

address the identified issues with the 2014-2017 plan (e.g. confusion regarding the proportions), and provide a stronger basis for implementation with clearer roles for the parties involved.

Central to the establishment of the previous TAT was the need for increased flexibility whereby communities are able to make choices about where and when to hunt, within the bounds of their community allocation of the Eastern Hudson Bay stock of beluga (“EHB beluga”). The NMRWB maintains the position that management systems which are flexible, transparent and pragmatic increase the support of stakeholders, ultimately leading to sustainability of resource use (Bunnefeld et al. 2011). The proposed TAT will maintain this high degree of flexibility and transparency, while removing the burden of management system’s complexities from harvesters and LNUKs.

In the course of exercising its authority to establish the TAT for beluga, the Boards took into account submissions from individual Nunavimmiut, LNUKs, the RNUK, the Makivik Corporation, Nunavut Tunngavik Inc., and Department of Fisheries and Oceans (“DFO”). Further, in reaching its decision, the NMRWB has given full consideration to the principles of conservation as outlined in sections 5.1.4 and 5.1.5, to the principles of minimal infringement of Inuit harvesting rights, as outlined in section 5.5.3, as well as harvesting of the EHB beluga that occurred outside the NMR as outlined in section 5.5.4.1 of the NILCA.

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1.1 Relevant Provisions within the Nunavik Inuit Land Claims Agreement

As the main instrument of wildlife management for the NMR, as established under the Nunavik Land Claims Agreement (the “NILCA”), the NMRWB has exclusive authority over the establishment, modification or removal of levels of TAT and non-quota limitations (NILCA s. 5.2.3). In the course of fulfilling this mandate, the NMRWB may express the TAT for a species stock or population by any method that the NMRWB considers appropriate (NILCA s. 5.2.11). Further, when establishing non-quota limitations, the NMRWB must not unduly or unreasonably constrain the harvesting activities of Nunavik Inuit (NILCA s. 5.2.21).

All decisions made by the NMRWB must be reviewed, approved and given effect by the Government as, in accordance with section 5.1.2 (j) of the NILCA, the Government has ultimate responsibility for wildlife management. However, the Government’s authority must be exercised in accordance with the provisions of the NILCA and Article 5.

The objectives of wildlife management systems established under the NILCA are detailed in section 5.1.3 and seek to:

- (a) define and protect Nunavik Inuit harvesting rights;
- (b) be governed by and implement the principles of conservation;
- (c) reflect levels, patterns and the character of Nunavik Inuit harvesting;
- (d) promote the long-term economic, social and cultural interests of Nunavik Inuit;
- (e) provide for harvesting and continued access by persons other than Nunavik Inuit;
- (f) recognize the value of Nunavik Inuit approaches to wildlife management and Nunavik Inuit knowledge of wildlife and wildlife habitat and integrate those approaches with knowledge gained through scientific research;
- (g) integrate the management of all wildlife species and wildlife habitat within a comprehensive management system;
- (h) provide for public participation and promote public confidence in wildlife management, particularly amongst Nunavik Inuit;
- (i) establish the NMRWB to make decisions pertaining to wildlife management;

Being guided by the objectives and principles outlined in the NILCA, the authority of the NMRWB is further governed by section 5.5.3 of the NILCA. As such, all decisions made by the NMRWB or the Minister in relation to the establishment, modification or removal of a TAT shall restrict or limit Nunavik Inuit harvesting **only to the extent necessary**:

- (a) To effect a conservation purpose in accordance with sections 5.1.4 and 5.1.5;

- (b) To give effect to the allocation system outline in Article 5, to other provisions of Article 5 and to Articles 27, 28, and 29; or
- (c) To provide for public health or public safety.

Nunavik's beluga stocks are migratory and travel outside the NMR, as such the NMRWB must take into account the harvesting activities outside the NMR and the terms of pertinent inter-jurisdictional or international agreements when establishing a TAT (NILCA s. 5.5.4.1).

Finally the NMRWB, in establishing a TAT and considering its allocation, must presume as a matter of fact and without further evidence that Nunavik Inuit need the entire TAT established by the NMRWB (NILCA s.5.3.7 (a)).

The NMRWB decision to establish the TAT for beluga in the NMR takes into consideration all the relevant provisions within the NILCA including the objectives of Article 5 and the constraints outlined in sections 5.5.3 and 5.5.3.1.

2 Total Allowable Take

2.1 Setting of EHB TAT

2.1.1 Relevant NMRWB Decisions

1. *the NMRWB hereby establishes a TAT of one-hundred and ninety-eight (198) beluga from the EHB stock within a three (3) year period*
2. *that this TAT takes into account a harvest of 6 EHB beluga over a three (3) year period outside of the NMR; and*
3. *that the NMRWB previously decided to allocate 11.4 EHB beluga from this present TAT to allow for a fall harvest in 2016, but that only 10.4 of this allocation was harvested; and*
4. *that considering harvesting outside of the NMR and the previously allocated TAT, the remaining TAT from the time of implementation until January 31st, 2020 is one-hundred and eighty seven (187) EHB beluga; and*
5. *the TAT shall be implemented such that the number of beluga from the EHB stock harvested by Nunavik Inuit is calculated based on (the following) proportionality estimates*
6. *these decisions shall be renewed for subsequent three-year periods, unless additional information is presented to the NMRWB which would require this decision to be revised.*

2.1.2 Background and Context

Recognizing the constitutionally protected nature of Nunavik Inuit harvesting rights (*Constitution Act 1984*, section 35), the NILCA sets out specific criteria by which the NMRWB, or a Minister, can restrict or limit Nunavik Inuit harvesting.

Nunavik communities harvest from at least four different stocks of beluga whales, Eastern Hudson Bay (EHB), Ungava Bay (UB), Western Hudson Bay (WHB) and James Bay (JB) beluga. The Committee on the Status of Endangered Wildlife in Canada (COSEWIC) classified the EHB and UB stocks as “Endangered” in 2004; a designation which implies that the whales, without proper protection and harvest regulation, may face extinction in the future (COSEWIC 2004). Current abundance estimates for EHB and UB beluga stocks are 3,800 and < 100 beluga respectively (DFO’s Initial Submission). The initial decline of these stocks of beluga was the result of heavy commercial whaling activities, promoted by non-Inuit entities, during the eighteenth, nineteenth and early twentieth centuries, and both populations have been slow to recover (DFO 2013). It should be noted that while neither population is currently afforded a status under Canada’s *Species at Risk Act* (“SARA”), their status justifies the limitation of Nunavik Inuit harvesting, to some degree, in accordance with the principles of conservation (NILCA s. 5.1.4 and 5.1.5). It is important to note, however, that there are currently no conservation concerns for either the WHB or JB beluga (Richard 2005). The current

abundance estimates for WHB and JB beluga stocks are 54,400 and 10,600, respectively (DFO's Initial Submission); the imposition of a TAT for these stocks is therefore unjustified.

If the Inuit subsistence harvest is to continue in perpetuity, then changes in the beluga population must be adequately monitored and reflected in management systems. While there is a large degree of uncertainty associated with DFO abundance estimates for EHB beluga, the data nonetheless indicates that EHB and UB beluga stocks are well below historical levels and at, or near, a threshold below which it will be difficult for them to recover. The most recent status assessment for EHB beluga indicates that the population is believed to be stable and the model results indicate slight increases in the previous two population estimates (DFO Initial Submission). Although compliance with previous management plans has been wanting in some years, the apparent stabilization of the EHB stock is likely due to the efforts made by Nunavik hunters to reduce their overall take from this beluga stock.

Prior to the 2014 decision, a TAT was applied such as to limit the overall number of beluga harvested in the NMR and within specific harvesting seasons, regardless of stocks. Genetic research allows for the estimation of proportion of the EHB whales in different locations and at certain times of year (e.g. Turgeon et al. 2012). A system such as the previous TAT, which manages specifically for EHB beluga, is in greater alignment with the NILCA and with DFO science advice pertaining primarily to the conservation of EHB beluga. Furthermore, because there are currently no conservation concerns related to the WHB or JB stock of beluga, the NMRWB has determined that a TAT is not warranted for these stocks.

It has been determined, based on the small number of animals thought to comprise the UB stock and absence of recovery since the early 1990's, that any human-induced mortality would be detrimental to the recovery of this stock (Doniol-Valcroze and Hammill 2012a). It must also be considered that historically, management plans have severely limited the ability of Inuit from Ungava Bay communities to harvest beluga in a culturally appropriate way. This is despite the fact that they see an abundance of beluga during migratory periods, which indicates that these communities are observing larger groups of migrating whales, from EHB or WHB, rather than UB beluga (Breton-Honeyman et al. 2013).

In light of the above, the NMRWB proposes to maintain the 2014-2017 management strategy aimed at regulating the number of EHB whales that can be harvested, while ensuring little or no harvest of UB whales. Specifically, **the NMRWB proposes that the TAT be expressed as the number of EHB beluga that can be harvested, in the NMR, within a three-year period.**

2.1.3 Rationale and Support for Decisions

The decisions presented herein build upon the new approach to beluga harvest management in Nunavik introduced in 2014. By limiting the number of EHB beluga that can be harvested, this population will be protected. The NMRWB considers it

unnecessary to create overall limits on the number of beluga that can be harvested throughout all populations of beluga to affect the conservation objectives of EHB and UB beluga. Consequently, the NMRWB's decisions form the basis of a management system that is more in line with decision-making criteria as outlined in the NILCA and that adhere to the principles of conservation.

