

*Nunavut Wildlife Management Board, Public Hearing to consider approving a Narwhal Management Plan and establishing related Total Allowable Harvests and Non-Quota Limitations, Iqaluit, Nunavut, July 24-26, 2012*

**COMMENTS ON THE PROPOSED NARWHAL MANAGEMENT PLAN,  
TOTAL ALLOWABLE HARVESTS, AND NON-QUOTA LIMITATIONS**

**Nunavut Tunngavik Incorporated  
July 4, 2012**

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## **1. Introduction**

### *NTI's role and decisions proposed*

NTI represents the Inuit party to the Nunavut Land Claims Agreement (NLCA, or Agreement), which Canada signed with Inuit in 1993. In this submission, and at the upcoming public hearing, NTI on behalf of Inuit will advocate implementation of the NLCA in the narwhal management decisions that are under consideration. NTI also will support and assist the affected Hunters and Trappers Organizations (HTOs) and Regional Wildlife Organizations (RWOs).

The NLCA recognizes Inuit harvesting rights and Inuit rights to participate in wildlife management decisions. As an advocate of Inuit harvesting rights, NTI supports the conservation of wildlife. Inuit have always known that a sustainable harvest depends on conservation.

In this proceeding, DFO proposes that the NWMB approve for the first time under the NLCA a management plan for narwhal in Canada. Based on the rationale in its draft Plan, DFO also asks the NWMB to establish for the first time total allowable harvests (TAHs) for narwhal in the Nunavut Settlement Area (NSA) (ss. 5.6.16, NLCA). A number of non-quota limitations (NQLs) are also proposed for NWMB decision under s. 5.6.48 of the NLCA. The proposals are for the NWMB to decide, independently.

### *The public hearing*

The hearing schedule has been expedited at the request of DFO. While not objecting to the schedule, NTI wishes to place on the record the facts that

- 1) neither NTI nor the HTOs and RWOs have had adequate time to review the many lengthy documents appended to DFO's Request for Decision (RFD), which NTI received on May 31, 2012, a month later than the date shown on the RFD, and
- 2) the main reason given previously by DFO for insisting on a public hearing during a time of year when most HTO and RWO representatives are not available to take part – consideration of narwhal for uplisting from Appendix II to Appendix I of the Convention on International Trade in Endangered Species (CITES) – is no longer pressing, since narwhal now are unlikely to be considered for uplisting at the next CITES meeting, scheduled for March 2013.

The Board has announced that it will make an audio recording of the hearing available on request. Recognizing the importance to Inuit of the decisions that will be made, and that oral presentations on behalf of communities are likely, NTI asks that the Board also make a transcript of the hearing available.

The time available to prepare a written response to the RFD has not been sufficient for NTI to suggest any detailed edits to the version of the draft Plan that DFO has filed for approval. NTI

acknowledges that some of the changes that DFO has made to its previous draft reflect NTI's previous input. NTI reserves the right to suggest edits to the document at the hearing, and may request further time after the hearing to complete such comments.

In order to prepare for the hearing, NTI has met with the Iviq HTO and held a public meeting with HTO members in Grise Fiord. The HTO has developed both a local management plan and hunting rules for narwhal, but has not been able to complete the writing of the management plan or the hunting rules, or present the management plan and rules to the membership for review and approval due to the short timelines for the public hearing. NTI expects that the Iviq HTO will ask the NWMB to consider its members' and elders' oral presentations respecting their request to have the community narwhal quota of 20 revoked.

#### *Abundance of narwhal and recent measures taken under CITES*

The range of nearly all narwhal in Canada falls within the NSA. The current surveys presented to the NWMB by DFO show narwhal to be present in the NSA in numbers greater than any previous study period. Indeed, compared to the estimates based on surface sighting data collected in the 1970s and 1980s, the current estimated abundance of narwhal has tripled.<sup>1</sup>

It is therefore troubling to Inuit that DFO should have banned trade in the products of most NSA narwhal in 2010 for the first time since Canada began assessing the status of narwhal under CITES in 1980, on the basis that levels of harvesting by Inuit were not sustainable (Admiralty Inlet, North Hudson Bay, East Baffin Island) or that the sustainability of Inuit harvest levels could not be verified (Parry Channel, Jones Sound, Smith Sound). See RFD, page 5. As of 2012, the ban has been revoked for most NSA narwhal (RFD, page 6, and CITES 2011 NDF, TAB 10),

Only two explanations for the opposing conclusions that DFO reached in 2010 and 2012 are possible. Either the numbers of narwhal boomeranged in a mere two years with no external indicators (such as observed disease or other natural catastrophe, or an observed spike in harvesting or other type of predation) pointing in that direction, or the limits of survey knowledge respecting narwhal were not properly taken into account by the decision-makers in the CITES process. Although Inuit recognize that narwhal populations and subgroups fluctuate significantly within their natural cycles, Inuit find the latter explanation more convincing. In NTI's submission, the lessons from the CITES narwhal file that DFO and the NWMB should apply to this proceeding are that

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<sup>1</sup> In total, DFO's current abundance estimate is approximately 106,190 narwhals (RFD, page 3, May 28 2012 Addendum to RFD). Based on data collected in the 1970s and 80s, the Baffin Bay population was estimated at 34,000 (95% CI 21,600-54,600) in 1994 and the Hudson Bay population was estimated at 1,355 (90% CI 1,000-1,900) in 1984. For the early Baffin Bay estimate, see Reeves, R.R., Dietz, R. & Born, E.W. 1994. Overview of the special issue "Studies of white whales (*Delphinapterus leucus*) and narwhals (*Monodon monoceros*) in Greenland and adjacent waters". Meddr. Gronland, Biosci. 39: 3-11. Copenhagen 1994-04-22. For early Hudson Bay, see Richard, P. 1991. Abundance and distribution of narwhals (*Monodon monoceros*) in northern Hudson Bay. Can. J. Fish. Aquat. Sci. 48:276-283.

1) narwhal management decisions should be based on both science and Inuit knowledge, and

2) medium or long-term trends are a more sound basis for narwhal management decisions than short-term survey data.

In particular, in response to DFO's extensive reliance on the CITES record in its RFD and draft management plan, NTI recommends that the Board not place any substantial weight on that record when making its decisions. The 2010 CITES bans were imposed without consultation with Inuit. All the evidence available today indicates that the 2010 bans would not have been imposed had Inuit been properly consulted and their knowledge properly considered.

#### *The need for change to the management system in order to comply with the NLCA*

As a result of settlement of the court action that NTI took in order to ensure that Inuit are consulted, NTI participated with DFO in 2011 and early 2012 in discussions regarding a narwhal management plan. As DFO's submission recognizes, the NLCA prevails over laws and regulatory measures that are inconsistent with the NLCA (RFD, page 1, draft Plan, pages ii and 7). Therefore, NTI agrees with DFO that "One of the major reasons for proposing changes to the existing narwhal management regime is to further harmonize narwhal management with the provisions of the NLCA" (RFD, page 11).

In fact, with the important exception of DFO's support for the 1999-2009 Community-Based Management program, the narwhal management system that was in place in 1993 has not yet been changed significantly in order to bring it into compliance with the Agreement. Considering that the NLCA defines Inuit harvesting rights and the right of Inuit to participate in wildlife management decisions, this makes the following features of the current system problematic:

- Quantitative limits on Inuit harvesting derive from rough estimates of historical harvest levels, rather than demonstrated valid conservation concerns (s. 5.3.3, NLCA);
- Some measures, such as closure of narwhal fisheries when a quota is reached and prohibiting the harvesting of narwhal without a tag, duplicate one another, and therefore may not be necessary for conservation.

In this connection, it is useful for the Board to have in mind the Supreme Court of Canada's caution that "the 'presumption' of validity is now outdated in view of the constitutional status of ... aboriginal rights" (*R v. Sparrow*, [1990] 1 S.C.R. 1075, ruling on a challenge to the constitutional validity of a fisheries regulation based on Aboriginal fishing rights).

#### *The need for NLCA justification of most management measures going forward*

The NLCA allows for some continuation of pre-NLCA harvest limitations, on a transitional basis (ss. 5.6.4; 5.6.51). However, Inuit may reasonably expect that a comprehensive narwhal management plan presented for NWMB approval nineteen years after the signing of the NLCA should only contain limitations on Inuit harvesting that are shown to be justified according to the applicable standards set out in Article 5 of the NLCA. NTI made this position clear to DFO in previous correspondence, copied to the NWMB (NTI letters dated November 16, 2011 and February 9, 2012). Inuit did not sign the Agreement in order to wait indefinitely for their rights to be respected.

