



Mr Joseph Judas, Chair
Wek'èezhì Renewable Resources Board
4504 49TH AVENUE
YELLOWKNIFE NT X1A 1A7

Dear Mr. Judas:

Dìga Management Proceeding – Responses to Information Request Round No. 1

The Tłıchǫ Government and Department of Environment and Natural Resources (ENR), Government of the Northwest Territories received a list of information requests from the Wek'èezhì Renewable Resources Board (WRRB) on March 2, 2020 in regards to the Joint Proposal on Management Actions for Dìga on the Bathurst and Bluenose-East Barren-ground Caribou Herd Winter Ranges: 2020-2025.

The Tłıchǫ Government and ENR would like to provide the attached joint response to the WRRB's information requests.

Sincerely,

Ms. Laura Duncan,
Tłıchǫ Executive Officer
Tłıchǫ Government
Behchokò, NT
lauraduncan@tlicho.com

Erin Kelly, Ph.D.
Deputy Minister
Environment and Natural Resources
Yellowknife, NT
Erin.Kelly@gov.nt.ca

Attachment

c. Grand Chief George Mackenzie
Tłıchǫ Government

Minister Shane Thompson
Environment and Natural Resources

Tammy Steinwand, Director, Culture and Lands Protection
Tłıchǫ Government

Bruno Croft, Superintendent, North Slave Region
Environment and Natural Resources

Brett Elkin, A/Assistant Deputy Minister
Environment and Natural Resources

Karin Clark, A/Director, Wildlife and Fish Division
Environment and Natural Resources

Dìga Joint Management Proposal Information Requests Round No. 1

Information Request #1 – Goals & Objectives:

- a) Please confirm that Ɂekwò (barren-ground Ɂekwò) recovery for the Bathurst and Bluenose- East herds is the joint management proposal's goal.
- b) Please provide objectives for Tłıchǵ Government (TG) and Environment and Natural Resources (ENR)'s joint management proposal's goal.
- c) Please include an objective for stopping points, including when enough dìga have been removed to achieve the goal of Ɂekwò recovery in the five-year period.
- d) Please explain if, and, how the enhanced incentive and TG training program will transition from dìga removal to sustainable harvesting.

Parties Responsible: TG and GNWT

Rationale for IR #1:

- a) The Joint Management Proposal (JMP) states, *"To promote recovery of these two herds, it is our goal to increase survival rates of caribou and overall population growth through harvest management and wolf removal"*, but also the proposal's goal is given as the 60-80% removal of the dìga. In Section 3.4, dìga removal is also mentioned as an objective, which is confusing.
- b) The joint management proposal needs objectives, which are concrete statements so success or failure can be ascertained.
- c) The Dìga Technical Feasibility Assessment mentions that objectives should include criteria for when to halt dìga removal (including the incentive and training program). Stopping points may be based on the extent of Ɂekwò recovery or if the removal is ineffective, inefficient or inhumane.
- d) See rationale for 1 c).

Response

- a) The JMP - Section 2 states that, "The goal of this proposal is to support recovery of the two herds through a reduction in the number of wolves on the herds' winter ranges in order to reduce predation rates and increase cow and calf survival."
- b) The program objectives are to:
 - Maintain wolf removals of 60-80% on the winter ranges of the Bathurst and Bluenose-East caribou herds for five years through coordinated harvester training, hunter-based harvest and aerial removal.

