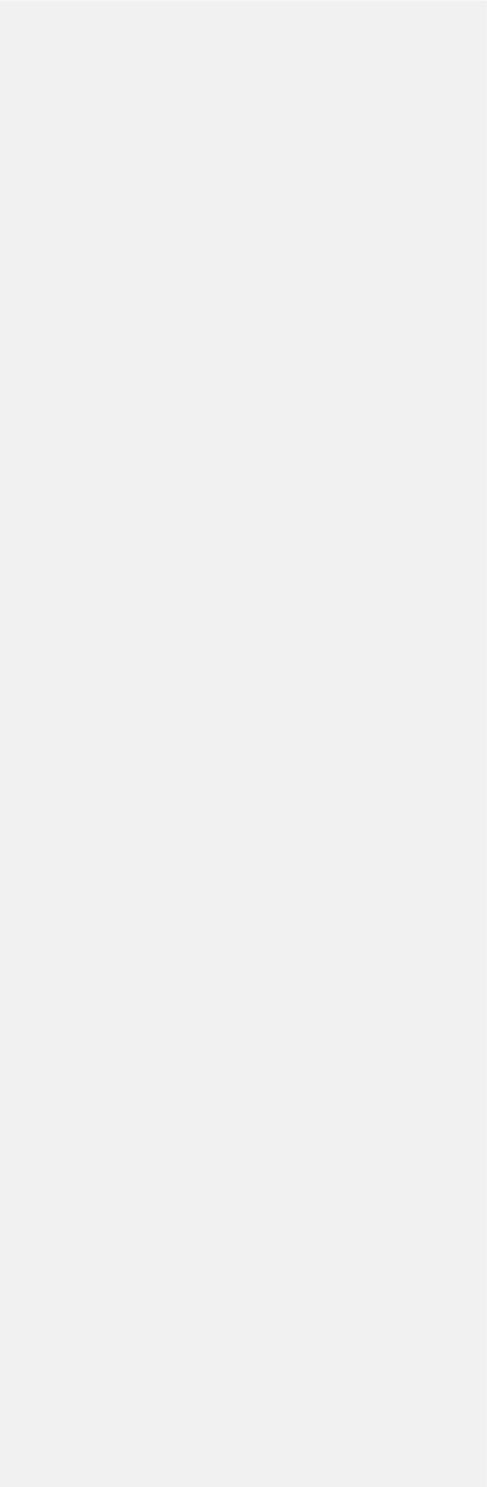
a) Does this proposed change have implications (impact or of interest to) Indigenous Peoples?	<input type="checkbox"/> NO - If no, please explain _____ <input type="checkbox"/> YES - If yes, please complete items (b) to (e) if applicable _____
b) Does this proposed change relate to the Calls to Action of the Truth and Reconciliation Commission?	<input type="checkbox"/> NO <input type="checkbox"/> YES - If yes, please indicate which of the calls and how _____

<p>c) Does this proposed change relate to any of the following legal or other government obligations?</p> <ul style="list-style-type: none"> • modern treaty obligations to notify, discuss or consult, • common law consultation obligations, • contractual commitments, under the <i>Declaration on the Rights of Indigenous Peoples Act</i>? 	<p><input type="checkbox"/> NO</p> <p><input type="checkbox"/> YES – If yes, please explain how</p> <hr/> <p>Please review the following to help you with your analysis: ILR Reference Document: Indigenous Legal Relations Review of Cabinet Submissions*; UN Declaration Reference Document*; Provincial Legislation Engagement with Treaty Nations Guide</p> <p>*Note: You may have to request permission to the site from the Ministry of Attorney General.</p>
<p>d) Does this proposed change affect Indigenous peoples' modern or historic treaty rights or Aboriginal rights, including any Aboriginal title?</p>	<p><input type="checkbox"/> NO</p> <p><input type="checkbox"/> YES – If yes, please indicate how.</p> <p>Was the consultation sufficient for the purposes of the constitutional obligations?</p> <hr/>
<p>e) Have Indigenous peoples, including Indigenous organizations, been involved in the development of the proposed change, and will they be involved in its implementation?</p>	<p><input type="checkbox"/> NO - If no, please explain why not</p> <hr/> <p><input type="checkbox"/> YES - If yes, what views were expressed or how will they be sought?</p> <hr/> <p>Please review the Policy Framework for Advancing Reconciliation with Indigenous Peoples for guidance on involving Indigenous peoples in your policy development.</p> <p>If you would like further support with this section, please contact Legislative Alignment and Process.</p>

Indigenous Peoples

We require the name of each Indigenous group engaged and individuals within the group. When did the engagement and consultation take place and in what forum (letter, fax, meeting, etc.)? What was the response or outcome of engagement (band by band or tribal association)? What might be the anticipated impact of this proposal on the Indigenous peoples ability to practice their Aboriginal Interests?