At DFO's request, as a compromise measure, NTI has agreed that the initial narwhal management plan may carry forward some pre-NLCA non-quota limitations on a transitional basis, provided that their presence in the plan does not restrict the opportunity of any Inuk or Inuit representative to have the NWMB review the limitation under Article 5's standards at any time after the plan is approved. For example, subject to comments to be received at the public hearing by the HTOs and RWOs, NTI does not oppose the draft Plan's assumption that the prohibition under s. 19 of the Marine Mammal Regulations (MMRs) against the use of non-expanding bullets when harvesting narwhal will remain in place for the time being. At the same time, NTI has stated that all quantitative limitations relied on by the Plan must be fully compliant with Article 5. This is the basis upon which NTI argues that the Board should remove the current Grise Fiord narwhal quota in this proceeding and consider instead whether or not a total allowable harvest for the Parry Channel, Jones Sound and Smith Sound summer aggregation of narwhal can be justified under Article 5, and if so at what level.

*The test for NLCA justification under s. 5.3.3(a)*

Under the NLCA, the NWMB and Minister may only limit Inuit harvesting if the limitation being considered is the least restrictive necessary to effect a purpose recognized under the Agreement. Section 5.3.3 states:

*Decisions of the NWMB or a Minister made in relation to Part 6 shall restrict or limit Inuit harvesting only to the extent necessary:*

*(a) to effect a valid conservation purpose;*

*(b) to give effect to the allocation system outlined in this Article, to other provisions of this Article and to Article 40; or*

*(c) to provide for public health or public safety.*

Considering the evidence and rationale for the proposed decisions that DFO has presented, the Board will be concerned in this proceeding mainly with the conservation purpose in subsection

a). The test to be met when the Board decides whether and on what basis to establish the narwhal harvest limitations that DFO has proposed is that Inuit harvesting may be limited “only to the extent necessary ... to effect a valid conservation purpose.” The Minister’s decision in response will be subject to the same test. In order to meet this test, a limitation established must restrict Inuit harvesting as little as necessary and, at the same time, must be truly necessary to effect a valid conservation purpose.

Although the test is broad in scope and leaves considerable room for judgment, it is not subjective or discretionary. The NWMB and Minister are responsible to make management decisions that conform to the standard.

The NLCA also provides principles of conservation to be applied in such decisions (s. 5.1.5). These are:

- (a) the maintenance of the natural balance of ecological systems within the Nunavut Settlement Area;*
- (b) the protection of wildlife habitat;*
- (c) the maintenance of vital, healthy, wildlife populations capable of sustaining harvesting needs as defined in this Article; and*
- (d) the restoration and revitalization of depleted populations of wildlife and wildlife habitat.*

With respect to the narwhal TAH proposals that the Board has been asked to consider, principle (c) is the main conservation principle that applies. (DFO’s proposals do not cite ecological balance – the balance of the life systems in which the population in question is a component – as a purpose for limiting the quantity of narwhals harvested. Similarly, habitat protection is not identified as a purpose for such limitations. Nor does DFO assert that any narwhal stock or population in Canada is currently depleted or likely to become depleted.) The guidance in principle (c) mirrors the stated objective of DFO’s narwhal stock assessment research, which is “to maintain narwhal population health and diversity, and support sustainable narwhal hunts” (RFD, page 2). The concern of the RFD and draft Plan respecting TAHs is with the maintenance of populations at healthy levels.

*Justification of a total allowable harvest, and implications for consultation and management plans*

i) TAHs and BNLs under the NLCA

A TAH for a stock or population means an amount of wildlife able to be lawfully harvested as established by the NWMB pursuant to Sections 5.6.16 to 5.6.18 of the

NLCA (NLCA, section 5.1.1).

In NTI's view, the NLCA's TAH system requires that, if it is necessary to restrict the quantity of Inuit harvest for a conservation purpose, researchers, working with Inuit Qaujimagatuqangit, (IQ) must assess how many animals can be taken from the population. That information is brought before the NWMB with a recommendation to establish a TAH. If this is done, then the NWMB must establish a Basic Needs Level (BNL) for Inuit harvesting. (The Board's narwhal BNL decisions are scheduled for the Board's September 2012 hearings.) The BNL is the guarantee to Inuit of first access to a resource whose available quantity is limited by a TAH.

The establishment of a TAH and the resulting striking of a BNL lead to special responsibilities for the RWOs and HTOs, making it all the more necessary for their active involvement in the process of developing these limitations. Neither the NWMB nor government allocates the Inuit share of TAHs between communities. The RWOs perform that role by means of allocating regional BNLs. HTOs allocate community BNLs among their members.

NTI believes that for this system to be workable at the community level, TAHs and supporting non-quota limitations (NQLs) should emerge from a process where Inuit and government work together to develop a set of shared management objectives and a common understanding as to populations (or stocks), the size of populations or stocks, whether they are increasing, decreasing or stable, the carrying capacity of the habitat, and levels of current and desired harvest, based on scientific studies and IQ. In most cases, this shared understanding should provide the basis for a management plan.

ii) Evidence required to meet the NLCA standard

Inuit have the right to harvest up to their full level of economic, social and cultural needs where a TAH has not been established, and full level of needs in this context means full level of harvest (s. 5.6.1-5.6.2, NLCA). As a limitation on Inuit harvesting that requires justification, a TAH may not be set simply because information about population levels is inadequate. There must exist a valid reason, based on evidence, to restrict the quantity of the Inuit harvest. In most cases, in order to justify a proposed limitation out of concern for conservation, the evidence should at least show:

- The size of the population or stock
- The population level capable of sustaining Inuit harvesting needs; and
- A reason to believe that the level capable of sustaining Inuit needs cannot be achieved or sustained without imposing harvesting restrictions.

In all cases, the evidence relied on should be presented in a form that enables it to be examined. Also, any remedial objective of a proposed TAH should be stated (e.g. a TAH calculated to enable the population level to increase from x to y within z years is proposed).

The method should also be stated (e.g. the proposed TAH is calculated as x% of the mean estimate of current populations).

In the NWMB's 2006-2008 public hearings on Nunavut Wildlife Regulations, NTI presented two "templates" describing the evidence that the NWMB would need in order to be able to make an informed decision on TAHs or NQLs, as follows:

### ***TAH Template***

*Section 5.3.3 of the NLCA sets out the only circumstances under which a TAH can be established. In order to accept a TAH proposal, the NWMB must be satisfied that the TAH is justified under 5.3.3. In the submission of NTI, the NWMB should make this determination based on the reasons given and the evidence provided in the proposal. To be more precise, any TAH proposal should contain the following in order to be considered for decision by the NWMB.*

- 1. Identify the population that requires a TAH.*
- 2. A management plan, developed in cooperation with the affected Inuit communities, including clearly stated, shared management objectives.*
- 3. The criterion being relied on under 5.3.3, namely (a) or (b).*
- 4. The reasons why there is 5.3.3 justification for the proposed TAH, including the reasons why the proposed TAH is considered to be the least limitation necessary to restrict Inuit harvesting.*
- 5. All the evidence used to support the reasons given – including both scientific and Inuit Qaujimagatuqangit.*

### ***NQL Template***

*In the case of non-quota limitations, in the view of NTI, any proposed limitation should contain the following in order to be considered for decision by the NWMB.*

- 1. The proposed limitation.*
- 2. The criterion being relied under the NLCA – namely section 5.3.3 or, in exceptional cases, others such as 5.7.42(c) or 5.9.4.*
- 3. The reasons why there is justification for the limitation.*

*4. All the evidence used to support the reasons given – including both scientific and Inuit Qaujimajatuqangit.*

In a letter to the Government of Nunavut respecting the proposed Nunavut Wildlife Regulations, the NWMB wrote that “the Board will not make a decision which limits Inuit constitutionally enshrined rights without receiving adequate evidence to meet the demands of section 5.3.3 of the ... NLCA” (March 31, 2006). In NTI’s submission, the Board is responsible to take the same approach in the present proceeding.

Inuit rely on the NWMB to ensure, based on evidence, that the applicable standard of NLCA justification is met before any limitation on Inuit harvesting is established.