- Improved trends in caribou population indicators (i.e., estimates of breeding females and extrapolated herd size, adult female survival, and/or calf recruitment) for Bathurst and Bluenose-East caribou in five years, which are associated with wolf removal.
- c) Wolf reduction targets may be adjusted during winter field operations based on Catch per Unit Effort (CPUE) and number of wolves and wolf packs observed during aerial reconnaissance surveys. The objective is to remove 60-80% of wolves (observed and/or predicted) on the Bathurst and Bluenose-East herd ranges. On an annual basis, progress on wolf monitoring information (including CPUE, distribution of collared caribou and collared wolves, amount of overlap, etc.) and management actions (time and location of wolves removed, number of wolves removed) will be reviewed with TG and WRRB with the aim of improving operations in the next field season. Experience from other jurisdiction including Yukon, British Columbia and Alaska shows that for any predator (wolf) management program to be effective it should be carried out for five years. At the end of the five-year period, ENR in collaboration with TG and WRRB staff, will conduct a comprehensive analysis of data collected. The analysis will consider number of wolves removed annually in combination with other factors influencing caribou demographics to assess whether there is a strong association between changes in caribou demographic indicators and wolf removals, ultimately assessing whether the program will continue or be halted. The full program review will:
- Estimate scale of wolf reduction actions in relation to target levels, caribou distribution and population response;
 - Assess effectiveness, efficiency and humaneness of wolf reduction actions;
 - Determine whether wolf reductions should continue; and
 - Implement improvements to the overall program, as required.
- d) The JMP is for a five year period, at which time a comprehensive review would be carried out. The governments are committed for the next five years on the enhanced incentive and training program with the intention of increasing, and maintaining harvest pressure on wolves, over this period. Continuation of those programs will be based on the assessment after five years of whether the goals of the JMP have been reached.

Information Request #2 – Diga Removal Levels:

- a) Please clarify how the diga removal target levels for the Bathurst and Bluenose-East herd winter overlaps were determined.
- b) Please clarify why the diga removal levels are 300 when the Bathurst herd overlaps the Bluenose-East herd on the winter range but is not stated when the Bathurst herd overlaps the Beverly herd.

Parties Responsible: Environment and Natural Resources

Rationale for IR #2:

- a) The rationale for the number of diga to be removed is first, the 60-80% rule of thumb, and second, computer model projections. The numbers of diga associated with the Bathurst and

Bluenose-East herds is uncertain, which questions applying the rule of thumb of 60-80% dīga removal. The Joint Management Proposal's Appendix E suggests that indicators for dīga numbers for the Bathurst range converge between 100-200 dīga but there was no equivalent for the Bluenose-East herd. The Feasibility Assessment modeling did not address the Bluenose-East herd or when the Bluenose-East and Bathurst herd overlap on the winter range.

- b) The TG/GNWT joint management proposal does not describe effects on the Bathurst herd recovery if there is an influx of dīga when the larger Beverly herd overlaps the Bathurst herd's winter range.

Response

- a) Criteria for wolf removal levels on the Bathurst herd are outlined in the 2017 Wolf Technical Feasibility Assessment (WTFA), involving den site occupancy estimates, and prey biomass equations. The derived target of 124 wolves set in 2017 was subsequently lowered to 100 wolves, to reflect the relative decline in the Bathurst herd. Since 2017, there has been growing concern over the decline of Bluenose-East caribou. Given the relative size of the Bluenose-East herd, (being at least twice as many caribou), and an assumed higher number of associated wolves, a target of 200 wolves was set. The defined initial targets may be adjusted within and between seasons using scientific, local and traditional knowledge
- b) This wolf management proposal is focused on removal of wolves on the Bluenose-East and Bathurst winter ranges to support recovery of those herds and set wolf removal targets for those herds. Overlap of the Beverly herd winter distribution with the Bathurst caribou herd may affect the ability to meaningfully reduce wolves on the Bathurst winter range because there are likely substantively more wolves associated with the Beverly herd. Predation risk to caribou by wolves may be higher within areas of winter range overlap with the Beverly and the potential influx of wolves may also influence implementation and effectiveness of wolf management actions. Satellite collar data for wolves is expected to improve our understanding on range use patterns by wolves and whether they are strongly associated with annual and seasonal patterns of range use by caribou.

Information Request #3 - Overlapping Winter Distribution

- a) Please provide the report on the analysis of Ɂekwò herd winter distribution to determine the overlap in winter distribution between neighboring herds, referenced in the TG/GNWT joint management proposal.
- b) Please explain how TG/GNWT defines 'overlapping winter distribution' relative to setting the herd-specific targets.
- c) Please clarify how dīga removed during the Tł̨chq̨ training program, GNWT's Enhanced North Slave Dīga Harvest Incentive Program and the Nunavut harvester's dīga removals will be attributed to a specific herd?