If consultation/engagement with Indigenous peoples is incomplete/ongoing indicate the anticipated completion date.



PART F: APPROVAL

**RECORD OF APPROVALS FOR REGULATION CHANGES
UNDER THE WILDLIFE ACT
BC REGULATION [title] [reg #] [section #]
SUBJECT: [subject]**

Region: _____

Contact Name: _____

Telephone Number: _____

APPROVAL is sought for the following documents, to be submitted as part of the OIC/MO package:
- [LIST DOCUMENTS & ATTACHMENTS]

1. Section Head, Originating Office (GIVE LOCATION)

Reviewed by: _____

Date: _____

Signature: _____

Supported *Not Supported

*If not supported, please provide reason.

2. Regional Manager

Reviewed by: _____

Date: _____

Signature: _____

Supported *Not Supported

*If not supported, please provide reason.



**2022-2024
REGULATION CHANGE
REQUEST FORM**

HQ Use Only		
Executive Summary	<input type="checkbox"/>	LEH Proposal <input type="checkbox"/>
Wildlife Mgr. Approval	<input type="checkbox"/>	H&T Proposal <input type="checkbox"/>
Director Approval	<input type="checkbox"/>	Synopsis edited <input type="checkbox"/>
Regulations drafted	<input type="checkbox"/>	AHTE drafted <input type="checkbox"/>
Map (for synopsis)	<input type="checkbox"/>	AHTE posted <input type="checkbox"/>

Contact: Michel Lavallee **Phone:** 778-576-1139 **Region:** 7B Northeast

SUBJECT: Amend Compulsory Inspection for Guide Outfitter

Management Units: Province **Date of Submission:** October 1, 2021

Species: Moose (*Alces alces*)

Choose applicable one(s): General Open Season Limited Entry Hunting Trapping
 Motor Vehicle Prohibition Firearm Restriction Other (describe) Add moose to Compulsory
 Inspection extension for guide-outfitters (Hunting Regulation Division 6 section 2.2(b))

Who is the regional contact for communications issues?
 (someone with authority to deal with media requests if requested by Public Affairs)
 Name: Greg Van Dolah Phone: 250-795-4158

PART A: BACKGROUND

1. What is currently in the synopsis? (exact wording preferred)

Persons who use the services of a licensed guide for the purpose of hunting a mountain goat or mountain sheep must submit such animals for inspection within 30 days after the last day of the continuous season in which the animal was taken and by December 5 of the year of the kills, whichever occurs first.

Page 21, bullet #4.

2. Briefly describe the proposed wording in the synopsis:

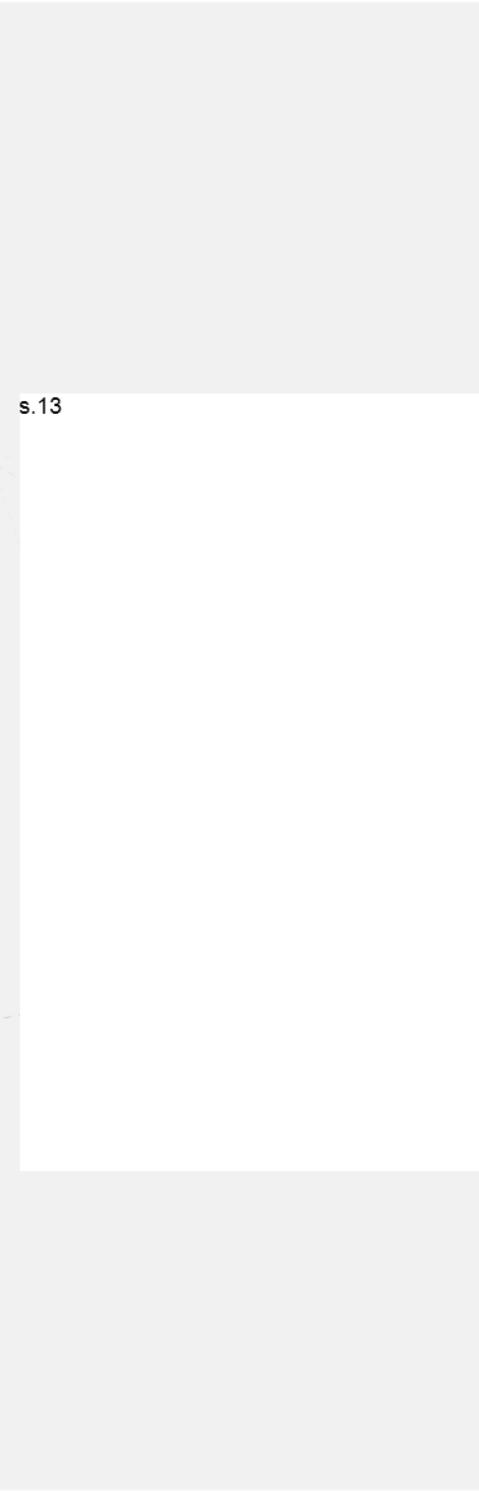
Persons who use the services of a licensed guide for the purpose of hunting a mountain goat, mountain sheep, **or moose** (Regions 6 and 7B only) must submit such animals for inspection within 30 days after the last day of the continuous season in which the animal was taken and by December 5 of the year of the kills, whichever occurs first.