**2. Consultation on the draft Plan**

The RFD describes the process that DFO followed in developing the draft Plan, including meetings with NTI on drafting of the document, and community consultations.

*DFO/NTI efforts to collaborate*

It is correct that NTI agreed in August 2011 that the draft Plan may propose that narwhal management be based on six stocks rather than two populations (RFD, page 9). As DFO had been managing narwhal on the basis of two populations since the 1970s, this is the primary change to the narwhal management system that the draft Plan proposes (RFD, pages 10-11; draft Plan, pages 12-16). The Board is aware that NTI’s agreement followed more than two years of effort by NTI to persuade DFO to present both a population and a summering stock TAH model to the Board for approval, as decision alternatives. The only reason that NTI agreed that the draft Plan may deal only with summering stock management is that neither NTI nor the Board has the capacity to develop a two-population model for TAH decision purposes independently of DFO, complete with scientific evidence and rationale, and NTI believed that the CITES schedule made adoption of a Canadian narwhal management plan by 2012 imperative.

The RFD states that, at the conclusion of meetings with NTI on the draft Plan, “For the most part, agreement was achieved in the short term on substantial issues” (page 9). In response, NTI wishes only to confirm that, despite best efforts, DFO and NTI were unable to reach agreement on a joint draft Plan. The draft Plan proposed in this proceeding is a DFO document.

*Community consultations*

As the RFD notes, consultation meetings on the draft narwhal management plan took place in some affected Nunavut communities between March 19 and 30, 2012. NTI participated as an observer.

The following results of the community consultations need to be recognized:

- i) The harvest allocation model on which the two-tag system to be administered by the RWOs and HTOs would depend is not yet understood by the representatives who would be responsible to apply it;
- ii) While DFO has reported to the Board what concerns the communities raised in response to the draft Plan (see the two “What we heard” documents filed with the RFD at TABs 21A and 21B), DFO has not reported to the Board or to the communities consulted whether or how these concerns are taken into account in the ensuing draft. In NTI’s submission, the community consultation is incomplete in this respect. As the courts have reminded us, meaningful consultation requires more than giving affected parties a chance to air their objections and then proceeding to do what was intended all along.

In NTI’s submission, at minimum, any Board decision to accept a related DFO proposal should be conditional on DFO completing the necessary community consultation in connection with these matters.

### **3. NTI position, including proposed revisions to the form of decisions**

In NTI’s view, the decisions that the Board makes in this proceeding should be fewer and simpler than those that DFO has proposed. In particular, the eight decisions proposed in order to support quantitative limitations (DFO #s 1-8) should be reduced to four.

NTI’s position in response to each of DFO’s twelve proposed decisions is underlined below.

#### **DFO proposal:**

##### **A. Quota Limitations – pursuant to NLCA s. 5.2.33(d)**

**1) Establish Basic Needs Level (BNL) for four narwhal stocks (Somerset Island; Admiralty Inlet; Eclipse Sound; East Baffin Island) and one narwhal population (Northern Hudson Bay) within the Nunavut Settlement Area (NSA).** Pursuant to the provisions of NLCA s.5.6.25, and as jointly agreed to by Nunavut Tunngavik Incorporated (NTI) and Fisheries and Oceans Canada (DFO), establish that the BNL for these stocks and population of narwhal within the NSA will be equal to the Total Allowable Harvest (TAH) established by the Nunavut Wildlife Management Board (NWMB)

**NTI proposed version:**

**A. Levels of Total Allowable Harvest – pursuant to NLCA s.5.2.33(d)**

**(The Board’s BNL decisions will be made on the basis of the September 2012 public hearing scheduled for this purpose. See NTI letter to NWMB dated June 8, 2012, and Board letter to parties dated June 22, 2012.)**

**2) Establish Total Allowable Harvests (TAH) for four narwhal stocks (Somerset Island; Admiralty Inlet; Eclipse Sound; East Baffin Island) and one narwhal population (Northern Hudson Bay) within the NSA. Set TAH for these narwhal stocks and population taking into consideration the current Fisheries and Oceans (DFO) advice provided on recommended sustainable harvest limits in the form of Total Allowable Landed Catch (TALC) summarized in the following table:**

Population	Stock	Survey Year	Abundance Estimate	CV	PBR	TALC
Baffin Bay	Somerset Island	1996	45,358	35%	681	532
	Admiralty Inlet	2010	18,049	23 %	299	233
	Eclipse Sound	2004	20,225	36%	301	236
	East Baffin Island	2003	10,073	31%	156	122
Northern Hudson Bay		2000	12,485* *as revised by DFO in May 28 addendum	40%	73	157* *as revised by DFO

Narwhal abundance estimates, Potential Biological Removals (PBR) and Total Allowable Landed Catch (TALC) for each stock or population (ie: Management Units), based on stock and population delineation (TAB 5, TAB 6)

CV =Coefficient of Variation, PBR = Potential Biological Removal, TALC = Total Allowable Landed Catch

**NTI proposed version:**

**1) (a) On a three-year trial basis, and provided that an adequate implementation plan for HTOs and RWOs is in place, establish Total Allowable Harvests (TAH) for four narwhal stocks (Somerset Island; Admiralty Inlet; Eclipse Sound; East Baffin Island) and one narwhal population (Northern Hudson Bay) within the NSA. (Etc. as per DFO proposal). Terms of the trial and implementation plan as per the NTI recommendations made in section 4 (b) of this submission below.**

**(b) Remove the Grise Fiord community quota pursuant to s. 5.6.51 of the NLCA, leaving the quantity of this narwhal harvest to be managed by the HTO.**

**3) Where a Total Allowable Harvest (TAH) has been established for a narwhal stock or population, the annual harvest shall not exceed the TAH.**

**NTI proposed version:**

**No such decision necessary.** (Once the NWMB has set a TAH as defined in s. 5.1.1 of the NLCA, it is the implementation responsibility of government to prohibit harvesting in excess of the total (s. 5.2.31, NLCA). The number of tags issued by DFO pursuant to s. 5.2.31 must be limited to the TAH. Taking that number of tags into account, section 5 of the MMRs prohibits harvesting in excess of the total by prohibiting the harvest of narwhals without a tag.)

**B. Non-Quota Limitations – pursuant to NLCA s.5.2.33(k)**

**4) Establishment of boundaries for five Management Units based on narwhal summer aggregations within the NSA. This includes;**

- 1) Somerset Island Management Unit**
- 2) Admiralty Inlet Management Unit**
- 3) Eclipse Sound Management Unit**
- 4) East Baffin Island Management Unit**
- 5) Northern Hudson Bay Management Unit**

Co-ordinates for boundaries for each Management Unit are included in the table in Appendix 2.

**NTI proposed version:**

**2. Same as DFO #4.**

**5) Once a Community Harvest Limit (All-Season Community Harvest Limit, Summer-Season Community Harvest Limit, Migratory-Season Community Harvest Limit), as established annually by the Regional Wildlife Organization (RWO), has been reached for a particular community, no further narwhal hunting is allowed, unless approved by the RWO under the Marine Mammal Tag Transfer Policy.**

**NTI proposed version:**

**No such decision necessary, except that provision needs to be made in the NWMB's TAH decision (NTI #1 above) for the RWO to allow a community to receive tags in excess of its normal allocation under rule #3 of the Tag Transfer Policy.** (As noted by NTI in response to DFO's proposed decision #3 above, an NWMB decision separate from the TAH decision is not necessary to prohibit harvesting in excess of the TAH, and DFO is required under s. 5.3.23 of the NLCA to issue annually only a number of tags reflective of the NWMB's TAH decision. At the community level, the RFD correctly recognizes that the RWOs are responsible under s. 5.7.6(b) of the NLCA to allocate the BNL between HTOs. Once the TAH decision reflects that an RWO will receive extra tags in one year and the same number fewer tags the following year in order to implement rule #3 in the Transfer Policy, section 5 of the Marine Mammal Regulations (MMRs) serves to prohibit harvesting in excess of the community's total by prohibiting the harvest of narwhals without a tag.)

**6) Marine Mammal Tags (Fishing Licences) can only be used to harvest narwhal within the Management Unit they are issued for.**

**NTI proposed version:**

**3. Same as DFO #6.** (This requirement is a necessary implication of the NWMB decision that each stock will have a TAH (NTI proposed decision #1 above). DFO would have to implement this rule in any event pursuant to s. 5.3.23 of the NLCA, but there is no harm in stating it in the NWMB's decision.)