Parties Responsible: Tł̨chq̨ Government and Environment and Natural Resources

Rationale for IR #3:

- a) The TG/GNWT joint management proposal explains that geospatial analyses have been undertaken to describe annual changes in the extent of Ɂekwò herd overlap.
- b) The TG/GNWT joint management proposal does not discuss what is meant by ‘overlap’, if and how it changes during the winter and how it will be defined.
- c) The TG/GNWT joint management proposal’s emphasis is how the aerial shooting of dīga will be allocated among the herds based on the Ɂekwò collars. However, there is no mention of how dīga removed on the basis of other approaches to dīga removal will be allocated among the herds.

Response

- a) ENR has been working with CASLYS Consulting Ltd. (Saanichton, BC) to generate a series of maps, to illustrate patterns of annual winter distribution and overlap between the Bluenose-East, Bathurst and Beverly caribou herds - based on collaring data over the past eight (8) years. ENR is able to share the methodology report and maps.
- b) The herd specific targets for Bathurst and Bluenose-East will be implemented within their winter range distributions regardless of the amount of overlap between those two herds. ENR is still reviewing the derived maps of caribou distribution and how variable overlap among the three caribou herds is across different time-scales. ENR closely monitors caribou collaring data on the winter range.
- c) Wolf hunters and trappers along the winter road, near the Tłıchq communities, and from the Kitikmeot are being asked to carefully document their wolf harvest locations. Wolf harvest data are compared with caribou distribution data to establish herd assignments. Uncertainty in herd assignment increases when caribou winter range distributions overlap.

Information Request #4 - Pauses When Overlap with Overlap Beverly/Ahiak caribou.

Please explain the risks for Ɂekwò recovery during the winters when the three herds overlap (Beverly, Bathurst and Bluenose-East), which means a likely influx of dīga onto the Bathurst herd’s range and the aerial component of dīga removal will not be undertaken.

Parties Responsible: Environment and Natural Resources

Rationale for IR #4:

- a) Modeling in the Dīga Technical Feasibility Assessment to project the number of dīga to achieve Ɂekwò recovery assumes annual removal and does not project how an annual pause in dīga removal would affect Ɂekwò recovery. Dīga can double their numbers in 2-3 years, which suggests that even one year without dīga removal may increase dīga numbers the following year.

Response

Efforts to reduce wolves on the Bluenose-East and Bathurst winter ranges may become more difficult when the distribution of the much larger Beverly herd – with its associated wolves – overlaps with the two smaller herds. Since the relative density of wolves is expected to increase when there is spatial overlap in winter range distributions (i.e., influx of wolves), the predation

rate of caribou by wolves also is likely to increase in association with the degree of spatial overlap in winter caribou distributions. When caribou herds overlap, wolf removal rates may need to increase in those areas to account for increased predation risk and to support the overall goal of caribou recovery for the Bluenose-East and Bathurst herds. Collared wolves across the range of the three herds should provide insights into patterns of movement and interchange of wolves among caribou herds and subsequent risk to herds from changes in predation rates.

Information Request #5 - Sections 3.1 and 3.5 Dìga Joint Management Proposal

- a) Please clarify whether Catch per Unit Effort (CPUE) will be applied to the aerial shooting and how CPUE will be used to generate a relative index of dìga numbers on the winter ranges when neighboring herds overlap.

Parties Responsible: Environment and Natural Resources

Rationale for IR #5:

- a) While it is clear that CPUE is a recognized technique, the joint management proposal does not mention whether CPUE has been applied to dìga removal elsewhere and whether CPUE has been applied when a population is reduced to 20-40% of its starting size. The effects of pack size changes, flight distances and possible Allee effects are not included as potential limitations to an index to dìga numbers. The applicability of CPUE as an index will depend on allocation between herds when they overlap in winter distribution.