Page 21, bullet #4.

3. Map associated with the proposed regulation. Yes No

4. Reason for proposal (rationale in plain language): IMPORTANT – this is what goes on the public engagement website (AHTE) verbatim

The Compulsory Inspection Division of the *Hunting Regulation* has been updated to include additional species requiring compulsory inspection. The section providing guide-outfitters additional time to transport the required parts to a compulsory inspector has not been updated to include moose.



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PART B: ANALYSIS

1. Describe surveys used for conservation issues and their results as they relate to this submission:

No conservation concerns or surveys are associated with this proposal. Guide-Outfitters have extended compulsory inspection timelines to accommodate their business practices and the challenges transporting the required parts to a compulsory inspector within the required time frame. Three Management Units in Region 7B are remote and the nearest compulsory inspectors are not easily accessed by the guide outfitters; similar access concerns may occur in Region 6.

2. Alternatives to regulation considered:

Leaving the current regulation requiring guide outfitters to transport the required parts to a compulsory inspector within 30 days of harvest. This may pose a compliance challenge for guides operating in remote areas during their busy season.

3. Pros/Cons analysis undertaken & results:

Leaving the current regulation requiring guide outfitters to transport the required parts to a compulsory inspector within 30 days of harvest. This may pose a compliance challenge for guides operating in remote areas during their busy season.

4. Identify risks of NOT implementing the new provision:

Impacts to guide-outfitter business if trips to compulsory inspectors are required within 30 days during the hunting season.

5. Comments by Reviewers: (if relevant)

Use separate page, as comments may not be included in the final OIC/MO Package.
Copies of email correspondence may be attached.

PART D: STAKEHOLDER CONSULTATION

ADEQUATE CONSULTATION AND ENGAGEMENT MUST BE RECORDED, OR THE FORM WILL BE RETURNED TO THE ORIGINATOR.

Please attach supporting documentation, such as letters, meeting minutes, etc.

Identify who was consulted and when consultations took place.

Who raised concerns and what was the nature of their concerns?

Has the regulation been changed to respond to Stakeholders' Concerns?

Organization	Contact Name	Date and type of Consultation & Engagement	Supported? (If no, attach an explanation) N/A = Proposal not applicable to organization
CO Service			<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A Note: CO service consultation is required BEFORE submission is sent to Wildlife & Habitat Branch. Only rarely is this consultation

			not required. COS verification is required for safety related regulation proposals.
Other Regions			<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A

Wildlife & Habitat Branch (Victoria) Note: If proposed regulation is for a CITES species, Stephen MacIver (Management Authority for CITES) must be consulted.			<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A Note: Consultation is required BEFORE submission is sent to Wildlife & Habitat Branch. Only rarely is this consultation not required. Consultation for: Ungulates: Holger.Bohm@gov.bc.ca Birds: Gerard.Hales@gov.bc.ca Wildlife Health: Caeley.Thacker@gov.bc.ca Furbearers/small game: Geard.Hales@gov.bc.ca Large Carnivores: Garth.Mowat@gov.bc.ca Motor Vehicle Prohibitions: Depends on the purpose of the closure, if the purpose is related to a specific species contact the species specialist above. Habitat related proposals: Steve.Gordon@gov.bc.ca .
BC Parks, if applicable			<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A
Other Gov't agencies (list) (Highways, Forests)			<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A
BCWF (Zone Representative)			<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A
GOABC or local organization			<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A
BCTA or local organization			<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A
Other organization: (name)			<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A
Public Meetings:	(attendees)		<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A

PART E: INDIGENOUS CONSULTATION AND ENGAGEMENT

Please attach supporting documentation, such as letters, meeting minutes, etc.