**7) Partition the annual narwhal harvest according to narwhal migration for the East Baffin Island, Eclipse Sound and Admiralty Inlet Management Units. This would divide the annual harvest between two distinct seasons: Summer-Season and Migratory-Season, according to the dates recommended annually by each Hunters and Trappers Organization (HTO) that harvests from the Management Unit.**

**NTI proposed version:**

**4) a) Approve DFO's Harvest Allocation Model as the RWOs' means of distinguishing during the migratory season between migrating narwhals from other stocks and narwhals available for TAH allocation in the East Baffin Island, Eclipse Sound and Admiralty Inlet Management Units.**

**b) Establish a Summer- Season and Migratory- Season for each of these Units according to dates recommended annually by the HTO or HTOs that harvest from the Unit.**

(The rewording in a) and b) reflects the same intent as DFO's proposed decision but indicates the basis on which the RWOs would distinguish narwhals available for TAH allocation from narwhals from other stocks.)

**c) Approve DFO's issuance of Summer- Season-only and Migratory-Season-only tags respecting these three Units, in order to implement the TAHs and Harvest Allocation Model for these Units.**

**8) Establish mechanisms to close specific narwhal fisheries in each Management Unit when specific harvest limits have been reached:**

a. **For communities that harvest without seasonal restrictions** (ie: using All-Season Marine Mammal Tags), once the sum of the All-Season Community Harvest Limits within the Management Unit are reached, the narwhal fishery in that Management Unit is closed.

b. **For communities that harvest with seasonal restrictions** (ie: using Summer-Season Marine Mammal Tags and Migratory-Season Marine Mammal Tags):

i. The summer fishery in a Management Unit is closed when either of the following conditions is met:

1. Once the Summer-Season Community Harvest Limit(s) within a Management Unit are reached; or
2. Once the Summer-Season end date specified on the Summer Season Marine Mammal Tag is reached.

ii. The migratory fishery in a Management Unit is closed when either of the following conditions is met:

1. Once the Migratory-Season Community Harvest Limit(s) within a Management Unit are reached; or
2. Once the Migratory-Season end dates specified on the Marine Mammal Tag are reached.

**NTI proposed version:**

**(a) No such decision necessary.** (As discussed above under DFO's proposed decisions #3 and 5, the NWMB's TAH decisions and the RWO and HTO allocations can be enforced fully on the basis of section 5 of the MMRs. For the three Units where narwhal from other stocks are present during the migration seasons, it is only necessary to add that tags may be issued on a seasonal basis as per NTI proposed decision #4 (c) above.)

**(b) Instead, remove the limitation closing a narwhal fisheries on notice that a quota is reached, which is contained in section 23 of the MMRs.** (Section 5 of the MMRs is sufficient to achieve the conservation purpose of enforcing any TAH. DFO has not provided a justification for section 23 of the MMRs. Section

23 does not appear to be “necessary” within the meaning of s. 5.3.3(a) of the NLCA.)

**9) Measures to reduce struck and lost narwhal**

**All narwhal hunting communities should develop written plans that include practical measures for hunters to reduce the number of struck and lost narwhal.**

**NTI position:**

**Instead, section 3.7.6 of the draft Plan should be revised as per the NTI recommendations made in section 4 (d) of this submission below.**

**C. Provision of Information**

**10) Harvest reporting is required by the Regional Wildlife Organizations (RWO) and Hunter and Trappers Organizations (HTO) annually:**

a. HTO to notify RWO and DFO when their Community Harvest Limits (All-Season, or Summer and Migratory) are reached.

b. RWO to notify DFO when the sum of the Community Harvest Limits (All-Season, or Summer and Migratory) are reached in each Management Unit within their Region.

**NTI position:**

**Not a matter of NWMB jurisdiction. Annual reporting by HTOs and RWOs is appropriate.**

**D. Certification of narwhal tusks**

**11) Tusks from landed narwhal need to be inspected and certified by a Conservation Officer or Fishery Officer. The permanent attachment device would be used to affix the tusk to the Marine Mammal Tag, as part of the certification process.**

**NTI position:**

**Not sufficiently developed to be adopted and implemented at this time.**

**E. Approval of the IFMP – pursuant to NLCA s.5.2.34(d)**

**12) Approve the Integrated Fisheries Management Plan for Narwhal in the Nunavut Settlement Area (effective date 2013) and Phase One of the Marine Mammal Tag Transfer Policy described in it.**

**NTI position:**

**NTI supports the approval of the draft Plan if the following conditions are met and revisions made:**

**a) complete the community consultation on the Plan as per NTI's comment in section 2 of this submission;**

**b) revise the proposed management measures as per NTI's positions stated above;**

**c) include a firm commitment, as part of the initial three-year Plan review, to Board review for possible removal or modification under section 5.6.51 of all applicable NQLS in the MMRs that will be continued transitionally.**

**4. NTI comments on particular issues**

**a) DFO's scientific research on narwhal, and related management recommendations**

From 2008 to 2010, DFO raised concerns of narwhal summering stock depletions in Admiralty Inlet, based on a population estimate of 3600. DFO reported that the current harvest levels must be reducing this summering stock, and that this would affect the stock's genetic diversification. This recommendation was based on "DFO CSAS 2008-022 and 035 (best available scientific information)" (TAB 5, filed with RFD). DFO recommended a reduction of the Admiralty Inlet summering stock harvest level from 130 to 28. In 2010, DFO-Science completed a further aerial survey in Admiralty Inlet. The current estimated population is 18,049 narwhals, and DFO has increased its recommended harvest level for Admiralty Inlet to 233 narwhal.

As of mid-2011, DFO's best scientific information for the North Hudson Bay narwhal population was an estimated population of 3660 (DFO CSAS 2008/035). DFO recommended a total allowable catch of 57 narwhal for 2011, reduced from the previous average annual harvest of 101. In August, 2011, DFO-Science completed an aerial survey of North Hudson Bay. DFO's revised estimate of the population is now 12,485 narwhal (CSAS 2012/028), and the recommended total allowable catch is now 157 narwhal.

In both of these cases, Inuit consistently advised DFO that DFO's information was not accurate and underrepresented the abundance of narwhals. Inuit were reporting that their observations of narwhal during the summer were not indicating any reductions or significant changes in

abundance over time. Inuit did raise concerns of aerial surveys not observing narwhals during the surveys due to weather conditions, ice conditions, prey distributions and the presence of killer whales in the study areas. The making of management decisions based on scientific information that is not supported by Inuit Qaujimagatuqangit has proven to be risky. DFO's 2010 NDF report on narwhals is an example of decisions being based solely on science without consultation with Inuit.

**b) Management based on summering aggregations rather than populations: why this change should only be considered on a three-year trial basis**

The Board is being asked to replace most pre-NLCA quotas on the harvesting of narwhal with TAHs established under the NLCA. Under the NLCA, a TAH may only be placed on wildlife in the naturally occurring unit of a "stock" or "population" (ss. 5.1.1; 5.1.5; 5.6.1; 5.6.17). The reason is that this is the quantitative level at which the conservation of wildlife is concerned. As a limitation on harvesting, a TAH must also be justified under the NLCA as necessary for a valid conservation purpose (s. 5.3.3(a)). The setting of a TAH at the proper level of a "stock" or "population" is therefore a key part of the Board's responsibility to ensure that its harvest limitation decisions are justified under the Agreement. The Board has long recognized this. See, for example, the Board's July 10 2009 letter to DFO requesting DFO's evidence and rationale for proposing the setting of TAHs on the basis of narwhal summering "stocks" or "substocks" rather than populations.

DFO's proposals assert that summering aggregations of Baffin Bay narwhal should be treated as "stocks" for management purposes. Whether this assertion is supported by the evidence is an issue for the Board's decision in this proceeding. Since the division of the Baffin Bay population into "stocks" would limit quantities of harvest in each unit within the population range, statements such as the following certainly do not offer sufficient justification for TAHs under s. 5.3.3(a) by themselves:

By managing at the smaller "stock" level, instead of the much larger Baffin Bay population, it will help to conserve narwhal, reduce the potential for local depletions of stocks, and promote the conservation of genetic diversity that may result from adaptation to local conditions. This will help communities ensure that there are local narwhal stocks for their community to harvest in the future. (RFD, page 10)

The setting of a TAH on virtually any unit of wildlife would be justified under the NLCA if the mere possibility of local reductions in quantity or the promotion of genetic diversity justified limiting the right of an Inuk to harvest up to his or her full level of needs.