Response

Yes, the concept of CPUE as an index of relative abundance will be applied to the aerial shooting efforts. CPUE can be derived from a range of variables including hours flown and distance covered in relation to wolves found while applying harvest pressure either from the ground or from the air. CPUE has been used in the management of a wide range of wildlife species, including wolves, while recognizing key assumptions and potential limitations of the approach.

CPUE will likely be influenced by overlapping winter distributions of two or more caribou herds as wolf densities would be expected to increase under that scenario. As a result, CPUE will need to be interpreted with caution and with reference to caribou and wolf collar distribution maps. In addition to using CPUE, systematic transect surveys before and after aerial wolf removals will be used to estimate wolf abundance.

Information Request #6 Section 3.2 Dìga Collars – Dìga Joint Management Proposal

- a) Please clarify whether dìga collaring is the joint management proposal's only proposed dìga monitoring other than carcass examination and CPUE.

- b) Please explain how likely is it that 10 dīga /herd (unknown sex ratio) will be an adequate sample size to measure how dīga are travelling among Ɂekwò on the winter range; between herds; find den sites and determine fidelity to den sites.
- c) Please clarify if the GPS collared dīga will be used to locate dīga for aerial shooting.
- d) Please explain why dīga, when captured, will not be sterilized.

Parties Responsible: Environment and Natural Resources

Rationale for IR #6:

- a) The joint management proposal does not describe how the dīga collaring fits in an overall monitoring program, including the objectives to measure how the seasonal exposure of Ɂekwò to dīga will change during dīga removal and the effects on relative dīga abundance. Other monitoring techniques, such as cluster analysis for GPS locations to index predation rates, would be useful especially for the summer range.
- b) Adequate sample size is essential for drawing any inferences of the effect of dīga removal.
- c) The rationale for clarity about using collared dīga to find dīga during the aerial shooting is to be specific about whether dīga in the collared dīga's pack would be considered for aerial shooting. The Dīga Technical Feasibility Assessment referred to the need to consider dīga as social animals with high social intelligence.
- d) The collared dīga may at least double their numbers during the five-year collaring project.

Response

- a) Wolf collaring, carcass collection and CPUE are the three main monitoring approaches identified in the proposal. Wolf collaring data will support management actions and provide information on whether wolves show seasonal and annual association with caribou herds or whether movements reveal considerable interchange of wolves across caribou winter ranges. Necropsies will provide information on a range of biological issues, including age/sex structure of the harvest, measures of health and condition, reproductive status, diet (including stable isotope analysis, and subsampling to assess how humanely wolves died. The use of the CPUE approach should provide repeatable method for documenting change in relative abundance and trend over multiple years. This doesn't exclude the opportunity for new and additional monitoring approaches and analyses to be undertaken as part of adaptive management.
- b) ENR plans to initiate the wolf collaring program with 30 GPS collars, 10 per winter distribution of the three caribou herds. The data from these 30 collars will be used to address sample size considerations. Given additional funds, and by demonstrating the cost/benefit of these data, additional wolf collars may be considered in the future.
- c) If numerical targets for wolf removal are not achieved, GPS collared wolves may be used to facilitate management actions by aerial shooting of other pack members.
- d) During the WTFA, the option of sterilization was carefully assessed. For a number of reasons, including the logistical challenges of conducting surgery in remote areas and sterilizing a

sufficient proportion of wolves, this option was viewed as being impractical to carry out on a broader scale.

Information Request #7 Section 3.3 Biological Research & Monitoring - Dìga Joint Management

Proposal

- a) Please explain why the dìga monitoring does not build on the existing 1996-2013 baseline of den occupancy as an index to relative changes in dìga abundance on the summer range.
- b) Please explain why the rate of dìga sightings during Ɂekwò sex and age surveys (fall and spring) and on the calving grounds are not included as an index to relative changes in the exposure of Ɂekwò to dìga.
- c) Please confirm that the dìga carcasses are from both the harvested dìga and the dìga killed through the aerial shooting and explain why all carcasses will not be necropsied.
- d) Please describe if dìga reproductive characteristics of dìga carcasses (ovarian or uterine scars, embryos) will be monitored and how humaneness of the harvesting and removal will be monitored during the carcass examination.
- e) Please explain if and how Ɂekwò responses during the dìga removal will be monitored to determine if the dìga removal is causing disturbance to the Ɂekwò.