When did initial consultation and engagement period begin? _____

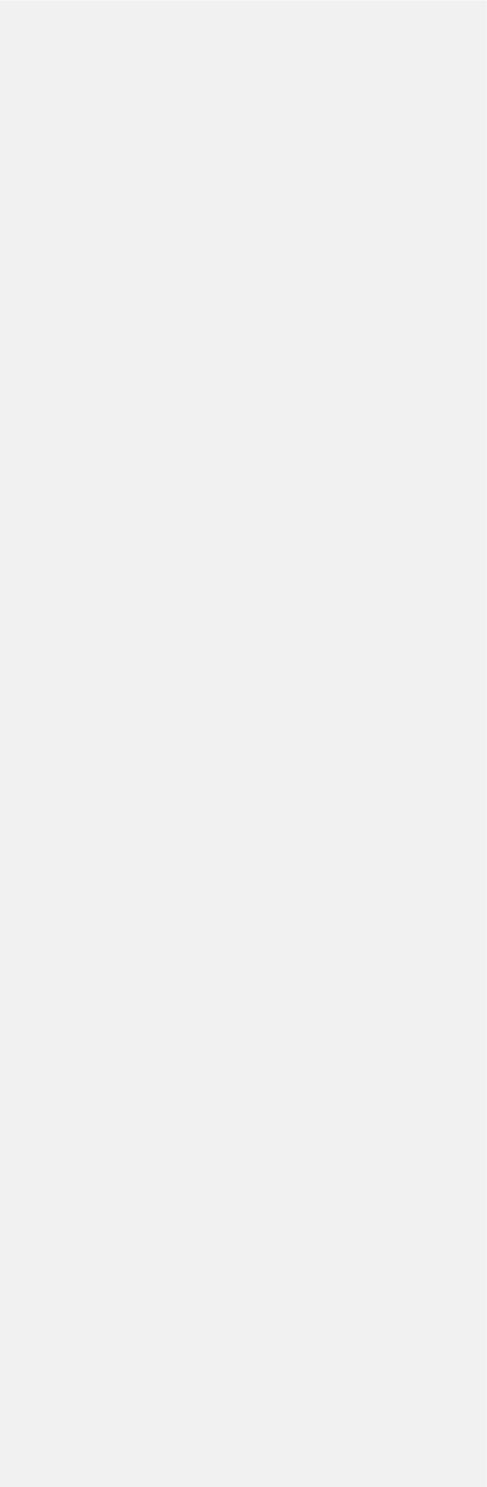
a) Does this proposed change have implications (impact or of interest to) Indigenous Peoples?	<input type="checkbox"/> NO - If no, please explain _____ <input type="checkbox"/> YES - If yes, please complete items (b) to (e) if applicable _____
b) Does this proposed change relate to the Calls to Action of the Truth and Reconciliation Commission?	<input type="checkbox"/> NO <input type="checkbox"/> YES - If yes, please indicate which of the calls and how _____

<p>c) Does this proposed change relate to any of the following legal or other government obligations?</p> <ul style="list-style-type: none"> • modern treaty obligations to notify, discuss or consult, • common law consultation obligations, • contractual commitments, under the <i>Declaration on the Rights of Indigenous Peoples Act</i>? 	<p><input type="checkbox"/> NO</p> <p><input type="checkbox"/> YES – If yes, please explain how</p> <hr/> <p>Please review the following to help you with your analysis: ILR Reference Document: Indigenous Legal Relations Review of Cabinet Submissions*; UN Declaration Reference Document*; Provincial Legislation Engagement with Treaty Nations Guide</p> <p>*Note: You may have to request permission to the site from the Ministry of Attorney General.</p>
<p>d) Does this proposed change affect Indigenous peoples' modern or historic treaty rights or Aboriginal rights, including any Aboriginal title?</p>	<p><input type="checkbox"/> NO</p> <p><input type="checkbox"/> YES – If yes, please indicate how.</p> <p>Was the consultation sufficient for the purposes of the constitutional obligations?</p> <hr/>
<p>e) Have Indigenous peoples, including Indigenous organizations, been involved in the development of the proposed change, and will they be involved in its implementation?</p>	<p><input type="checkbox"/> NO - If no, please explain why not</p> <hr/> <p><input type="checkbox"/> YES - If yes, what views were expressed or how will they be sought?</p> <hr/> <p>Please review the Policy Framework for Advancing Reconciliation with Indigenous Peoples for guidance on involving Indigenous peoples in your policy development.</p> <p>If you would like further support with this section, please contact Legislative Alignment and Process.</p>

Indigenous Peoples

We require the name of each Indigenous group engaged and individuals within the group. When did the engagement and consultation take place and in what forum (letter, fax, meeting, etc.)? What was the response or outcome of engagement (band by band or tribal association)? What might be the anticipated impact of this proposal on the Indigenous peoples ability to practice their Aboriginal Interests?

If consultation/engagement with Indigenous peoples is incomplete/ongoing indicate the anticipated completion date.