The NMRWB decisions require that the TAT of beluga from the EHB stock be allocated based on estimates of the proportion of EHB beluga present in the harvest at different locations and times of the year, based on the best available information. During the pre-hearing workshop held in Inukjuak in September 2016 and from written submissions, parties to the hearing indicated that this overall management approach is effective; although LNUKs stressed that they do not want the responsibility of translating an EHB beluga TAT into overall harvest numbers. The proportion of EHB beluga by which allocations are calculated may, in the future, be shifted upwards or downwards to be adaptive and responsive to new information as is indeed the case in 2017-2020 decisions (e.g. from ongoing harvest sampling and genetic testing).

Updated proportions are based on the latest genetics results presented in DFO's Initial Submission. For those areas with little data, the Boards have retained the previously accepted proportions (e.g. Ungava Bay in the fall and North-eastern Hudson Bay in the spring). For the Ottawa Islands area, there is little or no available information from genetic sampling. However, tagging results from both EHB and WHB beluga suggest that they are used primarily by migrating WHB beluga (Smith 2007, Bailleul et al. 2012). In these cases a proportion of 20% EHB is proposed.

Table 1: EHB proportions by which allocations must be calculated and harvesting season applicable to the harvest of beluga whales in Nunavik by location and time of year.

Time Period	Area	Proportion of EHB*
Spring Hunt: February 1 – August 31	Ungava Bay	10%
	Hudson Strait	
	North-eastern Hudson Bay	40%
Fall hunt: September 1 – January 31	Ungava Bay	40%
	Hudson Strait	25%
	North-eastern Hudson Bay	30%
Year Round Hunt: February 1 – January 31	Long Island and James Bay	0%
	Ottawa Islands	20%
Eastern Hudson Bay	Winter Hunt: December 1 – April 30	0%
	Kuujjuaraapik pilot project: Extension of winter hunt until June 15	0%
	Summer and Fall Hunt: May 1 – November 31	100%
Total Allowable Take of EHB (EHB TAT)		187

*** Time period is to be used for more accurate calculations of the proportion of EHB beluga (and does not represent opening/closing of a hunting season).*

In addition to specifically allocating an EHB quota, the NMRWB also proposes to maintain a flexible quota system based on implementation by 3-year management periods. Prior to the 2014-2017 TAT, DFO developed a population model, at the request of the NMRWB, to assess the potential impacts of such a system on the recovery of EHB beluga. The model suggests that a flexible system (vs. fixed annual TAT) would have minimal effect on the abundance trend for EHB beluga. However, should the entire TAT be harvested during the first year of the three-year TAT cycle, there would be a slightly higher probability of stock decline (Doniol-Valcroze et al. 2014) and therefore the Board is recommending that the RNUK allocate one third of the TAT for each of the three years.

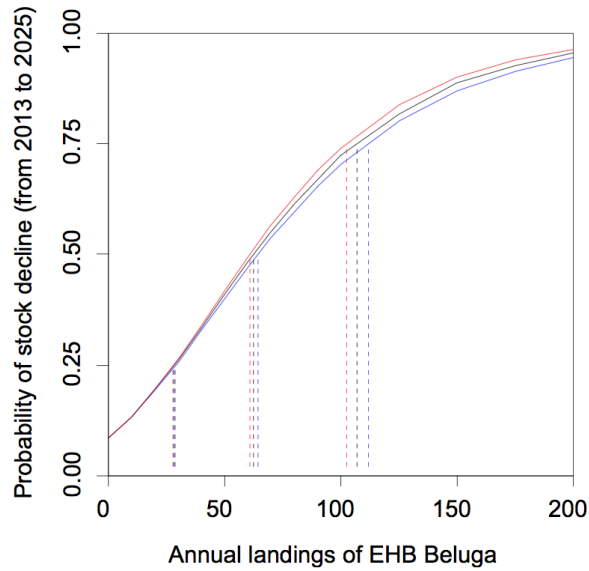


Figure 4. Probability of EHB stock decline after 12 years of harvest as a function of annual landings, under different scenarios. Black: an equal number of whales ($\pm 10\%$) is taken in each year of the 3-year management periods. Red: the full TAT is taken in the first year of each management period. Blue: the full TAT is taken in the last year of each management period. Dashed lines indicate levels of harvest corresponding to 25%, 50% and 75% probability of decline.

Figure 1: Probability of EHB stock decline investigating potential impacts from a flexible quota system (DFO 2014).

The most recent survey in 2015 indicates a small, but insignificant increase in the EHB beluga. By using the same framework and level of risk that was accepted by both the Boards and the Minister in 2014, an annual landing of approximately 68 EHB is estimated by the model (Figure 2).

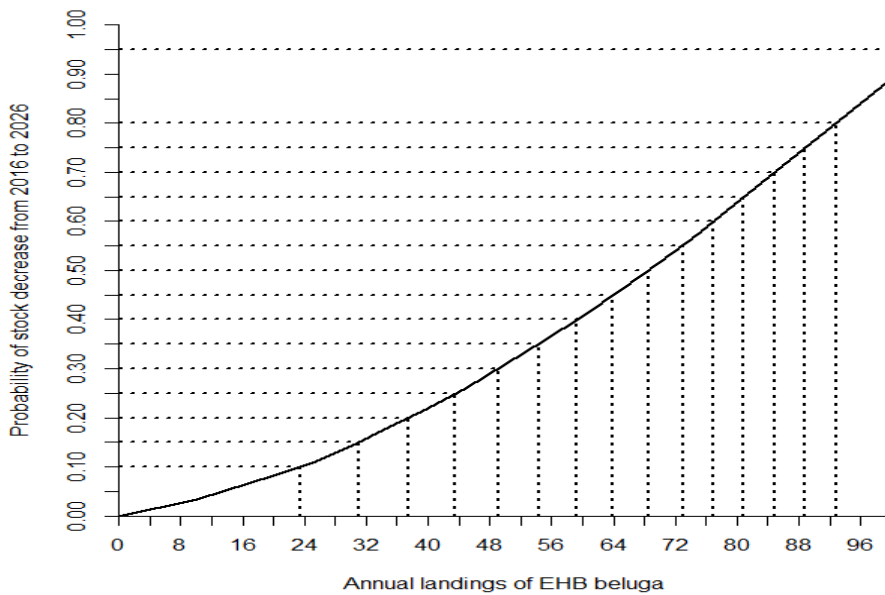


Figure 2: Proportion of the stock increasing with different harvest levels using the Sustainable Yield approach (Figure 9: DFO's Final Submission)

The model does not take into consideration sex and age structure of the harvest and a disproportionate amount of reproductive females or family units present in the harvest would have negative effects. **As such, the NMRWB has recommended maintaining that females with calves should not be harvested, in accordance with the *Marine Mammal Regulations SOR/93-56* ("MMR").**

During beluga management consultations, all communities raised concerns about the use of a quota management system. Specifically, expressed concerns were that the limitations imposed on beluga harvesting have had direct impacts on food security, health, and culture (e.g. selling beluga to other Inuit), and has increased instances of poaching. The importance of eating traditional foods for health and overall well-being is firmly established and beluga are the most consumed marine mammal species in Nunavik (Blanchet and Rochette 2008). It was also stated by several communities that these restrictions have actually increased the harvest in some instances, based on expressed concerns that not harvesting the entire quota would lead to reductions in future years. While the setting of an EHB quota does not deal with all of these issues, it does allow for greater choice and flexibility depending on each community's set of priorities. The use of a 3-year flexible TAT should also decrease the risk of harvesting entire family groups, which could lead to local extinctions in some areas, as hunting is expected to be less concentrated in any one particular area at a given time.

2.2 Hudson Strait pilot project

Hunters in Hudson Strait, particularly Quaqtaq, observe that EHB beluga travel separately than WHB during the fall migration. Specifically, they observe that the smaller groups of EHB beluga travel through Hudson Strait in the fall several weeks before the larger WHB beluga migration. Management restrictions have resulted in hunters trying to reach their quota earlier before the hunt is closed potentially resulting in a greater number of EHB beluga harvested. Along with timing of migration, behavioral differences are also noted, such as the speed at which beluga travel. During the Question Period, the NMRWB proposed a pilot project, which included a voluntary delay in fall hunting and increased focus on genetic sampling, to all of the Hudson Strait communities to ascertain their interest and to determine if these observations are relevant for all of Hudson Strait.

In their Final Submissions, all the LNUKs of Hudson Strait expressed that they have the ability to differentiate between stocks, and could potentially target the WHB stock while avoiding the EHB beluga for which there is a conservation concern. The LNUKs of Ivujivik, Salluit, Kangiqsujuaq, and Quaqtaq stated their interest in participating.

The objectives of the pilot project are to:

- a) Improve understanding of the genetic composition of the harvest at times of the year when there are very little data;

- b) Demonstrate the ability of communities and hunters to differentiate between the EHB and WHB stocks by comparing the genetic information gathered from hunting samples, to the stock identified by the hunters when the sample was gathered;
- c) Provide an iterative process whereby the number of belugas harvested in Hudson Strait during the fall pilot project will be adjusted each year proportionally to the number of EHB belugas in the harvest.