Parties Responsible: Environment and Natural Resources

Rationale for IR #7:

- a)-b) TG/GNWT accepted the WRRB's Recommendation #4-2019 (Predator) that "the WRRB recommends that dìga management should be closely monitored for effectiveness of halting or slowing the decline of the sahtì ekwò and kokètì ekwò herds in order to provide future harvesting opportunities".[emphasis added] This indicates that an integrated approach, including indices for dìga monitoring, is required.
- c) The joint management proposal describes comparing the dìga by sex, age and herd assignment which suggests that sample size could be a limitation in drawing statistically valid inferences unless all dìga removed are examined.
- d)-e) The Dìga Technical Feasibility Assessment provided details on the required monitoring (location of bullet-wound tracts; samples for stress from hair, blood and fecal) and evaluated removal techniques relative to potential Ɂekwò disturbance.

Response

- a) Den occupancy data collected between 1996 and 2013 provided useful insights into patterns of den use, and demonstrated a significant decline in pup survival during a period of rapid caribou decline. However, there has been some uncertainty as to whether the den monitoring data provided a reliable index or measure of wolf abundance across the Bathurst range. Poor collar performance and the premature release of the collars were also factors which led to this monitoring effort being put on hold.
- b) Aerial caribou surveys on calving grounds, and during Fall and Spring composition surveys, do routinely document wolf observations. Although these long-term data are reviewed and considered, sightability issues (detection biases may affect accuracy and precision) and

variability in numbers sighted (single vs larger packs) can further confound efforts to reliably assess changes in relative wolf abundance and trend. We will continue to collect this information, assess its applicability and work towards developing standardized approaches. Systematic aerial reconnaissance surveys will be used to locate wolves and wolf packs and estimate relative abundance before and after removals.

- c) Efforts will be made to necropsy the majority of wolves taken by both ground and aerial harvest. In more remote areas, it may be challenging for harvesters to haul numerous wolf carcasses (heavy loads) over long distances. ENR is exploring options to facilitate the collection of as many wolf carcasses as logistically possible, to maximize the collection of biological data, since partitioning carcasses by herd affiliation, age and sex class will reduce sample sizes.
- d) As stated above, every effort will be made to examine the majority of carcasses. As addressed in the WTFA and based on approaches in other jurisdictions, ENR intends to examine a subsample of wolves taken by ground shooting, trapping and aerial shooting to assess the humaneness of each harvest approach being used. Based on these ongoing assessments, ENR is prepared to increase harvester training if we find that wolves are not being killed quickly and humanely.
- e) ENR anticipates that wolves will typically be found adjacent to or some distance away from caribou on their winter ranges. Aerial crews will record distance to nearest caribou and make every effort to minimize disturbance to caribou. ENR will ensure crews are aware of expectations for maintaining a safe distance from caribou and protecting caribou from undue disturbance.

Information Request #8 Section 3.4 Estimating Actual Dìga Removal Levels - Dìga Joint Management Proposal

- a) Please explain why monitoring humaneness is not considered along with assessing the efficiency of dìga removal techniques.
- b) Please provide details of approaches to deal with the uncertainty in assigning the dìga removal to individual Ɂekwò herds when their winter distribution overlaps.