PART F: APPROVAL

**RECORD OF APPROVALS FOR REGULATION CHANGES
UNDER THE WILDLIFE ACT
BC REGULATION [title] [reg #] [section #]
SUBJECT: [subject]**

Region: _____

Contact Name: _____

Telephone Number: _____

APPROVAL is sought for the following documents, to be submitted as part of the OIC/MO package:
- [LIST DOCUMENTS & ATTACHMENTS]

1. Section Head, Originating Office (GIVE LOCATION)

Reviewed by: _____

Date: _____

Signature: _____

Supported *Not Supported

*If not supported, please provide reason.

2. Regional Manager

Reviewed by: _____

Date: _____

Signature: _____

Supported *Not Supported

*If not supported, please provide reason.



2022-2024 REGULATION CHANGE REQUEST FORM

HQ Use Only		
Executive Summary	<input type="checkbox"/>	LEH Proposal <input type="checkbox"/>
Wildlife Mgr. Approval	<input type="checkbox"/>	H&T Proposal <input type="checkbox"/>
Director Approval	<input type="checkbox"/>	Synopsis edited <input type="checkbox"/>
Regulations drafted	<input type="checkbox"/>	AHTE drafted <input type="checkbox"/>
Map (for synopsis)	<input type="checkbox"/>	AHTE posted <input type="checkbox"/>

Contact: Michel Lavallee	Phone: 778-576-1139	Region: 7B
SUBJECT: Replace Moose GOS with LEH		
Management Units: 7-19, 7-20, 7-21A, 7-31A, 7-32, 7-33, 7-35, 7-36, 7-42, 7-43, 7-46 to 7-56	Date of Submission: October 1, 2021	

Species: Moose

Choose applicable one(s): General Open Season Limited Entry Hunting Trapping
 Motor Vehicle Prohibition Firearm Restriction Other (describe) _____

Who is the regional contact for communications issues?
 (someone with authority to deal with media requests if requested by Public Affairs)
 Name: Greg Van Dolah Phone: 250-795-4158

PART A: BACKGROUND

1. What is currently in the synopsis? (exact wording preferred)

Moose	7-21B, 7-22, 7-31B	Bulls	Aug 15 – Aug 31
	7-19, 7-20, 7-21A, 7-31A, 7-32, 7-33, 7-35, 7-36, 7-42, 7-43, 7-46 to 7-56 ▲	Bulls	Aug 23 – Aug 31
	7-19, 7-21B, 7-22, 7-31, 7-36, 7-42, 7-43, 7-46 to 7-56+▲	*Bulls	Sept 1 – Oct 31
	7-20, 7-21A, 7-32 to 7-35, 7-44, 7-45, 7-57, 7-58	*Bulls	Sept 1 – Sept 30
	7-20, 7-21A, 7-32 to 7-35, 7-44, 7-45, 7-57, 7-58	*Bulls	Oct 16 – Oct 31
Bow Only	7-20, 7-21A, 7-32 to 7-35, 7-44, 7-45, 7-57, 7-58	*Bulls	Oct 1 – Oct 15

2. Briefly describe the proposed wording in the synopsis:

GOS

Moose	7-21B, 7-22, 7-31B	Bulls	Aug 15 – Aug 31
	7-21B, 7-22, 7-31B	*Bulls	Sept 1 – Oct 31
Bow Only	7-20, 7-21A, 7-32 to 7-35, 7-44, 7-45, 7-57, 7-58	*Bulls	Oct 1 – Oct 15

LEH

Moose; youth only	7-19, 7-20, 7-21A, 7-31A, 7-32, 7-33, 7-34, 7-35, 7-36, 7-42, 7-43, 7-46 to 7-56▲	Bulls	Aug 23 – Aug 31
Moose; shared hunt	7-19, 7-20, 7-21A, 7-31A, 7-32, 7-33, 7-34, 7-35, 7-36, 7-42, 7-43, 7-46 to 7-56 ▲	Bulls	Sept 1 – Sept 30
	7-19, 7-20, 7-21A, 7-31A, 7-32, 7-33, 7-34, 7-35, 7-36, 7-42, 7-43, 7-46 to 7-56+ ▲	Bulls	Oct 16 – Oct 31

3. Map associated with the proposed regulation. Yes No

- This map may be used to form the regulation. It should be digital and professional. Please provide shapefiles if available.