Community support of this process will be very important if it is to be successful. Indeed, while the project is requested by the Hudson Strait LNUKs, it is possible that some hunters may be cautious of the project, and worry that it is meant to further limit harvest. To avoid confusion or disengagement from the process, the iterative aspect (yearly adjustment) will only take effect when hunters identify a stock for the beluga harvested after November 1st in Ivujivik and November 15th in Quaqtaq. Those marked as “unknown”, or unlabeled will affect the TAT as per Table 1.

Communication will also be a key to the success of this project. While some communication responsibilities are outlined below, it is in the interest of all co-management partners to be as communicative as possible regarding the project. Communities must be well informed as to the goals and intentions behind the project, what it can and cannot achieve, what it cannot achieve, and the realistic outcomes from it.

The success of this pilot project will rely on the active participation and full commitment of all involved parties. Below is a list of groups and organizations that will be involved, and their roles in the process:

- i) *LNUKs and Hunters*
The LNUKs of the involved communities will be responsible for including harvest sampling in their hunt plan, and ensuring that hunters understand the necessity of sampling, the goals of the project, and how those goals can be achieved. LNUKs will also play the vital role of ensuring samples are sent to the Nunavik Research Center.
- ii) *Nunavik Research Center (NRC) / Makivik Corporation*
The NRC will be responsible for gathering samples from the communities, and ensuring they are properly labeled and sent to the DFO for genetic analysis as soon as possible following the end of the harvest year (December). This will allow results to be returned at least one month prior to the spring migration.
- iii) *The Department of Fisheries and Oceans (DFO)*
The department of Fisheries and Oceans will be responsible for analyzing genetic material in the timeliest manner possible, ensuring that results are returned to the NRC at least one month prior to the opening of the new harvest year, by late March.
- iv) *The Nunavik Marine Region Wildlife Board*

The NMRWB will take an active role in communicating the pilot project through radio and electronic broadcasts, discussions with LNUKs, and any other reasonable means. The NMRWB will also provide technical advice regarding changes to the communities' allocation based on the results of the previous year.

2.3 Other Considerations for Establishing TAT Levels

2.3.1 Harvesting Outside of the NMR

As noted previously, Nunavik's beluga stocks are migratory and travel outside of the NMR and are harvested by Inuit in Nunavut. As such the NMRWB must take account of harvesting activities outside the NMR when determining the TAT for Nunavik (NILCA s. 5.5.4.1).

In previous management plans, the number of EHB beluga in the Sanikiluaq harvest has been estimated using an overall EHB proportionality estimate of 12% (Doniol-Valcroze and Hammill 2012b). However, more recent genetic results suggest that this percentage is lower than what was assumed in the Boards' previous decision (Doniol-Valcroze et al. 2016). In DFO's initial submission, which includes previous unpublished results, the proportion of EHB beluga present in the harvest is highest during the summer: July 1-August 31st (25.6%) compared to spring: April 1st – June 30th (1.5%), extended spring: April 1st – July 14th (4.4%), and fall: September 1st – November 30th (0%). To limit their take of EHB beluga, the Sanikiluaq HTO continues to impose a voluntary closure between July 15th and September 30th (see Beluga Whale Hunting Rules of the Sanikiluaq Hunters and Trappers Association and the community of Sanikiluaq - Appendix 8.2).

Since a majority of Sanikiluaq's harvests occur during the spring (Turgeon et al. 2012; Makvik and NTI Joint Final Submission) an EHB proportion estimate of 4% of the Sanikiluaq harvest is assumed. In a joint final submission, Makvik and NTI estimated that 2 EHB beluga per year are removed by Sanikiluaq Inuit based on the recent reported harvest from 2010 to 2016. In the discussion, NTI and Makvik stated that 2 EHB per year is likely biased high since they used the percentage for extended spring (April 1st – July 14th). They also report that Sanikiluaq's 2015 harvest was an outlier that was enabled by a stochastic ice entrapment event which resulted in a large winter hunt of entrapped whales. Further, DFO considers ice entrapment a natural cause of mortality, and harvest from this event should be considered natural mortality.

Accordingly, the NMRWB's recommendation to establish a TAT of 198 EHB beluga over a 3-year period accounts for the harvest of 2 EHB beluga by Inuit from Sanikiluaq, and is consistent with DFO models which estimate that removal of 204 EHB beluga over three years would result in 50% probability of decline for this stock.

2.3.2 Ship Strikes

In its consideration of potential mortality from ship strikes, the NMRWB did not come across any evidence that suggests ship strikes are a current source of mortality. Some of the large-scale projects that have been proposed for the Arctic (e.g. Baffinland) do have shipping routes that overlap with beluga habitat and therefore will impact beluga (e.g. noise, disturbance). However, beluga and other small cetaceans, which are faster and more agile, are likely less vulnerable to collisions with ships than larger baleen whales (Lawson and Lesage 2013). Given proposed changes to shipping in the north, this is an area of concern that must be monitored to ensure that proper actions are taken in the event of confirmed ship strikes on beluga, but that currently does not justify further limitations on Nunavik Inuit harvesting rights.

2.3.3 Predation

Killer whales were rarely sighted around Nunavik prior to the mid-1900s, but in recent years there has been an exponential increase in sightings by hunters in Nunavik and elsewhere in the Arctic (Higdon et al. 2012). Killer whales passing through Nunavik are likely to be transient and therefore apt to hunt marine mammals, including beluga. Modelling work conducted by Ferguson et al. (2012) suggests that killer whales kill approximately 174 beluga whales throughout the Hudson Bay annually. It is assumed that killer whales, based on their summer distribution (Higdon et al. 2012), feed primarily on beluga from the WHB stock but an ice-entrapment event near Inukjuak and other summer sightings suggests that they may be present in Eastern Hudson Bay also (Hammill 2013). Though Inuit in other regions have knowledge of killer whale predatory behaviour (Ferguson et al. 2012), there are very few reports of killer whale predation on EHB beluga by Nunavik Inuit (Breton-Honeyman 2017). Therefore the NMRWB holds that the perceived threat of killer whale predation does not warrant limiting the harvest of Nunavik Inuit; however, it is important to continue monitoring this potential source of mortality going forward.

To gain a better understanding of the impacts of killer whales on the Nunavik marine ecosystem, **hunters are asked to document any killer whale sightings (number of whales, particular markings, size, location, date, etc.) or related events (i.e. injured beluga, stranding events, etc.) and to report this information to their LNUK or local Umajuit warden/technician for transmission to the NMRWB and DFO. Photographs of killer whales would be useful for identification purposes whenever these can be taken. A form (Appendix 8.4) will be made available to facilitate the reporting process in each community.**

3 Non-Quota Limitations

3.1 Beluga harvesting seasons

3.1.1 Relevant NMRWB Decisions

1. *The beluga harvesting season (as noted on DFO variation orders) shall be from February 1st until January 31st of the following year¹¹;*

3.1.2 Rationale and Support for Decision

Nunavik Inuit have voiced significant concerns over the seasonal limitations placed on beluga harvesting imposed by past management plans. Inuit who harvest beluga take the position that harvesting should be guided by environmental conditions rather than a calendar date (Breton-Honeyman et al. 2013); this is increasingly true as weather patterns become more unpredictable under a changing climate.

The NMRWB takes the position that harvesting be allowed year-round, with official opening and closing dates outside of peak harvesting seasons (i.e. winter). **A single harvest-year will be from February 1st until January 31st of the following year**; closures may occur earlier than this if the overall TAT for EHB beluga, established herein, is reached prior to January 31st. It must be noted that within a harvest-year, the proportion of EHB beluga included in the harvest will continue to be dependent upon the location/timing of harvest (refer to Table 1 for full overview of estimated proportions of EHB beluga included in the harvest).

The decision of the NMRWB to lengthen the harvesting year has had little impact on the EHB stock, as most beluga available to Nunavik communities during winter are likely from the WHB stock. This is supported by the results of a telemetry study on EHB beluga, and the observations of Inuit hunters from Kangiqsualujjuaq, which indicate that this stock overwinters in the Labrador Sea (Breton-Honeyman 2017; Bailleul et al. 2012). As well, communities in Ungava Bay see relatively few beluga during winter and an aerial survey of Hudson Strait during the winter of 2012 estimated a relative abundance of beluga between 27,264 and 29,335, which suggests that the majority of beluga are from non-EHB stocks (Elliott et al. 2013).

It should also be noted that within this decision, it is understood that LNUKs can further regulate the opening/closing dates that must be respected by their hunters, using local bylaws, in accordance with sections 5.7.2 (c) and 5.7.11 (e.g. a community bylaw indicating that no hunting shall take place unless harvesting has been authorized by a designated Elder). This would help to ensure that the opening and closing of beluga harvesting seasons are more in line with the traditional practices of Nunavik Inuit.

¹¹ In 2017, beluga harvesting shall commence only once all relevant decisions have been approved by the Minister and once the RNUK submits a detailed hunt plan, including allocation of the BNL.