Parties Responsible: Environment and Natural Resources

Rationale for IR #8:

- a) The Dìga Technical Feasibility Assessment identified that one of three monitoring questions was to assess whether dìga removal was humane. In 2019, TG/GNWT accepted the WRRB recommendation (#3-2019) that *“TG and ENR should review the Dìga Technical Feasibility Assessment: Options for Managing Dìga on the Range of the Bathurst Barren-ground Ɂekwò Herd” submitted in November 2017 to determine the most effective, humane and cost- efficient methods that would have the least impact and disturbance on the ekwò herds themselves”*. [emphasis added]
- b) The Dìga Technical Feasibility Assessment identified a key monitoring question was whether the numerical targets for dìga removal were met. The joint management proposal describes how

the dīga removed would be assigned to the Ɂekwò herds based on Ɂekwò collars weighted by herd size, but also noted that assignment is uncertain.

Response

- a) Humaneness of wolf harvest and removal will be assessed through post-mortem examinations of carcasses. For each action in the proposal, efforts will be made to ensure that they are carried out humanely (see IR response 7 c and d). ENR is prepared to increase harvester training if we find that wolves are not being killed quickly and humanely.
- b) ENR acknowledges that in years when caribou herds winter ranges overlap, there is a high level of uncertainty in terms of assigning a wolf removal to a particular herd. Wolf removal data (location and date) will be compared with caribou distribution to make herd assignments. This exercise is more challenging during periods when caribou herds overlap. The use of collared wolves is expected to shed light on which wolves are associated with which herds which may also be used to inform herd assignments. Collars will also show whether wolves show fidelity to particular winter ranges, or whether there may be a high degree of movement of wolves (emigration/immigration) between herds. Addressing this issue will provide important guidance on assigning a wolf removal to a particular caribou herd.

Information Request #9 Section 3.6 – Dīga Joint Management Proposal

- a) Please offer an approach to resolve the joint management proposal's caution about whether the effects of dīga removal can be related to changes in Ɂekwò survival and herd size.

Parties Responsible: Environment and Natural Resources

Rationale for IR #9:

- a) The joint management proposal's Action 3.6 raises concern that halting the decline and the extent of recovery may not be able to be attributed to dīga removal as the joint management proposal stresses the need for caution, "*... when attempting to interpret and attribute the specific contribution of dīga reduction to any observed changes in Ɂekwò productivity and/or population change*". But monitoring the Ɂekwò responses is key to justifying the dīga removal and key for adaptive management during the dīga removal. Part of the justification for increasing the number of collared Ɂekwò has been to increase the efficiency of measuring adult survival which is then difficult to reconcile with the concerns in the joint management proposal. There are techniques and approaches through adaptive management to determining how changes in Ɂekwò demographic rates can be allocated to a reduction in predation relative to environmental factors.

Response

- a) The Bluenose-East and Bathurst caribou herds are influenced by a number of environmental factors, by disturbance, and by predation. Given the complexity and uncertainty of these various factors in allowing these herds to recover, interpretation of which factors contributed to changes in caribou productivity, or trend, will require careful consideration.

The analytical approach will be based on the methodology described by Boulanger and Adamczewski (2017), and updated to incorporate the Bayesian integrated population (BayesIP) model (see Boulanger et al. 2019). The BayesIP model may be used to test and assess the relative effect of estimated wolf removal levels on herd-specific monitoring data, including adult female survival (estimated and modelled), age ratios, and population trend.

The updated BayesIP model may also be used to understand and test a prioritized suite of environmental, temporal and spatial variables that may be affecting these herds and their ranges. The model may be used to test associations between key demographic indicators such as cow survival rate, the proportion of breeding cows (a proxy for pregnancy rate), and calf survival rate and environmental covariates

Information Request #10 - Adaptive Management

- a) Please describe how adaptive management will guide adjusting annual rates of dīga removals relative to changes in Ɂekwə adult and calf survival.

Parties Responsible: Environment and Natural Resources

Rationale for IR #10:

- a) The main findings of the Dīga Technical Feasibility Assessment included using an adaptive management approach to maximize the likelihood of supporting Ɂekwə herd recovery. The Section 2.3 of the joint management proposal uses similar wording, “*maximize the likelihood of Ɂekwə recovery*”, but does not provide details of the indicators, decision points and how they will modify which actions.