4. Reason for proposal (rationale in plain language): IMPORTANT – this is what goes on the public engagement website (AHTE) verbatim

Moose populations are stable to declining across most of the Northeast Region. Stakeholders and First Nations are concerned about the populations ability to support First Nation sustenance harvest, licenced harvest, and non-consumptive values due to the pressures of landscape changes and hunting practices. A series of regulation changes were implemented to reduce licenced moose harvest during the last 6 years; moose populations do not appear to be stabilizing with these changes. Addressing habitat concerns is a long process and industry specific; moving moose from General Open Season to Limited Entry Hunt is intended to maintain moose harvest opportunity while providing more oversight of the number of moose harvested within the Region. Changing part of the Northeast Region to LEH while keeping other areas GOS risks moving hunters into areas with lower hunting pressure and increasing moose harvest in currently stable populations. The Youth LEH season is intended to provide opportunity for youth to harvest moose before returning to school and having reduced opportunity during the remaining seasons. The two LEH opportunities (September 1 – September 30 and October 16 – October 31) are intended to balance harvest pressure before and after the rut to support reproductive success; the number of authorizations can be adjusted to maintain post-hunt bull to cow ratios. All three LEH opportunities are Any Bull to distribute harvest pressure across the different age classes and offset loss of harvest opportunity by increasing the number of moose that could be legally harvested.

PART B: ANALYSIS

1. Describe surveys used for conservation issues and their results as they relate to this submission:

Moose inventory data in the Northeast Region does not have the required frequency or coverage to estimate population trends for most of the management units. The recent inventories (2015-2021), demographics, and densities were calculated for each management unit and extrapolated into management units that do not have current inventory data using available information within each Game Management Zone. The result of this work indicates the Northeast Region has 60,660 moose (minimum 47,705 and a maximum of 73,615 moose); the Northeast Region contains an estimated 16,307 (12,406 – 20,208) bulls, 33,257 (26,375 – 40,140) cows, and 11,094 (8,923 – 13,266) calves).

Work completed by Kuzyk and colleagues in 2018¹ modelled moose population trends across the Province and found each Northeast Game Management Zone has a decreasing population trend ($\lambda < 1$) between 2006 and 2015; a change from the 1996-2005 period where only one Game Management Zone had a declining population trend. This perspective is supported by all the Northeast Region's First Nations who have indicated moose populations are decreasing and harvesting is becoming challenging. Declining hunter effort in the Big Game Harvest Survey is likely a hunter response to declining moose populations and declining success rates.

Research completed by Natcher and colleagues² in 2021 indicates First Nation communities harvest annually 2.1 – 2.4 moose per household. There is a minimum of 677 First Nation residences in the Northeast Region and an unknown number of households from transboundary First Nations (Kaska Daylu Council, Dene Tha' First Nation, Horselake First Nation, McLeod Lake Indian Band) that may hunt in the Region. Approximately 1,421 to 1,624 moose are harvested by First Nations assuming every household is actively harvesting moose and the estimate for households that don't harvest is balanced by harvest from First Nations bordering the Region. First Nations prefer to harvest bull moose to protect the cows and support a sustainable population; exceptions are made for dry cows since they did not successfully reproduce and would be harvested for sustenance purposes. The First Nation harvest distribution can be adjusted to 75% of the moose harvested are bull (1,066 – 1,218) and 25% of the harvest is are dry cows (355 – 406).

Licensed hunters harvested an estimated 1,489 moose in 2019. The combined licensed and First Nation subsistence harvest may be 2,910 – 3,113 moose annually (2,555 – 2,707 bull moose assuming First Nation bull harvest is 75% of the total First Nation harvest).

The Harvest Management Principles described in the Provincial Moose Management Framework suggest the maximum moose population growth of 15% occurs when wolf populations are controlled. A minimum of 32 calves per 100 cows is required to compensate for natural mortality. The maximum harvest rate suggested is 10-11% of the population when harvest is distributed across bulls, cows, and calves. First Nation subsistence practices favors harvesting bull moose and licensed harvest is restricted to bulls with further restrictions based on antler configuration. Even distribution across the population does not occur under the current cultural practices and regulatory requirements which requires a lower maximum allowable harvest rate to account for the selective harvest practices; a recommendation is 5% of the population (3,033 ± 348). The annual estimated combined harvest of licensed hunters and First Nations is approximately 4.9% (ranges from 4.1% to 6.3%) of the total population. This harvest rate requires higher calf recruitment of 30-45 calves per 100 cows to maintain stable populations.

Calf recruitment in the Northeast Region ranges from 7 calves per 100 cows (MU 7-57 in 2017) to 68 calves per 100 cows (MU 7-47 in 2016) with a regional average of 32 calves per 100 cows. The regional moose recruitment has remained in this range during the last 20 years. This recruitment level indicates regional moose populations are likely to continue declining under current the wildlife management practice. Changing to LEH may provide the Province the flexibility required to maintain the bull composition and slow the population declines while long-term measures are implemented to change the main population drivers.

Kuzyk and colleagues¹ publication indicates a maximum bull harvest of 20% would be sustainable for most moose populations in the Province. Based on the current population estimates, the Northeast Region could support the harvest of 3,261 (± 780) bull moose annually which is approximately equal to current harvest rates.