3.2 Beluga Management Zones

3.2.1 Relevant NMRWB Decisions

The NMRWB hereby identifies the following beluga management zones (pursuant NILCA s. 5.2.4 (b)) within which the proportionality estimates for the EHB beluga stock vary depending on location and time of year (management zones comprise the area bounded by the province of Quebec, from ordinary low water mark, and the geographic coordinates below) (Refer to Appendix 8.1)

3.2.2 Background and Context

As a result of previous beluga management restriction, hunting was focused in the Hudson Strait (particularly during the spring hunt) and in the Long Island/James Bay area, with other zones (i.e. Ungava Bay, Eastern Hudson Bay, etc.) open for a limited harvest. Some management plans (e.g. 2006-2008, 2010, 2011, etc.) have also permitted harvesting in a number of other pilot areas including, Ottawa Islands, Nottingham and Salisbury Islands, Cape Smith and a winter hunt in Hudson Strait.

Management plans prior to 2014 have required Hudson Bay and Ungava Bay communities to harvest most of their TAT in the Hudson Strait, which led to particularly intensive harvesting at in the vicinity of Quaqtq and Ivujivik (the “host communities”). Host communities have reported that this concentrated hunting effort generates major issues for their residents (e.g. social problems related to consumption of alcohol, exclusion from traditional hunting areas, etc.). These issues and the discord it has created are contrary to Inuit values and law in relation to wildlife and harvesting. In addition, many of the hunters from other communities have been required to travel to these locations and cite this restriction as being the most problematic aspect of beluga management. The travel requirement has resulted in significant financial cost, safety risks and inter-community conflicts (Breton-Honeyman et al. 2013).

Several participants to the NMRWB public consultations felt that the requirement to harvest in distant areas is impeding the transfer of knowledge and culture related to harvesting, butchering and use of beluga. Given the distance, costs and other implications of travelling to distant hunting grounds, only a select group of hunters can participate in the harvest, therefore preventing inexperienced hunters from participating and learning the skills necessary to properly harvest and make use of a beluga. Throughout the consultation workshops, Inuit reiterated on several occasions that previous management plans failed to recognize Inuit traditional knowledge that identifies the importance of maintaining traditional harvesting locations.

3.2.3 Rationale and Support

Earlier plans, with opening and closing dates combined with regional allocation of the TAT, created a sense of urgency among hunters. This led communities to feel that it was necessary to rush their harvesting efforts before the quota was reached. Because the majority of harvests occurred in Hudson Strait, there was intensive harvesting at a few locations, notably the traditional harvesting areas around Quaqtq and Ivujivik. There is

growing evidence from genetic research that family groups return to the same locations using the same routes each year; This is supported by community observations. Therefore, concentrated harvesting pressure in one location can be detrimental for the maintenance of migratory routes and could lead to local extirpations (Colbeck et al. 2013).

In 2014 the NMRWB redefined the beluga management zones, and aligned previously established zones with the boundaries of the NMR, as defined in Article 3 of the NILCA. When considered in the overall context of the framework presented herein, primarily with respect to the allocation mechanism presented below, the management zones created by the NMRWB address many of the social, cultural and economic concerns raised by communities. Changes from the zones defined in 2014 are minor, and consist only of seasonal merging of zones.

Accordingly, in 2014, communities were returned the ability to decide when and where to harvest in order to best prioritize their community's needs. This ability will be retained in the present beluga management decisions. For example, a community could choose to harvest in Hudson Strait in the spring to get a larger quantity of beluga; Alternatively, they could harvest fewer whales closer to their community to facilitate cultural transmission between Elders, hunters, and youth. Communities could also decide to employ a mixed strategy or to differ their strategy each year based on such factors as their financial capacities or environmental conditions. For example, in years where spring ice-out occurs later than usual, and such that it is impossible to safely travel to the Hudson Strait prior to the onset of beluga spring migration, communities could instead opt to harvest a greater number of beluga during fall migration (e.g. a heavy ice year).

Since many participants to the NMRWB consultations have directly associated wastage of some beluga parts to the costs and logistical difficulties associated with transportation from distant hunting grounds, the ability to harvest closer to each respective community reduces the amount of wastage that occurs.

Though several of the pilot projects included in past management plans (e.g. Nottingham and Salisbury Islands, Ottawa Islands, etc.) have been discontinued over the years, interest remains to harvest in some of these areas. As well, the continuation of a new pilot project area near Kuujjuaraapik will allow DFO to verify assumptions about whether multiple beluga stocks occur in this area during the year, as observed by Nunavik Inuit. Because the genetic information necessary to understand the stock structure of beluga whales in pilot project areas is limited, greater levels of harvesting will generate more genetic samples and therefore a better understanding of stock structure.

3.2.4 Special Considerations within Each Beluga Management Zone

3.2.4.1 Ungava Bay

Harvesting in Ungava Bay has been extremely restricted since DFO began management of beluga whales in the 1980's. These restrictions were in place to ensure the

conservation of the UB stock. However, this reduction in harvesting pressure inherently led to a reduction in the available biological information about the beluga whales that occupy the Ungava Bay throughout the year. **Therefore, it is imperative that skin samples, for genetic analysis, be provided for any beluga harvested within this region.**

In management plans prior to 2014, there was a limited harvest of UB beluga between April 1 and August 31st. The primary conservation concern in Ungava Bay is for the UB stock; accordingly, the NMRWB continues to support the closure at the Mucalic estuary, where UB beluga are known to aggregate. However, it cannot be overlooked that Inuit observe an abundance of beluga in this region during migratory periods (Breton-Honeyman et al. 2013), which are known to be of mixed origin (Turgeon et al. 2012). Therefore, the NMRWB has decided to allow harvesting in Ungava Bay using conservative EHB proportionality estimates to limit the odds that EHB will be over represented in the harvest. Samples provided during this hunt will significantly increase our scientific understanding of stock structure and of seasonal distribution of beluga occupying Ungava Bay.

The EHB proportionality estimates applied to Ungava Bay (i.e. 10% from February 1st – August 31st; 40% from September 1st – January 31st).

3.2.4.2 Hudson Strait

Hudson Strait communities observe the largest number of beluga. All evidence indicates that whales harvested in Hudson Strait are from mixed stocks, with some hunters indicating that they are able to differentiate between groups (Turgeon et al. 2012). The NMRWB has updated the EHB proportion estimates to reflect the most recent genetic results (i.e. EHB beluga constitute 10% of the spring harvest and 25% of the fall harvest).

Due to the high proportion of WHB beluga found in the Hudson Strait harvest, previous management plans have heavily concentrated the harvest in the Hudson Strait (84% of TAT). However, given that there is now evidence suggesting that a concentrated harvesting effort creates issues for both Inuit and beluga (e.g. Colbeck et al. 2013), the NMRWB has attempted to make harvesting pressure more diffuse by allowing increased harvesting in other areas.

Hudson Strait will be the focus of the pilot project described in section 2.2, and the allocated TAT for communities which harvest in this region will be adjusted based on the previous year's genetic results.

3.2.4.3 North-eastern Hudson Bay

Given mounting evidence that beluga passing through the north-eastern Hudson Bay ("NEHB") region are of mixed origin (EHB and WHB), the NMRWB determined that it was inaccurate to assume that 100% of the beluga in this area were from the EHB stock. This assumption was applied in previous management plans. A portion of beluga tagged in western Hudson Bay are known to migrate through this area (Smith 2007) and there is genetic information on the proportion of EHB beluga from the NEHB region (Turgeon

et al. 2012). To account for the small sample size on which this decision is based, **the EHB proportion estimates used for NEHB, (40% from February 1st - August 31; 30% from September 1st to January 31st) are more conservative estimates (i.e. +10%, rounded to the nearest ten) than those published by Turgeon et al. (2012).** The NMRWB's decision will alleviate the restrictions imposed upon Inuit in this area, which were more strict than necessary to conserve EHB beluga.

It is imperative that increased harvesting efforts in this area be coupled with a more complete collection of biological information. **The NMRWB may reconsider the assumptions on which this decision is based, should genetic analyses indicate that the proportion of EHB beluga in the harvest is actually more/less than expected. Failure to provide genetic samples could also lead the NMRWB to reconsider its decision.**

3.2.4.4 Ottawa Islands

The NMRWB has also decided maintain the pilot project area in the Ottawa Islands area. Although genetic information currently available for the Ottawa Islands is limited, there is good evidence from tagging studies in both Eastern and Western Hudson Bay that WHB beluga are more prominent in this offshore area (Smith 2007, Bailleul et al. 2012). Therefore the proportion of EHB beluga in a harvest at Ottawa Islands is likely less than what is estimated for North-Eastern Hudson Bay and an EHB conversion factor of 20% will be assumed until further information becomes available. Hunting in this area is of interest to both Akulivik and Puvirnituq and, based on available information, is favourable for the conservation of EHB beluga, when compared to harvesting near their communities.

3.2.4.5 Eastern Hudson Bay

Previous management plans have allowed for a limited harvest to occur in Eastern Hudson Bay based on an assumption that 100% of whales harvested in this area are from the EHB stock; the NMRWB has maintained this assumption. However, because EHB beluga are known to migrate out of Eastern Hudson Bay towards the Labrador Sea during winter, this assumption is not warranted during winter. As such, the NMRWB considers there to be no reliable evidence to support the conclusion that beluga harvested in this area during winter are from the EHB stock.