DFO explains that it uses "stock" in these proposals to refer simply to geographically separated groups of narwhal that Inuit harvest:

The term “stock” generally refers to a resource unit: a group of animals that are subject to hunting. The biological definition of a population is a reproductively-isolated group of animals.

Stocks defined here may or may not be populations in that sense but they are geographically segregated groups subject to hunting. The term “sub-stock” was used by the Scientific Working Group of the Joint Commission on Conservation and Management of Narwhal and Beluga (JCNB) and the North Atlantic Marine Mammal Commission (NAMMCO) to subdivide the previously known “Baffin Bay Narwhal” stock into smaller management units to reflect information on the “sub-stocks” seasonal segregation. It essentially means “stock”. This analysis refers only to management “stocks”, keeping in mind that some of these stocks may or may not be “populations” in the biological sense.

(Tab 2 to RFD, “Summary of Defining Stocks (etc)”) )

By contrast, there is no doubt that “stock”, in the TAH provisions of the NLCA, is used in the biological sense equivalent to populations. In fact, DFO’s supporting rationale does not make as sharp a distinction as the above quote suggests. DFO’s Potential Biological Removal analysis, on which DFO’s calculations of Total Allowable Landed Catch for each Unit are based, assumes reproductive isolation on the part of the units analyzed. And, as already noted, DFO’s stated objective for narwhal stock assessment research is population-based (see RFD, page 2, discussed in the **Introduction** to this submission under *The test for NLCA justification under s. 5.3.3(a)*).

DFO-Science identifies two narwhal populations in the NSA - Northern Hudson Bay and Baffin Bay - based on satellite telemetry and genetic and contaminant data. The Baffin Bay population is separated into four management units based on observed summering aggregations and satellite telemetry. According to DFO, the presence of summering “stocks” of narwhal is supported by information from Inuit in some communities who report that there are physical and behavioral differences among narwhal in their area. DFO has also acknowledged that there are summering narwhal in Parry Channel, Jones Sound and Smith Sound; however the relationship of these areas to the other four identified summering units is unknown (RFD, page 3; draft Plan, page 16).

NTI recognizes that scientific information and Inuit knowledge establish that two narwhal populations are present within the NSA. Let us review more closely the evidence that DFO has

presented in support of recognizing four summering “stocks” of Baffin Bay narwhal and managing such “stocks” on that basis:

- Satellite telemetry. DFO has captured narwhal in four locations to attach satellite tags - Tremblay Sound, Creswell Bay, Kakiak Point and Repulse Bay. The tags transmit information, on average, for a period of 6 months, with only two functioning for 12 months. In 2011, 4 narwhals tagged in Tremblay Sound were tracked into Admiralty Inlet, during the summer period. These animals travelled from one Unit (Eclipse Sound) to another (Admiralty Inlet) during the season when DFO proposes to treat these Units as separate.
- The information from Inuit collected by DFO during community visits reports aggregations of narwhals in summering areas. According to DFO, Inuit report that they have observed both physical and behavioral differences between groups of narwhals within populations. (See RFD, pages 3,10; draft Plan, page 16). However, Inuit also identify movements of these groups, and emphasise the lack of fidelity of individuals and subgroups to specific summering areas. (See, for example, DFO’s “synthesis” report, filed with the RFD at TAB 4). The Inuit knowledge and observations relied upon by DFO do not support the management of narwhal based on summering aggregations.

Further reports from Inuit of which NTI representatives are aware emphasize the fluidity of narwhal aggregations. In several places in the past few decades, Inuit have observed substantial movements of narwhal groupings.

Inuit reported a movement or displacement of narwhals during the summer beginning in the late 1970’s from Admiralty Inlet, which was assumed to be a result of increased shipping traffic into Admiralty Inlet (Nanisivik Mine). This trend was highlighted by an entrapment of narwhal in Agu Bay in October 1979, and a second one in October 1980 in Quilliam Bay. The displacement in Admiralty Inlet was temporary, lasting about a year.<sup>2</sup>

Inuit in the Pelly Bay area reported a significant increase in the numbers of narwhal in this area beginning around 1986, which has continued to date.<sup>3</sup> This increase in the area is verified in the increased harvest levels of narwhal shown in Appendix 2 of the IFMP for the period 1999-2010.

Inuit in the Eclipse Sound area have recently reported an apparent displacement of narwhal from this area in the past few summers, which has also been documented by the movement of a narwhal with a satellite tag in the summer of 2011. This reported displacement of narwhals from Eclipse Sound is attributed by Inuit to increased activity (shipping and research) related to the

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<sup>2</sup> Information based on observations and interviews of Inuit in Igloodik and Arctic Bay in 1979-1981 by Glenn Williams, NTI Wildlife Policy Advisor.

<sup>3</sup> Information from Gabriel Nirlungayuk, NTI Director of Wildlife and Environment.

development of a mine in the area. The harvest levels in Eclipse Sound reflect the reported displacement of narwhal as shown in Appendix 2 of the IFMP.

NTI anticipates that Inuit in the Jones Sound area will report to the NWMB at the upcoming hearing that they have observed an immigration of narwhal that appear to be females with calves and younger sub-adult animals that previously were not regularly seen during the summer in these areas.

In the summer of 2011, Inuit of the Coronation Gulf area harvested ten narwhal near Cambridge Bay, which is a community that has neither a community quota nor a history of harvesting narwhals. Appearance of narwhals in this area was attributed by Inuit to the presence of killer whales, which were observed in the Coronation Gulf area in 2011 for the first time.

The observation of summer aggregations of narwhals in identified areas is agreed to by everyone. However, the fidelity of narwhals to the summering areas is unclear. The conclusions made by DFO-Science are based on a small sample of narwhal from a Baffin Bay population that is estimated at over 90,000 animals.

Inuit have observed that narwhal distribution/abundance is influenced by movements of prey species (polar cod), distribution of summer ice cover, presence of killer whales, and human/industrial activities. In summary, Inuit have observed and reported movements over the past 35-40 years which demonstrate significant displacement and movements of narwhals, for intervals of one year as in Admiralty Inlet and up to 26 years as in the Pelly Bay area.

Based on the scientific evidence of summering “stocks” reviewed above, DFO unilaterally instituted the summering stock management of narwhal in 2010, applying this approach to Canada’s 2010 CITES Non-Detriment Finding (NDF) assessment of narwhal. The immediate result was a reversal of many previous positive assessments of Baffin Bay harvest levels and an export ban on the sale of narwhal tusks from nearly all of the communities that harvest Baffin Bay narwhal, based on DFO’s finding that harvest levels are unsustainable or – in the case of Parry Channel, Jones Sound and Smith Sound narwhal - cannot be verified as sustainable. At the time, DFO emphasized that the current scientific information is the best available information. DFO has repeatedly presented as fact to NTI and Inuit that, in order to continue with international trade in narwhal tusks, Canada must adopt the proposed summering stock management system in Nunavut.

NTI does not endorse the summering stock management approach to narwhal management at this time. In NTI’s view, the scientific support for this approach is weak, and the risks of poor functioning of the system fall disproportionately upon Inuit harvesters. NTI is concerned, for example, that the two-tag system based on this approach, which DFO advises will optimize Inuit harvesting over the yearly harvest cycle, will in fact reduce Inuit harvest levels for many Inuit families annually, by restricting the choice that an Inuk has as to when to go hunting. The only reason that NTI does not oppose DFO’s proposed decisions #2,4,5 and 6 in their entirety in this

proceeding is the fact that DFO advises that continued international trade under CITES would not be possible without this change to the system. As NTI indicated in the **Introduction** to this submission, such advice confirms that something is seriously wrong with the implementation of CITES in Canada.

NTI Recommendations:

- NTI recommends that the NWMB review the management of narwhal based on summering stocks rigorously within three years of the new system's implementation, and that DFO undertake to carry out the data collection and analysis necessary for such a review. The review should include a thorough analysis of both Inuit harvesting patterns and levels, and the conservation justification for the associated TAHs under section 5.3.3 of the NLCA. Evidence of significant infidelity to summer aggregation areas should be fully considered in the assessment of justification. There should also be regular three-year NWMB reviews thereafter over at least a further six years. DFO's proposed management plan would introduce a number of first time management initiatives, such as management units, a two tag system (for four communities), harvesting seasons for those communities, a complex allocation model and tag transfer policy. This new system will require constant monitoring and amending to ensure a functional management system for narwhals.
- DFO also should commit to prepare, within three months of the final decisions in this proceeding, an implementation plan for the new system, including both a work plan and adequate budget for the training and monitoring of the HTO staff that will administer the allocation of tags and reporting to DFO that will be expected.