Local overharvesting is challenging to avoid through General Open Season since hunters have the flexibility to harvest moose based on hunter preference and access. Antler restrictions have not stabilized the moose populations; moving to Limited Entry Hunt provides the Province the ability to distribute harvest pressure across the Region to reduce the risk of overharvesting in certain areas. The proposed Any Bull LEH is intended to support hunters' opportunity to successfully harvest moose while addressing potential enforcement challenges and unlawful harvest encountered when hunters do not accurately count points on the antler.

The Any Bull LEH would distribute harvest pressure across more age classes rather than the current focused harvest on young bulls (spike-fork) or older bulls (tri-palm, 10 point).

Management Units 7-21B, 7-22, and 7-31B overlap the South Peace Caribou recovery efforts and wolf control zones. Keeping these Management Units as GOS will encourage moose harvest within the caribou recovery areas and slow moose population growth.

The Moose LEH Shared hunt allows family or friends to continue moose hunting together without increasing the number of authorizations issued to support the continuation of this practice and knowledge transfer to newer hunters.

¹ Kuzyk, G., I. Hatter, S. Marshall, C. Procter, B. Cadsand, D. Lirette, H. Schindler, M. Bridger, P. Stent, A. Walker, and M. Klaczek. 2018. Moose population dynamics during 20 years of declining harvest in British Columbia. *Alces* 54:101-119

² Natcher, D., S. Ingram, A-M. Bogdan, and A. Rice. 2021. Conservation and Indigenous subsistence hunting in the Peace River Region of Canada. *Human Ecology*. 49:109-120

2. Alternatives to regulation considered:

The Northeast Region has implemented more restrictive hunting regulations to address declining moose populations, but these have not generated the expected change.

Alternatives considered:

- Current regulation structure – moose populations have been declining for over 20 years. The current regulations have been inadequate to stabilize the populations.
 - The calf recruitment is low across the Region and is inadequate to stabilize the population. The main driver behind low calf recruitment and survival is predation. Increasing the wolf bag limit to 10 has been proposed and not supported since licenced hunters currently can harvest 3 wolves annually and few hunters consistently harvest wolves. Increasing the limit is unlikely to have a direct, consistent, and sustainable benefit for moose.
 - Implementing a predator control program in specific Game Management Zones to enhance calf moose survival. The Management Plan for Grey Wolf (*Canis lupus*) in British Columbia is clear (section 7.4) that implementing predator control to enhance ungulate populations for hunting is contrary to policy. Licenced hunting opportunities will need to be closed before this alternative can be considered.
-

3. Pros/Cons analysis undertaken & results:

Pros:

- Low calf recruitment indicates moose declines are likely to continue, LEH provides the ability to collect hunter success data and adjust LEH authorizations and quota before the maximum harvest declines below current harvest levels.
- First Nations requested the Province management moose under LEH; this is responsive to their requests
- Responds to First Nations' local and traditional knowledge regarding moose populations
- The Province will need to explicitly consider First Nation Treaty 8 right to hunt when making quota and LEH decisions
- The Province would be able to distribute harvest across the region and reduce the risk of localized overharvesting
- Regional staff and Branch have more control over moose harvest and can adjust LEH authorizations to support management objectives
- Precautionary approach for management units without current inventory data to reduce risk of moose becoming a species of conservation concern

Cons:

- LEH is unlikely to stabilize or increase the moose populations without addressing habitat and predation
 - Licenced hunting community harvests moose for food. A moose provides approximately 200kg of meat for the cost of a hunting licence (\$32) and species licence (\$25). There are additional, variable costs associated with hunting – fuel, travel, accommodations, cut & wrap – that are harder to incorporate since this varies between hunters. Replacing 220kg of moose meat with 220kg of beef would cost approximately \$3,370³ using beef's 2020 weighted average of \$15.31/kg.
 - Licenced hunters may be upset on the reduced opportunity.
 - Northeast licenced hunters will have reduced opportunity under the current LEH system
 - Updating the licencing system to include the new LEH codes will take time and resources
 - Additional staff time to calculate annual LEH and quota recommendations
 - First Nations may expect this change will stop or reverse moose population declines
 - Decreased number of hunters traveling from other Regions to the Northeast for moose hunting
 - Increased harvest pressure in the other Regions that have moose general open season
 - Reducing moose harvest could impact caribou recovery efforts
-

³ Agriculture and Agri-Food Canada. Red Meat and Livestock Market Information – Prices. <https://www.agr.gc.ca/eng/canadas-agriculture-sectors/animal-industry/red-meat-and-livestock-market-information/prices/annual-retail-beef-and-historical-pork-prices/?id=1520539054104>

4. Identify risks of NOT implementing the new provision:

The risks associated with not implementing the regulation change could be the non-recoverable collapse of the moose population within the Peace Region. If the general open season continues to operate, the moose population may decrease past a recoverable population. Alternatively, it could lead to a recoverable population, that would require either a LEH or a closed season to allow the population to recuperate. This would also frustrate hunters and stakeholders.