It is thus assumed that 0% of whales occupying Eastern Hudson Bay during winter (December 1st to April 30th) are from the EHB stock. This assumption is extended until **June 15th** within the Kuujjuaraapik pilot area (see section 3.2.4.6, below).

3.2.4.6 Kuujjuaraapik Pilot Area

Based on the knowledge of Inuit from Kuujjuaraapik, a pilot project area was created in 2014 in the southern Hudson Bay where it is believed that the JB stock, or another non-EHB stock, are present prior to ice-out north of Kuujjuaraapik. Heavy and late ice conditions for the past several years have limited the ability of Kuujjuaraapik hunters to access beluga in the early spring; However, the community of Kuujjuaraapik is still

very interested in this project and proposed that the pilot project be extended until June 15th. In DFO's initial submission they cited no concerns with this extension.

Consequently, the community of Kuujjuaraapik will be allowed to harvest the whales that arrive in their area during the period when ice has melted in James Bay/south-east Hudson Bay, but before migratory whales arrive from the North.

Based on weekly observation reports compiled by DFO, peak migration through Hudson Strait occurs in early June (Doniol-Valcroze et al. 2012a). Considering this, **the pilot hunt at Kuujjuaraapik will be based on an EHB conversion factor of 0%, but will close on June 15th of each year, prior to the arrival of EHB beluga in the region, and will resume on December 1st of the same year.**

Since no genetic information is available to support this assumption, **skin samples should be collected from all beluga harvested during this period; omission to sample could force the NMRWB to cancel the pilot project before expiration of the present management cycle.**

Genetic analysis of all samples should be conducted by DFO prior to the commencement of the next harvesting season to determine whether any EHB beluga were harvested. Necessary adjustments could be made to the EHB conversion factor, prior to the beginning of the following harvesting season, based on the results of these analyses.

Since DFO's weekly observation reports also indicate that spring sightings by Kuujjuaraapik coincide with the presence of whales near Umiujaq, **the NMRWB will consider expansion of the current pilot project to Umiujaq, prior to the expiration of this management cycle, if genetic analyses confirm the presence of non-EHB beluga at this time of year.**

During other periods (i.e. June 15th to April 30th), proportionality estimates will mirror those in Eastern Hudson Bay.

3.2.4.7 Long Island and James Bay

In line with previous management plans, the NMRWB is maintaining the harvesting zone surrounding Long Island, but boundaries of the zone have been adjusted to reflect those of the NMR. An EHB proportionality estimate of 0 % has been previously assumed in this area based on the presence of a separate JB stock (Postma et al. 2012), for which there is not currently a known conservation concern. As such, no upper limit has been established for this zone.

3.3 Additional Estuary Closure

3.3.1 Relevant NMRWB Decision

- 1. No harvesting shall be permitted at the Little Whale River, in an area bounded by the following coordinates:**

55°59'00" N	76°48'13"W
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55°59'00" N	76°49'20"W
56°01'15" N	76°49'20"W
56°01'15" N	76°43'48"W

3.3.2 Rationale and Support

Based on the importance of certain estuaries for beluga (see s. 3.6.2 below), the NMRWB has determined that this area should remain closed to hunting.

3.3.3 Research Needs

Some communities and other co-management partners have expressed interest in re-opening Little Whale River, as well as other estuaries (e.g. Nastapoka and Mucalic). There are very little data available on the current use of the estuaries by beluga and therefore it is difficult to determine what the impact of reopening the estuaries would be and which harvesting limitations would be most effective (e.g. limiting the number of whales taken in estuaries, seasonal restrictions). The NMRWB therefore requests that DFO, in cooperation with Makivik and the relevant / nearby communities, undertake research in the estuaries and provide this information to the Board in advance of the next set of beluga decisions.

3.4 Allocation of Quota and Development of Hunt Plans

3.4.1 Relevant NMRWB Decisions

- The RNUK shall be responsible for allocating and enforcing the BNL, in this case the entire TAT, among the LNUKs (NILCA s. 5.7.4 (d) and shall do so based on the EHB beluga stock proportions identified in the NMRWB's TAT recommendations and the community requests received through the written hearing;
- Each LNUK shall be responsible for developing a hunt plan that identifies clear mechanisms, including communication to hunters of how the community's allocation of beluga will be distributed between years, locations, and times of year, to ensure that its members will not exceed the annual number of beluga that has been allocated to them by the RNUK, and thereby not exceed their underlying allocation of EHB TAT.

3.4.2 Background and Context

Central to the implementation of the NMRWB decision in relation to the TAT and non-quota limitations, is the mechanism for allocation of the TAT for EHB beluga. Previous management plans have prescribed, based on proportionality estimates similar to those presented herein, the number of beluga that each community could harvest at specific locations and times of year. This system has generated conflicts between communities, hardships for many Inuit and is contrary to the objectives and provisions of the NILCA. In

particular the pre-determined allocation denies the RNUK and the LNUKs the rights to determine the allocation of take levels among its members (s. 5.7.2 (d) and 5.7.4 (d) of the NILCA).

The RNUK and LNUKs are key components of the wildlife management system created within Article 5 of the NILCA. The submissions presented to the NMRWB by these organizations are evidence that they are on playing a more active role in the management of beluga harvests. The NILCA contemplates and provides for this involvement. The NILCA assigns responsibility for the allocation of the basic needs level to the RNUK (NILCA s. 5.7.4 (d)) and to the LNUKs (NILCA s. 5.7.2 (d)). In the case of beluga, it is assumed that Nunavik Inuit need the entire TAT established by the NMRWB (NILCA s. 5.3.7 (a)), therefore the entire established TAT will be allocated by the NMRWB to the BNL and should be allocated by the RNUK.

3.4.3 Rationale and Support

Pursuant to their responsibility under section 5.7.4 (d) of the NILCA, the RNUK will be responsible for allocating the TAT of EHB beluga to the LNUKs, presented as whole beluga for given zones and seasons. This allocation should be guided by community harvesting preferences, and aided by technical advisors from the NMRWB, Makivik, and DFO. Through the preparation of its regional hunt plan, the RNUK will ensure that the TAT of EHB beluga, over a 3-year period, is allocated equitably among the LNUKs. If the RNUK considers that its initial allocation of EHB beluga was not equitable, their decision may be revised at later date if the LNUKs of all affected communities agree to the proposed changes, and as long as the overall TAT of EHB is not exceeded as a result. The RNUK is responsible for ensuring that the overall TAT for EHB is not exceeded during this 3-year period. Any changes to the allocation detailed in the RNUK's initial regional hunt plan should be noted in a revised regional hunt plan. **The RNUK must provide a regional hunt plan, which amounts to an annual allocation of no more than 62 EHB beluga for each of the three years (187 over the three years), translated into whole beluga for each season/zone.**

This RNUK allocation workshop is to be financially supported by DFO (costs of the technical advisors rests with the relevant organizations) and should take place as soon as a decision is approved.

The LNUKs will in turn be responsible for assigning their allocation among their members, as per NILCA section 5.7.2(d). In doing so, the LNUK should consider the priorities of their community with regards to beluga harvesting (e.g. transfer of knowledge vs. maximum number of harvested beluga). Each LNUK will be responsible for developing a hunt plan for their community, preferably with input from community members. Community hunt plans must include a communication plan to inform community members of the allocations by zone and season. This is intended to serve as a guide to ensure that the community does not exceed its allocation, and thereby their portion of the TAT of EHB beluga. Focusing the harvest on periods of the year/locations where proportion of EHB whales is the lowest will provide for the largest overall

harvest; however, the community has the ability to request allocations in other zones prior to the RNUK allocation workshop.

Should a community's harvest plan be above or below the allocation for any given season/zone and in any given year, a new hunt plan must be submitted to the RNUK and NMRWB prior to the next year harvest to ensure that the community portion of EHB TAT is not exceeded. LNUK hunt plans must also make reference to any applicable local bylaws, mechanisms to reduce struck and lost beluga and minimize wastage, and necessary equipment, including, but not limited to whether the use of a harpoon is required. Sampling is an essential and critical element of this management system and as such LNUK hunt plans must also detail how the community plans will ensure that a maximum number of harvested beluga are sampled. **The LNUKs shall provide the RNUK and NMRWB, a copy of their community hunt plans, including a community communication plan.** As well, the LNUKs shall be responsible for ensuring that the harvesting practices of their members respect the conditions described herein, any bylaws established by the LNUK, and traditional Inuit practices (NILCA s.5.7.2(c)).

The proposed management plan will build upon the positive aspects of the flexibility built-in to the 2014 decisions, while alleviating concerns of hunters and LNUKs in recent consultations, which indicated the effectiveness of the system, was marred by confusion. The 2014 decisions were successful in giving communities the ability to follow traditional hunting practices in terms of deciding when and where to hunt. However, due to the confusing nature of the system and allocations being represented as EHB beluga, controversy stemming from the closure of harvesting seasons before all communities have harvested their allocated TAT (due to over-harvest by other communities) continued. The proposed plan aims to minimize the confusing aspects of the previous decisions, while maintaining as much flexibility as possible. More so than the previous decision, under this TAT system, the consequences of over-harvest are re-directed to the responsible community, rather than to neighbouring communities. This measure is intended to reduce animosity between communities and to ensure that harvesting rights of all Nunavik Inuit communities are recognized.