Response

- a) It is anticipated that development of an adaptive management framework, which is being led by the WRRB, will provide a means of integrating monitoring information to assess wolf management actions. For example, adjustments to annual wolf removal targets (may be made on the basis of wolf observations made while carrying out harvest and removal actions (including CPUE data). Based on scientific, local and traditional knowledge, which includes information gathered during collaring, surveys and the CPUE information from harvesters, the defined initial targets may increase or decrease.

If adult caribou and calf survival rates start to improve markedly in response to wolf management actions, a suite of other potential contributing factors in addition to wolf predation will need to be assessed including: summer range conditions, other sources of natural mortality, levels of insect harassment, and pregnancy rates. Because adult and calf survival rates are impacted by the cumulative effects of many factors it may not appropriate to adjust annual wolf removal targets based solely on these indicators.

Given the experience in other jurisdictions, and high level of wolf resilience to harvest pressure, the management lever of applying significant harvest pressure to wolves will need to be

maintained for 5 years. Although caribou demographics and wolf monitoring and harvest data will be summarized annually, a multi-year commitment to applying harvest pressure on wolves will be required. As outlined in IR #9, any changes in adult caribou and calf survival rates, or signs of herd recovery, will need to consider a range of environmental factors, including the effect of wolf predation on the changes to caribou productivity.

Information Request #11:

- a) Does TG agree that dīga have other sources of food, such as łıwe (fish), Hozıı ejie (muskox) and Dedıı (moose), and that that dedıı and hozıı ejie are becoming more accessible to dīga than when Ɂekwò herds were large?
- b) Does TG agree that it is possibly that łıwe, dedıı and hozıı ejie are keeping the dīga population sufficiently healthy to continue harvesting the smaller populations of calves and female Ɂekwò, especially those small herds that are not protected by large bulls?

Parties Responsible: Tłıchq Government

Rationale IR #11:

The joint management proposal states that *“a total of 60 dīga were harvested within the Enhanced North Slave Wolf Harvest Incentive Area in 2018-2019, primarily on caribou winter range”*. Thirty-seven (37) of the 38 dīga studied had Ɂekwò in their stomachs. The proposal does not indicate what the 38th dīga’s diet consisted of nor does it clearly state if the other 22 of 60 dīga harvested had nothing in their stomachs or if their stomach contents were impossible to analyze. This information suggests that only 61.5% of the harvested dīga, rather than 95%, were successfully hunted and consumed Ɂekwò.

The joint management proposal also states that *“Although the abundance of wolves and caribou have both declined significantly since 2000, it is believed that the relative abundance of wolves today may be having a significant impact on the Bathurst and Bluenose-East herds”*. Given that during the 1990s, when Ɂekwò numbers were high, several Tłıchq Elders’ commented that dīga follow Ɂekwò, but their diet also consists of *“fish, moose, caribou, muskox and beaver, and are known to ...teach their pups how to catch fish,...”* (Tłıchq audio tape as mentioned in Legat and Chocolate, 2016). Further, TG’s monitoring evidence around Kqk’èetı (Contwoyto Lake) indicates that dedıı numbers are increasing in the area (Jacobson: Presentation at Barren-Ground Caribou research Workshop Feb 18 and 19, 2020), and it is common knowledge that hozıı ejie have moved onto the Ɂekwò range.

Response

- a) Yes. Dīga use other food sources as łıwe, dedıı and hozıı ejie.
During TG’s Ekwo Nàxoède Ke program, we observed several moose further north on the summer range of the Bathurst ekwo herd than previously observed by Tlıcho or Inuit. Most

likely, diga target other available food sources, such as dedii, when they are presently accessible.

- b) The diga population is not as healthy as when the ekwo herds were at its peak. But although ekwo have declined, there are still thousands of Sahti and Koketi ekwo that can sustain a diga population. Thus, caribou is still an available food source for the diga who follow the ekwo herds.