If the government does not listen to the Traditional Knowledge of the local First Nations, there may be a potential violation of Treaty 8 rights, as the population of moose continues to decrease, and sustenance harvest is affected, a lawsuit may be initiated.

5. Comments by Reviewers: *(if relevant)*

Use separate page, as comments may not be included in the final OIC/MO Package.
Copies of email correspondence may be attached.

PART D: STAKEHOLDER CONSULTATION

ADEQUATE CONSULTATION AND ENGAGEMENT MUST BE RECORDED, OR THE FORM WILL BE RETURNED TO THE ORIGINATOR.

Please attach supporting documentation, such as letters, meeting minutes, etc.

Identify who was consulted and when consultations took place.

Who raised concerns and what was the nature of their concerns?

Has the regulation been changed to respond to Stakeholders' Concerns?

Organization	Contact Name	Date and type of Consultation & Engagement	Supported? (If no, attach an explanation) N/A = Proposal not applicable to organization
CO Service			<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A Note: CO service consultation is required BEFORE submission is sent to Wildlife & Habitat Branch. Only rarely is this consultation not required. COS verification is required for safety related regulation proposals.
Other Regions			<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A

Wildlife & Habitat Branch (Victoria) Note: If proposed regulation is for a CITES species, Stephen MacIver (Management Authority for CITES) must be consulted.	Holger Bohm	May 4, 2021 - Discussed proposal and methodology	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A Note: Consultation is required BEFORE submission is sent to Wildlife & Habitat Branch. Only rarely is this consultation not required. Consultation for: Ungulates: Holger.Bohm@gov.bc.ca Birds: Gerad.Hales@gov.bc.ca Wildlife Health: Caeley.Thacker@gov.bc.ca Furbearers/small game: Geard.Hales@gov.bc.ca Large Carnivores: Garth.Mowat@gov.bc.ca Motor Vehicle Prohibitions: Depends on the purpose of the closure, if the purpose is related to a specific species contact the species specialist above. Habitat related proposals: Steve.Gordon@gov.bc.ca .
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Other organization: (name)			<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A
Public Meetings:	(attendees)		<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A

PART E: INDIGENOUS CONSULTATION AND ENGAGEMENT

Please attach supporting documentation, such as letters, meeting minutes, etc.

When did initial consultation and engagement period begin? _____

a) Does this proposed change have implications (impact or of interest to) Indigenous Peoples?	<input type="checkbox"/> NO - If no, please explain _____ <input type="checkbox"/> YES - If yes, please complete items (b) to (e) if applicable _____
b) Does this proposed change relate to the Calls to Action of the Truth and Reconciliation Commission?	<input type="checkbox"/> NO <input type="checkbox"/> YES - If yes, please indicate which of the calls and how _____

<p>c) Does this proposed change relate to any of the following legal or other government obligations?</p> <ul style="list-style-type: none"> • modern treaty obligations to notify, discuss or consult, • common law consultation obligations, • contractual commitments, • under the <i>Declaration on the Rights of Indigenous Peoples Act</i>? 	<p><input type="checkbox"/> NO</p> <p><input type="checkbox"/> YES – If yes, please explain how</p> <hr/> <p>Please review the following to help you with your analysis: ILR Reference Document: Indigenous Legal Relations Review of Cabinet Submissions*; UN Declaration Reference Document*; Provincial Legislation Engagement with Treaty Nations Guide</p> <p>*Note: You may have to request permission to the site from the Ministry of Attorney General.</p>
<p>d) Does this proposed change affect Indigenous peoples' modern or historic treaty rights or Aboriginal rights, including any Aboriginal title?</p>	<p><input type="checkbox"/> NO</p> <p><input type="checkbox"/> YES – If yes, please indicate how.</p> <p>Was the consultation sufficient for the purposes of the constitutional obligations?</p> <hr/>
<p>e) Have Indigenous peoples, including Indigenous organizations, been involved in the development of the proposed change, and will they be involved in its implementation?</p>	<p><input type="checkbox"/> NO - If no, please explain why not</p> <hr/> <p><input type="checkbox"/> YES - If yes, what views were expressed or how will they be sought?</p> <hr/> <p>Please review the Policy Framework for Advancing Reconciliation with Indigenous Peoples for guidance on involving Indigenous peoples in your policy development.</p> <p>If you would like further support with this section, please contact Legislative Alignment and Process.</p>

Indigenous Peoples

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Page 220 of 460 to/à Page 455 of 460

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s.13 ; s.16

Page 456 of 460 to/à Page 458 of 460

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s.13

Page 459 of 460 to/à Page 460 of 460

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s.13 ; s.16