Flexible multi-year plans have been used successfully for other large mammals, including polar bears, where over-harvest/unused quota in a given year results in quota reductions/increases the following year (Rogan et al. 2004). In recognition that the proposed plan is a modification of a system still new to the region, NMRWB staff will provide technical support throughout the transition to this new management system. Communication and coordination between all of the different partners will be essential to ensure a smooth transition to the new system.

3.5 Netting

3.5.1 Relevant NMRWB Decisions

1. **Netting of beluga whales shall be permitted, as long as the following conditions are respected:**
 - Nets shall be removed when not under constant surveillance; and

- Any calves, and females with calves, that have been netted shall be removed from nets whenever it is safe to do so; and
- Any additional conditions (e.g. maximum number of nets per harvester) established by the RNUK or LNUKs in accordance with their powers and functions (NILCA sections 5.7.2 (c) and 5.7.4 (c)).

3.5.2 Rationale and Support

Although some communities have employed nets to capture beluga for many generations, others have voiced their disagreement towards some aspects of this practice (e.g. capturing females and calves, wastage of whales that remained submerged for extended periods of time, preventing young hunters from harvesting their first beluga, etc.). As well, Inuit hunters feel that entangled whales emit distress vocalizations when entangled in nets; this is evidenced by the sudden absence of whales at hunting sites after a whale has been netted (Breton-Honeyman et al. 2013). Despite this, the NMRWB recognizes the importance of netting as a traditional harvesting method and continue to support hunters who choose to practice this harvesting method. Should any community wish to prevent their harvesters from using nets to capture beluga, the LNUK may adopt its own bylaws that further address this issue.

As mentioned previously, it is illegal to kill beluga calves and their mothers, as they play an essential role in stock recovery. As such, it was agreed that harvesters should take necessary steps to prevent females and calves from becoming entangled in their nets. This could include removing the nets whenever a group with females and calves is known to be in the vicinity.

Because of their potential for overharvest and since spoiling can occur when they are left unattended, nets should only be installed where they be can easily monitored.

3.6 Provisions within *Marine Mammal Regulations* Maintained

3.6.1 Relevant NMRWB Decisions

1. *No person shall disturb a beluga whale, except when beluga hunting (MMR s.7);*
2. *No person shall attempt to kill a beluga except in a manner that is designed to kill it quickly (MMR s. 8);*
3. *No person shall hunt for beluga without having on hand the equipment necessary to retrieve it (MMR s. 9);*
4. *No person who kills, or wounds, a beluga shall fail to make a reasonable effort to retrieve it without delay, nor shall he abandon or discard it (MMR s. 10 (1));*
5. *No person who kills a beluga shall waste any edible part of it (MMR s.10 (2));*
6. *No person shall kill a beluga calf (dark in colour and less than 2 m in length), or an adult beluga that is accompanied by a calf (MMR s.18);*

7. *In Ungava Bay, the Mucalic estuary (as defined in item 5, Schedule 2 of the MMR) will remain closed to beluga hunting;*
8. *In Hudson Bay, the Nastapoka River (as defined in item 7, Schedule 2 of the MMR) will remain closed to beluga hunting.*

3.6.2 Closure at Estuaries

While habitat requirements of summering beluga are poorly known, some estuaries are known through Nunavik Inuit Knowledge to be particularly important for beluga (Doidge et al. 2002). The philopatry of beluga stocks to specific summering areas is thought to make them more vulnerable to overharvest and especially to any loss of critical habitat (Doniol-Valcroze et al. 2012b).

In allowing Inuit from Ungava Bay the possibility of harvesting their entire TAT close to their communities, the NMRWB has increased the probability that UB beluga may be harvested. However, to offset this threat, the NMRWB has determined that the designation of the Mucalic estuary area (along with the Tuctuc and Tunilic rivers) as a beluga sanctuary should be maintained, despite ardent requests to the contrary by harvesters from Kuujjuaq and Kangiqsualujjuaq; this area is known to have been the most important summer aggregation area for UB beluga (COSEWIC 2004). This closure will ensure that harvesting activities target migratory beluga from the WHB and EHB stocks and are intended to avoid the harvest of any whales from the Ungava Bay stock. That said, the NMRWB recognizes that the Mucalic Estuary is particularly important to the culture and traditions of Inuit, especially for those residing in Kuujjuaq (Breton-Honeyman et al. 2013), and will seek to determine, through Inuit Knowledge and science, whether changes to this arrangement are warranted in the future.

Similarly, the Nastapoka and Little Whale rivers, in eastern Hudson Bay, are of high importance for EHB beluga (COSEWIC 2004; Gislason 2007). Satellite telemetry has demonstrated that beluga show strong within-season site fidelity to these estuaries (Doniol-Valcroze et al. 2012) and photo-identification studies indicate that they exhibit between-year fidelity to summering grounds (Caron and Smith 1990). It has been demonstrated that more beluga are likely to be killed during hunting events that take place inside estuaries compared to hunts that occur in EHB or HS, outside of estuaries; This likely contributed to the overharvest that occurred during 2001 (Doniol-Valcroze et al. 2012; Lesage and Doidge 2005). Given the relatedness between individuals at summering grounds, and the potential for cultural transmission of migratory routes (Colbeck et al. 2013), the NMRWB has decided that hunting at **Nastapoka and Little Whale estuaries will remain closed until mechanisms to address the concerns noted above have been developed and implemented.**

As was noted above, the NMRWB requests that DFO, in collaboration with the nearby communities and Makivik, undertakes research in the estuaries to provide advice to the Boards in advance of the next beluga decisions regarding the feasibility of opening a limited harvest in each of the estuaries.

3.6.3 Struck-and-Lost (S&L)

Given the limited number of whales that can be harvested from the EHB stock, it is especially important to reduce the number of S&L beluga as these whales have a high likelihood of succumbing to their injuries. Hunters interviewed during the NMRWB consultation process stressed that hunters must have all equipment necessary to land and butcher a beluga on hand when attempting to make a kill (see above for LNUK responsibility with regards to identifying necessary equipment); the NRMWB supports this recommendation.

In accordance with the MMR (s. 19), only firearms producing a minimum of 1,500 foot pounds of muzzle energy may be used to hunt beluga. While a number of firearms are acceptable under this category, the NMRWB's board members with extensive beluga hunting experience have raised concerns that while the use of only high powered rifles may increase landing success, it also increases the number of wounded beluga. The NMRWB therefore proposed to further investigate this issue in advance of the next beluga management decisions.

The MMR (section 10 (1)) also states that **all actions that result in killing or wounding a whale without being able to retrieve it are prohibited**. Hunters must hence make all efforts to retrieve a whale that has been struck, so that it is not lost.

3.6.4 Restrictions on Females and Calves

In the beluga mating system, a single male can breed with a number of females during a given year. Therefore, the potential contribution of each breeding-age female to a population's recovery is greater than that of any single male. For example, simulations of the impact of harvest on population growth show that a male-biased hunt greatly reduces the chances of population decline (Hammill et al. 2009). Despite a recommendation in past management plans to target white males, over 50% of the harvest has been composed of females (Lesage et al. 2009), a result that likely stems from the fact that in many cases it is difficult, if not impossible, to differentiate between the sexes until after a whale has been killed (P. Novalinga, pers. comm.). However some Elders state the ability to differentiate. Furthermore, Inuit have traditionally observed that the largest whales (often the males) defend their pod and guide its travels, and therefore should not be harvested. It has also been noted that grey whales were traditionally harvested and that Inuit prefer to consume their skin, compared to that of the bigger white whales.

Based on this, the NMRWB recognizes that targeting males reduces the impact of harvest on the beluga populations and encourage hunters to selectively harvest males, but do not see this as a management measure that can be effectively implemented. As such, Inuit may harvest adult (white) or sub-adult (light-grey) whales regardless of sex class.

Inuit maintain that harvesting a calf leads its mother to reproduce more frequently. In addition, females accompanied by calves are known to be active reproducers and are immediately contributing to the stock's recovery and should not be harvested. **This is reflected in section 18 of the MMRs, which reads “No person shall fish for a beluga calf or for an adult beluga that is accompanied by a calf”.** It is thus important that hunters pay particular attention when hunting a group of beluga in which there are calves so as to avoid killing a mother that may be temporarily without her calf. All accidental catches of dark beluga must be reported under the area TAT as they count towards it, exactly as do older whales; details surrounding the kill should also be reported to local Umajuit wardens or technicians.

3.6.5 Wastage

The NMRWB's decision to maintain the MMR directive that wasting any edible part of a whale is prohibited (section 10 (2)), is intended to ensure proper use of harvested beluga in accordance with the values and traditions of Nunavik Inuit.

During consultations, the issue of spoilage was discussed at length (Breton-Honeyman et al. 2013). It was felt that most wastage results from the fact that hunters are forced to travel long distances to harvest. Since *mattaq* is prized over meat and other parts, some are forced to leave meat/heads behind to transport *mattaq* back to their home. Others suggest that it has been impossible to teach the younger generations about the value and proper preparation of meat and other beluga by-products due to the forced long distance travel to harvest. Overall, it was agreed that actions to reduce wastage are necessary.