### **c) Decision to consider a TAH for the Parry Channel, Jones Sound and Smith Sound aggregation**

*Whether the Board should make a TAH decision*

DFO proposes that, alone among aggregations of Baffin Bay narwhal, the narwhal in Parry Channel, Jones Sound and Smith Sound should remain subject to a pre-NLCA quota (see page 12, draft Plan).

In advancing this position, DFO seeks to rely on the NLCA's transitional provision for pre-NLCA quotas (s. 5.6.4). For the past nineteen years DFO has treated that provision as allowing quotas imposed before the NLCA was signed to continue in force, pending action from the NWMB, without any necessary consideration of Inuit rights. The Grise Fiord community quota for these narwhal has remained unchanged since its establishment in 1975.

In NTI's view, too much time has passed, and too much effort put into a management plan process that is meant to be "comprehensive" (RFD, page 5), for the Board simply to avoid

making any quantitative decision in this proceeding about one narwhal “stock” in the NSA. Grise Fiord hunters deserve better respect for their rights. If it is too soon for the NWMB to make a TAH decision on this “stock” of narwhal, it is too soon for the Board to consider approving a narwhal management plan for the NSA.

Further, as NTI pointed out in its June 8 2012 letter to the Board, once the Board commits to review a pre-NLCA limitation pursuant to section 5.6.4, it must act “in accordance with [Article 5]”. This means that the only quantitative decisions available to the Board respecting this “stock” of narwhal are whether or not the setting of a TAH is justified under s. 5.3.3(a) of the NLCA, and if so, at what level the TAH should be set.

Once the Board commits to review the Grise Fiord quota, there is no option to continue the quota without setting a TAH.

### *Justification*

If the Board agrees with NTI that a Board TAH decision for this “stock” is due, DFO’s evidence and rationale fall to be examined to determine whether, or on what level, they may justify a TAH.

In fairness, NTI acknowledges that DFO may seek to avoid the NLCA justification analysis for a TAH on this “stock” precisely because it is doubtful whether any TAH would limit Inuit harvesting “only to the extent necessary ... to effect a valid conservation purpose” (s. 5.3.3(a)).

DFO has not offered any evidence of a known or suspected threat to these animals in the period from 1975 to the present, such as an indication of reduction in their numbers or diminishment of their survival prospects or their ability to reproduce.

Indeed, DFO’s scientific evidence would appear to indicate that the Baffin Bay population has more than doubled since 1975. DFO reports that the relationship of narwhal that summer in these areas to other Baffin Bay narwhal is not known. If the Parry Channel, Jones Sound and Smith Sound aggregation belongs to the Baffin Bay population, this aggregation likely has been growing rather than decreasing.

As noted above (**4 (b)**) NTI expects that Grise Fiord hearing participants will report to the Board sightings of females and calves in Jones Sound in recent years, tending to confirm the stability and health of this grouping.

Assuming for the sake of argument that there were a small and therefore relatively vulnerable natural stock of animals in these summer areas, the analysis would at least have to consider whether reasonably foreseeable levels of harvesting by the community of Grise Fiord would likely pose any significant threat to such a stock. (A TAH would not be justified if it would have to be set at such a high level of harvest that the level is not likely to be reached. Such a limit would exceed “the extent necessary” under s. 5.3.3.) Here DFO’s proposals furnish no evidence

or knowledge-based implications of risk whatsoever. There is no indication in DFO's proposals that foreseeable levels of harvesting by Grise Fiord harvesters pose a real risk of any significant harm to this aggregation of narwhal. The only statements that appear potentially relevant in the RFD are as follows:

A precautionary approach to fisheries management links harvest recommendations with stock assessment data. Lower harvest levels are recommended when stock assessments are uncertain, to avoid serious harm to fish or marine mammal stocks or their ecosystem. A lack of stock assessment data should not be used as a reason to postpone (or fail to take) management actions. This approach is widely accepted as an essential part of sustainable fisheries management." (page 2)

#### CITES and assessment of sustainability of Canadian narwhal harvests

...

Each narwhal Management Unit was considered individually with respect to making a CITES NDF using information available regarding population estimates, the recommended TALC, and the recorded harvest levels for the past five years. As a result of this analysis, the CSAS advice identified the following conservation concerns for 2010 in four of the six narwhal Management Units:

...

- Owing to the lack of data available for the Parry Channel, Jones Sound, and Smith Sound Management Unit, the sustainability of current harvest levels cannot be verified.

The report made the following recommendations:

...

3. Obtain baseline information for the Parry Channel, Jones Sound, and Smith Sound Management Unit to aid in determining the sustainability of harvests in this Management Unit.....(pages 4-5)

These statements are abstract. In order to place them in the context of foreseeable harvest levels, the Board should consider the proposal to the Board that NTI understands will be made at the public hearing by the Iviq HTO in Grise Fiord. The HTO intends to present a community management plan and hunting rules to the NWMB, requesting that the Board remove the current community quota of 20 on the strength of the HTO's initiative. In its plan, the HTO will identify a current need for 50 narwhal for the community. The HTO will propose to enact by by-law its own limitation to this effect, together with supporting non-quota limitations, in the exercise of its NLCA authority under sections 5.7.3 (a) and (b). The HTO will undertake to ensure that all

members are issued narwhal tags from DFO, and that all the regulations pertaining to narwhal in the MMRs may be applied to the hunting of narwhal in these areas.

In NTI's submission, the HTO's proposal will remove any reasonable justification for a TAH on this aggregation of narwhal under the NLCA. Provided that the Board is satisfied that this HTO's members are not likely to harvest in excess of the community limit of 50, there is no reasonable basis on which the Board could find that a TAH is necessary to effect a valid conservation purpose for this aggregation of narwhal.

Returning to DFO's abstract statements above, NTI's comments are as follows:

- DFO has not suggested that the precautionary approach is a reason for the Board to ignore Inuit harvesting rights or to put to one side the NLCA standard for justifying limitations on Inuit harvesting when the Board makes conservation decisions under the NLCA;
- The precautionary approach itself does not justify purely speculative management measures. Any responsible application of the precautionary approach must be based on some real indication that significant harm could come to the wildlife that is being managed if action were not taken. The need for credible evidence of concern before intervening to restrict the use of a resource is a key component of the federal government's policy on how to apply the precautionary approach in the field of resource regulation: Government of Canada, *A Framework for the Application of Precaution in Science-based Decision Making about Risk* (Privy Council Office, 2003). The Framework states that the precautionary principle "cannot be applied without an appropriate assessment of risks." (page 3), that "Sound scientific information and its evaluation must be the basis for applying precaution" (page 7) and that "[t]he emphasis should be on providing a sound and credible case that a risk or serious or irreversible harm exists" (page 7).
- DFO's guiding policy on precaution, the "[Fishery Decision-Making Framework Incorporating the Precautionary Approach](http://www.dfo-mpo.gc.ca/fm-gp/peches-fisheries/fish-ren-peche/sff-cpd/precaution-eng.htm)" (<http://www.dfo-mpo.gc.ca/fm-gp/peches-fisheries/fish-ren-peche/sff-cpd/precaution-eng.htm>) states that it is based on the Government's Framework. DFO's policy does not relieve fisheries decision-makers from responsibility to base their actions on credible assessments of the risk of serious or irreversible harm. In particular, this policy assures Inuit and other holders of Aboriginal harvesting rights that the policy "is guided by the principle that the fishery is ... to be managed .... consistent with ... the constitutional protection afforded Aboriginal and treaty rights". Based on that assurance, Nunavut Inuit should be able to rely on DFO to present any proposals to the NWMB for limitations on Inuit harvesting squarely in the context of s. 5.3.3 of the NLCA, explicitly demonstrating why and on the basis of what evidence DFO considers proposed limitations to be justified under the NLCA.