Information Request #12

- a) Does TG agree that those Tłıchq who can harvest diga often did so at the dens while on the tundra?
- b) Does TG agree there is/was a traditional method of killing pups and adults diga – known to sustain diga populations but is not being used currently?
- c) Do ENR and TG agree that given numbers of diga are not known, the harvest of diga could be enhanced by killing pups at their dens throughout the area where the three herds overlap?
- d) Do ENR and TG agree that under the circumstances harvesting pups should be financially compensated?

Parties Responsible: Tłıchq Government

Rationale IR #12:

The TG/GNWT joint management proposal states that “Wolf management in other jurisdictions has shown that an effective program must remove 60 to 80% of the wolves in a population because they can sustain annual removals of 30-40%”. Tłıchq elders’ comments support diga resilience as well as killing pups as well as adult diga. Pierre Wedzin stated,

“When hunting muskox...I saw six wolf pups. I shot them all...The six pups just stayed put; they did not attempt to flee... Wolves do not leave their dens. The mom came back...So this is how I know, by walking on the land, watch, no matter how many we trap, we think we kill them all. But the next year when we go back to trap them in the same place, they will be as many as the year before because wolves bear five to six pups each litter.” (Tłıchq audio tape PHP-950524).

Alex Black stated diga have eight to ten pups (Bluenose-East Caribou Herd Public Hearing April 8, 2016: 170), with Joseph Judas stating, “*In one-year wolves can have two or three litters. If they kill 30 to 40 caribou each... I’m concerned...*” (Bathurst Caribou Herd Public Hearing, February 23, 2016: 118).

The joint management proposal mentions between 100 and 300 diga will be removed, but there is no mention of the current diga population numbers, nor is there any mention of harvesting pups at the dens. The proposal states that “*collars will be used to update data on Bathurst range and document dens on Bluenose-East range*”, an indication that ENR knows where many of the dens are in the Bathurst caribou herd range.

Response

- a) TG does not possess Tłıchq knowledge confirming that Tłıchq who can harvest dıga often did so at the dens while on the tundra. That said, Tłıchq Government staff are aware that at times pups were taken from den sites.
- b) TG does not possess the Tłıchq knowledge confirming a traditional method of killing pups and adult dıga. TG suggests that perhaps the upcoming Tłıchq knowledge technical session as part of the WRRB process might be an appropriate place for asking this question. That said, TG staff are aware that there may have been a traditional method of entering dens to take pups to be raised as sled dogs. A dıga mother would remain a short distance away from the den while a harvester entered the den to remove the pups. The mother will not attack the harvester but bark from a distance. Also, adult dıga fur is not prime during summer months for a fur trapper. It is unlikely that other pups and adult dıga were killed at dens for no other reason than "sustaining dıga population". However, there was a traditional method to enter dens to remove pups. The Tłıchq knowledge information provided in this "hearsay" manner is the best information available and would have to be confirmed by Tłıchq knowledge experts in the TK Technical session.
- c) The WTFA assessed options based on the Bathurst herd and while den locations might be reasonably documented (although not current) this is not true for the Bluenose-East range. Also, the information on denning activity is out of date on the Bathurst summer range, and quite limited if not absent on the Bluenose-East summer range (in Nunavut). The planned deployment of collars on wolves associated with the Bluenose-East, Bathurst and Beverly are expected to travel north, and provide information on den sites. However, sample size is small and meeting target wolf removals would be challenging. Further, since most wolf dens on the Bluenose-East summer range, the Beverly summer range, and some of the northern Bathurst wolf dens likely occur primarily within Nunavut, neither TG nor GNWT have management jurisdiction at these den sites. Further, the WTFA suggested it would likely be more humane to visit the den site in mid-May, and kill the adults prior to pups being born.
- d) As indicated above, not all wolf den sites fall within the jurisdiction of TG and the GNWT. The information on denning activity is out of date on the Bathurst summer range, and quite limited if not absent on the Bluenose-East and Beverly summer ranges (in Nunavut). ENR is not considering compensation for harvesting pups at den sites. Tłıchq Government is not providing compensation for harvesting dıga pups at den sites.

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