Considering growing tensions between host communities in the Hudson Strait and those who visit for the spring/summer and fall beluga hunts, it is extremely important that proper communication and coordination with host communities be established prior to the hunting trip. This will help to minimize both conflict between hunters and the wastage of beluga, since any unused parts may be recovered and used by local community members. Coordination with Umajuit wardens or technicians in host communities, by visiting hunters, is also recommended to ensure proper reporting of the harvest.

4 Recommended Implementation Measures

Pursuant to section 5.5.10 of the NILCA, the Minister of Fisheries and Oceans, where the Minister is deemed to have accepted the decisions of the NMRWB, shall proceed forthwith to do all things necessary to implement that decision. Because the decisions presented herein will lead to a marked change from previous management systems, it is important that certain actions be taken to ensure they can be properly implemented. The following is a summary of implementation measures that the NMRWB considers important for the successful implementation of its decisions.

4.1 Monitoring

Levels of TAT are set to ensure that harvesting practices are sustainable and that they may persist in perpetuity. The quality of information used to establish levels of TAT is important; therefore, proper monitoring and reporting of actual harvest levels are crucial steps in the process. As well, because the needs of Nunavik Inuit are considered in the establishment of TAT, harvesting levels proposed herein are above levels that would normally be considered conservative; it is thus important to ensure regular and frequent monitoring of the population, via aerial surveys or other means.

4.1.1 Role of the Kativik Regional Government

Though the NMRWB decisions reflect the increased responsibility of LNUKs and the RNUK with respect to harvest monitoring, it is recommended that DFO maintain its agreement with the Kativik Regional Government (“KRG”) for harvest monitoring and reporting. This program was initiated by the KRG in 2004 further to the wildlife protection assistant mandate under the *Agreement concerning Block Funding for the Kativik Regional Government* (Sivunirmut Agreement) and DFO’s Aboriginal Aquatic Resource and Oceans Management Program.

As such, harvests should continue to be monitored by the KRG’s Umajuit Wardens, in accordance with their mandate as it pertains to beluga whales. Umajuit wardens maintain daily contact with harvesters and other community members and keep reports on harvesting and wildlife activities. In addition, it has been agreed that the wardens will provide a forum for the LNUKs to provide input during the collection of harvest statistics. These statistics will be shared weekly with the NMRWB, the RNUK and DFO. The location and date of any harvested beluga will be provided in these reports; other information (e.g. sex, age class, etc.) may also be included.

4.1.2 Role of the Department of Fisheries and Oceans

The NMRWB supports DFO efforts to recruit and train Inuit Multidisciplinary Officers that are able to enforce NMRWB decisions within the NMR, but feels that a more coordinated approach between Fisheries Officers and Umajuit wardens is warranted. Issues have been raised by KRG in this regard, stating that there is a need for improved communication/coordination on this matter.

It is also the responsibility of DFO to ensure regular and frequent monitoring of all beluga stocks, but this is particularly true for the EHB beluga and UB stocks, given their status. DFO should ensure that sufficient funds are available to support such research. As well, it is recommended that DFO and NMRWB staff collaborate to identify new population monitoring techniques that better incorporate the knowledge of Nunavik Inuit.

Finally, it is expected that DFO will take necessary steps to address any research requirements or deficiencies identified by the NMRWB. Particularly, it will be important to ensure that mechanisms are in place to allow for complete harvest sampling by hunters and efficient analysis of genetic material returned by them (see s. 5.3 below for additional details).

4.2 Harvest Sampling

Increasing confidence in EHB proportionality estimates through genetic research is a priority for all areas of the NMR, but particularly for areas with little existing genetic information. In addition, the proposed Hudson Strait pilot project will be heavily reliant on harvest sampling. As such it is imperative that all harvested beluga be sampled. Communities that have previously been forced to travel greater distances have had lower participation in the monitoring program, in part because of the challenge of transporting samples. In 2013 the number of sampling kits returned was lower than previous years (19% of all beluga harvested; 61% of sampling kits distributed [n=80]). This may also be reflective of the growing level of frustration among Nunavik Inuit with previous management plans. The closer proximity of the hunt to communities should facilitate harvest sampling. The proportion of sampling kit returned was higher during 2014-2017 but there is still much room for improvement. There is commitment from all co-management partners to work towards increasing the proportion of kits returned in 2017 and going forward.

It is important that sampling efforts be reflective of harvesting activities. For instance, the majority of samples used for genetic testing in some years are from the spring, whereas most hunting takes place in the fall and vice-versa (COSEWIC 2004, Turgeon et al. 2009). This type of situation blurs the information that may otherwise indicate areas or periods of the year in which EHB beluga are more/less susceptible to harvest.

Though the NMRWB felt that mandatory sampling, as an official non-quota limitation under NILCA section 5.2.19, was not a necessary conservation measure, hunters are nonetheless asked to provide skin and tooth samples for all harvested beluga (to permit genetic analysis and aging of harvested beluga, respectively). With each sampling kit, the location of kill sites and date of harvest should also be noted to ensure that any conclusions drawn from the sample accurately reflect the harvesting event. For example, if a hunter kills a beluga in Hudson Strait, but returns the samples to his local Umajuit warden, in Kuujjuaq, it may be wrongfully assumed that the whale was harvested near Kuujjuaq unless the kill site is noted on the sample. These new decisions

of the Boards require that there be an option added to the sampling information so that hunters are able to indicate the stock of the whale that they harvested.

Hunters are responsible for ensuring that the samples do not become mixed and to provide as much information as possible for each sample (i.e. if a hunter kills several whales, samples from each should be kept separately until they are put into sampling kits to ensure that teeth and skin samples submitted in each are from the same whale).

Although hunters are paid \$125 for returning complete sampling kits, the process by which this is done has discouraged some hunters from collecting and returning their samples. Reports of lost sampling kits, absence of recognition for samples provided, distance between harvesting site and home community, as well as lack of follow-up from researchers were commonly cited as contributing factors to the low return rate for sampling kits (Breton-Honeyman et al. 2013). Over the 5 years previous to 2014 the average number of sample kits returned was 31% of the total harvest and between 61-80% of all kits distributed (sampling records provided by M. Hammill). Sampling more than 50% of the beluga harvested during the 3 year EHB TAT of 180 beluga is considered as a realistic objective.

Recognizing that hunters are interested in knowing what information was obtained from the samples they return, DFO, along with the NMRWB, Makivik, including the Nunavik Research Centre, and the RNUK, will develop protocols that ensure all pertinent information and monetary compensation are provided to hunters having returned sampling kits within an acceptable timeframe.

5 Other considerations

Though the following considerations do not directly influence or form the basis of the NMRWB the decisions presented herein, the NMRWB considers them important factors in the overall management of beluga in the NMR.

5.1 Tourism and Development Impacts

Marine tourism in Nunavik has been increasing in recent years. As marine infrastructure and sea ice conditions improve the accessibility to the NMR in coming years, it will be important to consider potential impacts associated with this industry on beluga management and on the traditional harvesting activities of Nunavik Inuit.

As with tourism, improved access to Arctic waterways is expected to increase the level of commercial development in the NMR. This may be a result of increased shipping or construction of ports for mining activities, oil and gas exploration, hydro-electric (or other power generation) development, etc.

It will be also important to consider possible impacts on beluga whales in the event of hydro-electric development since beluga, within their summering areas, depend on rivers with strong currents (e.g. moulting) (Breton-Honeyman 2017). In fact, it was reported to the NMRWB that hydroelectric development in the James Bay area has led to local extirpation of beluga from several rivers, including the Caniapiscou (Shaomik Inukupuk, pers. comm.).

While the Nunavik Marine Region Planning Commission (NILCA Article 6) and Nunavik Marine Region Impact Review Board (NILCA Article 7) have primary responsibility with regards to evaluating these impacts, the NMRWB proposes mitigation measures to them as concerns are identified, pursuant to its functions in NILCA paragraph 5.2.4 (e).

5.2 Stranding Events

While Inuit report that ice entrapments or beaching events are rare events, they must be taken into account.

To this end, an Action Plan for Trapped Whales (Appendix 8.3) was originally developed by DFO and will continue to be applicable for all of Nunavik. **Anyone who happens upon an ice entrapment or beaching incident should immediately inform their LNUK or the NMRWB and provide at least the following information about the incident: location, approximate number of whales, time they were first observed, ice conditions in the area (if applicable), physical conditions of the whales and their behaviour, presence of predators (and/or dead whales) in the area.** This information will be transmitted immediately to the DFO's Quebec office.

Entrapped whales should be monitored if possible, although any costs incurred will not be reimbursed. DFO will maintain records of all entrapments reported. Each entrapment should be reviewed on a case by case basis in order to determine if the whales can escape or not.

If the TAT has not yet been reached for the area, hunters may harvest entrapped or beached whales so long as all management measures are respected. Any hunting above the TAT will require a decision by the NMRWB or a decision by the Minister in accordance with section 5.5.22 of the NILCA and will be evaluated on a case by case basis. Other considerations are described in the Action Plan.