- The threshold of concern that responsible application of the precautionary approach depends on has not been demonstrated in the case of a total allowable harvest limit on Parry Channel, Jones Sound and Smith Sound narwhal. If DFO undertakes and reports any research on this aggregation, the Board can revisit this question again.

Excerpts from the NTI Wildlife Department's November 2011 response to the Nunavut Caribou Strategy are attached as an Appendix to this submission, in order to provide DFO and the Board with a more complete presentation of NTI's views as to how the precautionary principle should be applied in the making of wildlife conservation decisions under the NLCA.

Finally, it is important to emphasize that these comments regarding a TAH decision for the Parry Channel, Jones Sound and Smith Sound summer aggregation of narwhal are offered on the assumption that this aggregation is a naturally occurring stock. If it is not – and scientific evidence does not demonstrate that it is – the Board would have to set any TAH on the basis of any larger natural stock or population of which this aggregation forms a part.

#### **d) Measures to reduce struck loss/rates (DFO proposed decision #9)**

NTI has been actively working with the North Atlantic Marine Mammal Commission (NAMMCO) committee on Hunting Methods for several years. The Hunting Committee has held five workshops; in 1999 on "Hunting Methods", in 2001 on "Weapons Ammunition and Ballistics", in 2004 "Hunting Methods for Seals and Walrus", in 2006 on "Struck and Lost" and in 2011 "Expert Group meeting to assess the hunting methods for small cetaceans". The workshop to address struck and loss in marine mammals harvesting had the following terms of reference;

- Review hunting methods for seal, walrus and whale with respect to the problem of "struck and lost"
- Identify possible studies of struck and loss to be undertaken in cooperation between researchers and hunters, in order to achieve accurate and reliable estimates of struck and loss
- Identify the reasons why some hunts have a high or low struck and loss rate
- To make recommendation on how to reduce struck and loss in consideration of hunting techniques, equipment modifications, season, locality and reduction of animal suffering.

The workshop made six recommendations to management authorities, hunters and researchers;

- **Minimize animal suffering** by minimizing killing times, which is balanced by consideration of the safety of the hunter and the risk of losing the animal.

- **Monitoring** – accurate estimation of struck and lost is important for effective management and essential to improve hunting practices. Monitoring programmes that are appropriate for local conditions should be developed that could produce accurate information that will be accepted by hunters and managers, with full cooperation between hunters, managers and researchers.
- **Proper training of hunters** – training in both theoretical and practical aspects of hunting, and that training materials and programmes should be appropriate to local conditions.
- **Hunting equipment** – that hunters should always carry weapons and equipment appropriate to the target species and local hunting conditions.
- **Cooperative management** – the hunters should be involved in the marine mammal management process and that the design, development and testing of new weapons and hunting equipment should be done in cooperation with hunters.
- **Sharing of technology and knowledge** – there should be open exchange and sharing of information about new weapons, equipment and hunting techniques, and that this should be done on both a national and international level.

Section 3.7.6 of the draft Plan, “Reducing Loss Rates”, refers to the MMRs that are currently in force to address the reduction of struck and loss rates in narwhal hunting. NTI’s position is that, for the purposes of approval of the initial management Plan, this is sufficient at this time. DFO’s proposed decision #9 is not a measure that would reduce struck and lost rates in narwhal harvesting.

NTI Recommendations:

NTI recommends the following measures be taken to appropriately address reducing struck and lost rates in narwhals and all other marine mammal harvesting;

- That DFO working with co-management partners develop and support a monitoring program that will document accurate estimation of struck and loss rates of narwhal hunts from the floe-edge, ice crack and open water seasons in more than one community;
- That DFO working with co-management partners develop and support research projects to document the efficiency of current hunting equipment (rifles and ammunition) in order to recommend improved methods and equipment to improve time to death rates for marine mammals;
- That co-management partners work to develop training materials (manuals) that can be used to teach theoretical aspects of hunting marine mammals.
- That DFO staff engage in national and international workshops to share knowledge and technology with other marine mammal managers like NAMMCO.

Accurate and current information regarding the total removal levels of any species is critical to the proper management of the species. The collection of accurate struck and loss rates is not only important to the responsible management of the resource but is also a tool to evoke change in harvesting methods and techniques amongst harvesters. This change will not occur solely as a result of the drafting of plans to reduce the number of struck and lost narwhal. If struck and loss rates are a priority management concern to DFO and the NWMB, then it will require a commitment of resources and effort to engage with hunters, evaluate the current harvesting practices and address the recommendations of the NAMMCO “Struck and Loss” workshop.

**e) Reporting, inspection and certification: further work required on DFO proposed decisions #10 and 11**

*HTO/RWO harvest reporting (DFO proposed decision #10)*

While the NWMB is the main instrument of wildlife management in the NSA under the NLCA, HTOs and RWOs have unique NLCA roles. For example, an HTO can regulate the harvesting practices of its members under s. 5.7.3(a) without having to meet the justification standard that applies under s. 5.3.3 to Board and Ministers’ restrictions on Inuit harvesting. While the NWMB’s NLCA powers are broad, the Agreement does not make the NWMB responsible to supervise the exercise of HTO/RWO responsibilities.

The NWMB could make a recommendation of this nature instead. Alternatively, or in addition, HTOs and RWOs could commit to such reporting by adopting policies or by-laws.

In any event, season-end reporting is not necessary, because the management system does not need a mechanism to close narwhal harvest seasons. An individual that harvests narwhal without a tag, or using a tag for the wrong season in Units where this could occur, would be in breach of section 5 of the MMRs. Year-end reporting by HTOs and RWOs, on the other hand, would in NTI’s view be necessary and appropriate.

*Certification of narwhal tusks (DFO proposed decision #11)*

If this is an NQL, it will require justification as per 5.3.3. No justification has been given by DFO. A way has not yet been found to affix the tag to the tusk without damaging the tusk and causing a reduction in its value. In order to have merit, such a process must work for hunters as well as regulators, and must not devalue to tusks whose trade the system should be promoting. (The MMR’s currently require the hunter to attach the tag to the tusk or carcass immediately after the kill, but to take to the fisheries officer afterwards only the portion of the tag on which the hunter has marked the month of the harvest and sex of the animal harvested: s. 24).

Also, such a requirement would appear to impede trade in tusks by preventing a community's hunters from selling their tusks when the Wildlife Officer or Fisheries Officer is absent from the community.

## APPENDIX A

### **The role of the precautionary approach to wildlife management in the justification of limitations on Inuit harvesting under the *Nunavut Land Claims Agreement* - excerpts from the November 17, 2011 response of the NTI Wildlife Department to the draft Nunavut Caribou Strategy**

...

In response to the draft Strategy statement, first I would like to express NTI 's support for the following passages of the draft Strategy, which help a great deal to explain how the precautionary approach should operate in Nunavut when caribou management decisions are made under the NLCA:

“[T]he NLCA recognises the need for a system of wildlife and land management that provides optimum protection to the renewable resource economy and the harvesting rights, privileges and priorities of Inuit. In doing so, it is recognised that Inuit systems of wildlife management contribute to the conservation of wildlife and protection of habitat.”

(p. 12, under “Vision”)

.....

“The Strategy is intended to recognize and support the Principles (Section 5.1.2) and Objectives (Section 5.1.3) set out in Article 5 of the NLCA. Pursuant to Section 5.1.5 of the NLCA, this strategy seeks to develop an environment in which caribou management decisions are based on sound information and are governed by and subject to the principles of conservation. ... Through this strategy and the actions within it, there is also intent to engage the public and promote confidence in caribou management by inviting participation, enhancing communication and promoting a common understanding, as described in Section 5.1.3 (b) v.”

(p. 11, under “Scope and Intent”)

....

#### **4.0: *Aajiqatigiinniq (Collaborative Decision Making)***

... A framework of legislation and policies is needed to ensure decisions are objective, accountable, consistent and effective. ...