5.3 Noise Levels

Communities throughout the Arctic report a reduction in beluga sightings around traditional hunting areas and suggest that increased noise levels stemming from outboard motors as well as other marine infrastructure and development may be the cause of this displacement rather than purely a reduction in population numbers (Kilabuk 1998, Kishigami 2005, Gislason 2007). In shallower areas of Eastern Hudson Bay, beluga are known to flee from boats while they are still quite far away (P. Novalinga, pers. comm.). Caron and Smith (1990) observed large groups of beluga deserting the Nastapoka estuary due to hunting or motor boat traffic; the number of whales did not fully recover until ± 25 h (motor boat traffic) to 40h (hunting) later. In Cumberland Sound, Inuit harvesters have noted that beluga appear to be thinner than in the past, and relate this to increased energy expenditure caused by avoidance of boat traffic (Kilabuk 1998). Additionally, Lesage et al. (1999) demonstrated that boat traffic had a significant effect on the vocal behaviour of beluga.

Because little is known about the physiological effects of these various disturbance factors, and what the ensuing results could be (COSEWIC 2004), vessel noise should be minimized in areas that are important to beluga, and at hunting sites. This could be accomplished by reducing the number of boats that visit the areas, or by decreasing the speed of travel. LNUKs that consider vessel noise to be detrimental to beluga in their area should identify areas that are of particular concern and promote the reduction of noise within their communities and/or pass a bylaw to that effect.

6 Revision Process

The TAT and non-quota limitations hereby established by the NMRWB, will be in effect for a 3-year period ending on January 31st, 2020, and will automatically be renewed for subsequent 3-year periods thereafter. The NMRWB may modify the TAT prior to its expiration, should new information become available that the NMRWB deems warrants a modification of the TAT and non-quota limitations. This is particularly true of information that affects the number of EHB beluga that can be harvested, or the EHB proportionality estimates.

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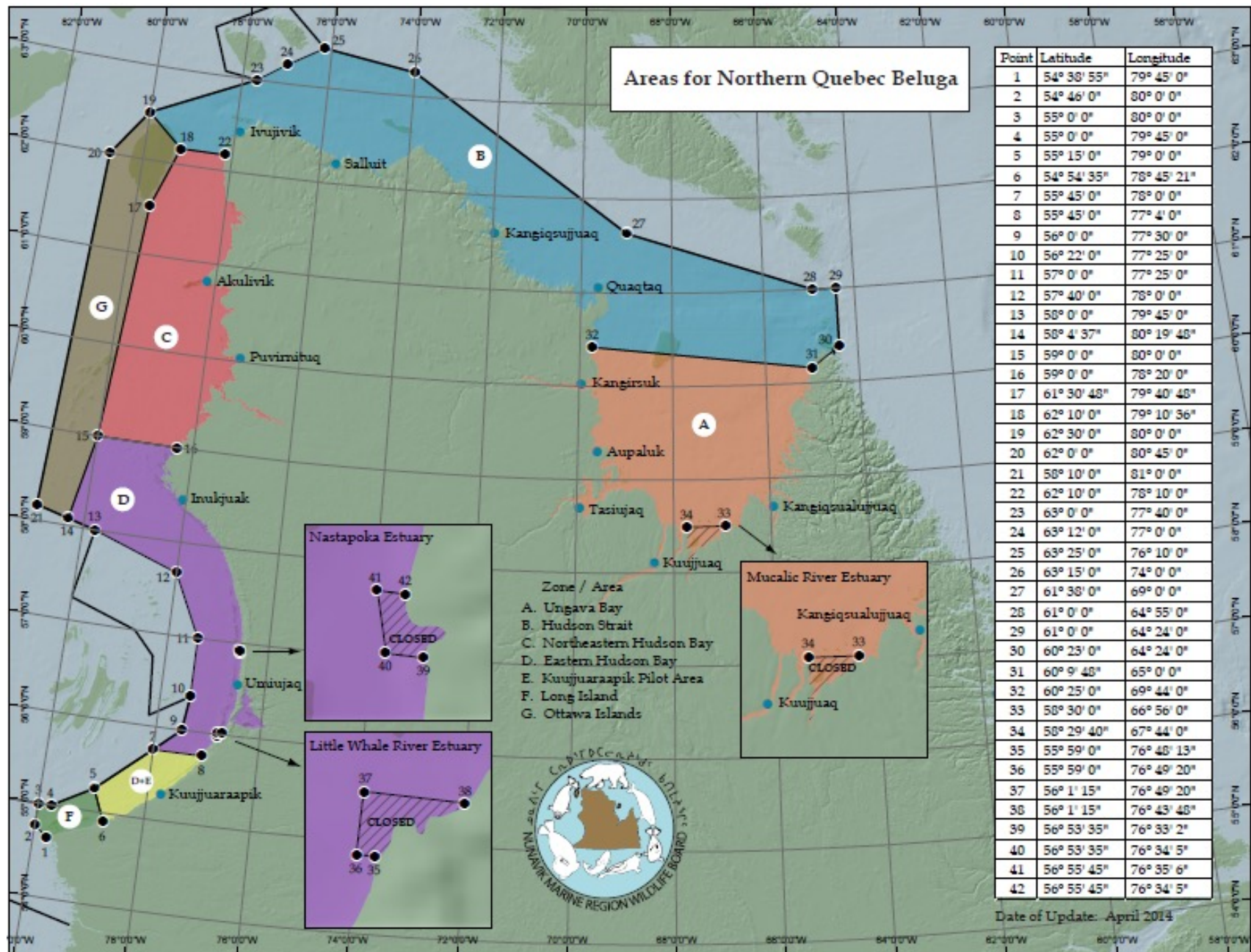
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8 Appendices

8.1 Map of Hunting Area Boundaries

*** Map to be modified based on accepted decision ***



8.3 Action Plan for Trapped Whales

Purpose

The purpose of this action plan is to provide a procedure to follow when a whale entrapment occurs.

Action Plan

For every entrapment, LNUK/NMRWB should advise the Quebec DFO office as soon as possible with the following information:

- Location: latitude and longitude, distance from community;
- Approximate number of whales;
- Weather conditions;
- Time whales were first seen and name of person who saw them;
- Ice conditions in the area;
- Physical condition of the whales and their behaviour; and
- Presence of polar bears in the area (any dead whales around the entrapment area).

If possible, whales should be monitored although any costs incurred will not be reimbursed. DFO will maintain records of all entrapments reported.

Hunting/Harvesting

Each entrapment should be reviewed on a case by case basis in order to determine if the whales can escape or not.

In all cases several factors are taken into consideration:

1. Is it likely that the whales will die naturally or might they escape? Whales can survive several months without eating.
2. The distance between the community and the entrapment site as well as weather and ice conditions. Is it safe for hunters to travel to the entrapment site and back?
3. TAT considerations:
 - a. If the season's TAT has not been reached and the area is open, hunters can harvest to the limit of the TAT and make every effort not to over-harvest.
 - b. If the TAT has already been reached or the area is closed and it has been determined jointly with DFO that the whales will likely die naturally as a result of entrapment, a variation order will be required to allow the legal harvest of the whales.
4. Wastage: hunters must bring back all edible parts of the whales they harvest and should only harvest what they can safely bring back to the community.

5. Sampling: every effort should be made to sample the whales and return the samples to the Nunavik Research Centre.
6. Communication: A representative of the LNUK (HFTA) or NMRWB should communicate from the site/community any development, changes or new information in regards to the harvest to the Quebec DFO office.

Whale Entrapment Information Sheet

Location of entrapment: _____

Latitude & longitude: _____

Date and time of day: _____

Distance from community: _____

Approximate number of whales: _____

Weather conditions: _____

When were the whales first seen? _____

Person who saw the whales: _____

Detailed Information:

Ice conditions in the area: _____

Physical condition of the whales: _____

Whale behaviour (what are they doing?) _____

Any indication of polar bears in the area: _____

(dead whales around the entrapment) _____

Any other details to indicate: _____

Contact Information:

Name of person reporting the entrapment: _____

Telephone number: _____

Please fax information sheet to Quebec DFO office (418) 648-7981 or contact Anne-Marie Cabana at (418) 649-6891 or via email at anne-marie.cabana@dfo-mpo.gc.ca.

8.4 Killer Whales



Fisheries and Oceans
Canada

Pêches et Océans
Canada

Killer Whale Sighting Form



Date whales were seen _____ Time _____

Location _____

GPS coordinates _____ N
_____ W

Number of whales in the group ____ Number of calves ____ Number of big dorsal fins ____

Were the killer whales associated with other animals? No

beluga narwhal bowhead whale ringed seal bearded seal

other seals (type) _____ fish (type) _____ Other _____

Activity feeding playing travelling Other (specify) _____

Circle what you saw



breach



spyhop



porpoising



calm group



tail slap



big dorsal fin
(males)

Try to take picture of

Photographs will not be used for commercial purposes and copyright will remain with the photographer



dorsal fin and
saddle patch



Eye patch



genital area

Additional Comments (including past sightings)

Name _____
Address _____

Phone # _____

Send to: Steve Ferguson, DFO, 501 University Crescent, Winnipeg, MB, R3T 2N6
ph: 204-983-5057; Fax: 204-984-2403; email: oca@dfo-mpo.gc.ca