Within this legislative and policy framework, there is a need to ensure that decision-making processes operate effectively. Decisions affecting caribou must be anchored in a solid information base, respectful of the principles of conservation, and considerate of the long-term economic, social and cultural interests of Inuit. To promote understanding and confidence in caribou management, decision-making processes must be transparent, inclusive and inviting to stakeholders and the public

(p. 24)

Based on those passages, NTI would expect any statement in the Nunavut Caribou Strategy explaining how the precautionary approach informs caribou management decisions for the Nunavut Settlement Area (NSA) to reflect the following understanding:

1. Inuit have rights to harvest caribou under the NLCA.
2. The NLCA balances Inuit harvesting rights with recognized authorities of the Government of Nunavut and Nunavut Wildlife Management Board (NWMB) to manage caribou harvesting. A key to this balance is the standard for justifying limitations established by government and the NWMB on Inuit harvesting, contained in s. 5.3.3. The Government of Nunavut's responsibility to manage caribou does not lie outside the scope of the NLCA, or stand in opposition to the NLCA in any respect.
3. The NLCA's balance between Inuit harvesting rights and government/NWMB's management authorities takes into account a wide range of factors.
4. Among those factors is the importance of exercising appropriate caution when making caribou management decisions. For example, the NLCA's principles of conservation, set out in s. 5.1.5, contain different measures for what may be considered "necessary" to limit Inuit harvesting under 5.3.3(a), depending whether the caribou population is sustaining Inuit harvesting or is shown to be depleted. The same limitation that properly would be considered necessary where the population is shown to be depleted and therefore needs to be restored or revitalized may not be considered necessary if the population is sustaining Inuit harvesting needs. In other words, the NLCA permits government/the NWMB to exercise more caution when restricting Inuit harvesting if a caribou population is shown to be depleted.
5. The precautionary approach is not a factor separate from NLCA factors. It is already relevant under the NLCA to assessing the evidence and rationale necessary to justify a limitation on Inuit harvesting of caribou. However, under the NLCA, it is only one factor to be considered.

6. The NLCA is a land claims agreement that has legislative effect, is constitutionally protected, and is paramount where legislation or a policy established under legislation conflicts with the NLCA. Therefore, while the precautionary approach is a relevant factor to be considered in caribou management decisions, the precautionary approach cannot reduce the standard required by the NLCA for justifying any proposed government/NWMB limitation on Inuit harvesting rights.

7. It follows from the NLCA's standard for justifying limitations on Inuit harvesting that there must always be credible evidence that limiting Inuit caribou harvesting is necessary before a government/NWMB limitation will be justified. Credible evidence can come from a range of sources, including Inuit harvesters.

8. Any statement of principle adopted by the Government of Nunavut explaining how the precautionary approach may inform caribou management decisions in the Nunavut Settlement Area should advise that there must be credible evidence of a legitimate caribou management concern recognized under the NLCA before the precautionary approach can be considered as a factor in the decision.

9. The need for credible evidence of concern before intervening to restrict the use of a resource is also part of the federal government's policy on how to apply the precautionary approach in resource regulation: Government of Canada, *A Framework for the Application of Precaution in Science-based Decision Making about Risk* (Privy Council Office, 2003). The Framework states that the precautionary principle "cannot be applied without an appropriate assessment of risks." (page 3), that "Sound scientific information and its evaluation must be the basis for applying precaution" (page 7) and that "[t]he emphasis should be on providing a sound and credible case that a risk or serious or irreversible harm exists" (page 7).

10. Where there is credible evidence of a legitimate caribou management concern, and Inuit communities are meeting the concern by employing Inuit systems of wildlife management, including HTO/RWO powers of self-regulation recognized under the NLCA - or where Inuit communities can do so - Government limitations will not be "necessary" under the NLCA, regardless whether or not the precautionary approach is relevant.

11. Where there is credible evidence of a legitimate caribou management concern, there should always be consultation with the Inuit communities affected before a caribou harvesting limitation is proposed to the NWMB, including consultation about

- Inuit harvesters' evidence regarding the concern;
- the prospects for Inuit self-regulation as a sufficient response to the concern;
- the likely impacts on harvesting of any government limitation that is being considered, and Inuit harvesters' views as to whether such impacts are undue, unreasonable or greater than necessary to meet the concern,

- how to accommodate Inuit harvesting interests in the light of these factors.

12. To emphasize, the NLCA does not permit the precautionary approach to be used as justification for government to restrict Inuit harvesting where the Government in question has not presented credible evidence sufficient to show that the restriction is necessary.

Based on that understanding, NTI would ... support the following ... wording:

**“The role of precaution under the standard for justifying limitations on Inuit harvesting**

In accordance with the Wildlife Act and the NLCA, the best available information must guide caribou management decisions made on behalf of the GN. Decisions to take measures that would limit Inuit harvesting must meet the justification standard provided in the Act and NLCA. Such decisions must be based on credible evidence, sufficient rationale, and sufficient consultation with affected Inuit harvesters.

A management decision to limit Inuit harvesting that is made in the absence of certainty may be justified, and the absence of certainty is not a reason to postpone such a measure if the limitation is justified. Every effort, however, must be made to fill gaps in our knowledge which create uncertainty.

A significant risk of harm to the vitality or health of a population that is indicated by credible evidence is relevant to assessing whether a measure is justified. The ability of affected Inuit harvesting communities to manage the concern according to their own authorities and systems of management will be a primary consideration in all cases.”

This issue is of central importance to wildlife management in Nunavut. NTI representatives would be pleased to discuss my response with GN representatives at a mutually convenient time in the near future.

...

Gabriel Nirlungayuk,  
Director of Wildlife  
Nunavut Tunngavik Incorporated

## APPENDIX B

### NTI comments on the Department and Fisheries Oceans Canadian Science and Management documents

#### General comments

##### *Abundance and distribution*

- Two narwhal populations are currently recognized in Canadian waters by the Department of Fisheries and Oceans and the Committee on the Status of Endangered Wildlife in Canada. They are the Baffin Bay population comprised of at least 4 summering aggregations and the North Hudson Bay population. Neither population is considered at risk of extirpation or extinction. The Baffin Bay population is estimated to number over 90,000 animals and the most recent estimate for the North Hudson Bay population is about 12,000 animals. These values represent the highest estimates produced for the species in Canadian waters. For example, in 1994, the Baffin Bay population was estimated to number approximately 34,000 animals (95% CI 21,600-54,600) (Reeves, Dietz, & Born, 1994). In 1984, the Hudson Bay population was estimated to number approximately 1,355 animals (90% CI 1,000-1,900) (Richard, 1991). However, in both of these cases, the estimates were based on numbers of animals seen at the surface. A 1996 aerial survey of a large part of the summer range in Canada produced an estimate of 45,358 (95% CI 23,397-87,932) for a large range of the narwhal population (Innes, Heide-Jorgensen, Laake, Cleator, Richard, & Stewart, 2002).
- The Baffin Bay population is considered to be comprised of at least four summering aggregations. These aggregations represent stocks that are demographically independent units. However, the exact relationship between these summering stocks and the wintering population is unknown. The summer stock structure is a working hypothesis which primarily relies upon information from a small sample of satellite tagged animals. There is little to weak genetic, contaminant, stable isotope, or other lines of evidence that currently provide support for this hypothesis.

##### *Management*

- Management by summering stocks is new and only recently presented to Inuit. There has been limited consideration of the effects of implementing this management system. Previous reviews of Community Based Management of narwhal revealed a number of challenges that included issues related to communication, staff support and funding support.

- There is a relatively high degree of complexity in the proposed allocation system which has no implementation plan. Communities and more specifically Hunter's and Trapper's Organizations and Regional Wildlife Organizations are expected to implement this system with little to no planning.
- The total allowable landed catch (TALC) levels recommended in this document for narwhal summering stocks represent values of 0.6% to 1.3% of the estimated stock or population (See Appendix 1). This is a significant difference from a previous response that Canada supplied to the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) wherein Canada indicated a harvest of 2.5% to be sustainable for the population (Convention on International Trade in Endangered Species of Wild Fauna and Flora, 1996).

### Specific comments

#### 1. The structure of Baffin Bay summering stocks is uncertain. Summering stocks for Baffin Bay are not genetically distinct.

Currently, there is no conclusive evidence to assume that the summering stocks for Baffin Bay are genetically distinct.

*“Despite preliminary indications of some population structuring, at the present time it is unknown whether any of the Baffin Bay summer aggregations are genetically distinct.”* (DFO, 2012, pg. 3)

Therefore, the purpose of promotion of conservation of genetic diversity as provided in the discussion of the DFO population delineation document is not supported for stock delineation.

*“It is [sic] also promotes the conservation of genetic diversity which may result from adaptation to local conditions.”* (Richard, 2010, pg. 1)

However, there is still the potential for local depletion if summer site fidelity is a critical component of the Baffin Bay population dynamics.

#### 2. The use of Potential Biological Removal (PBR) for narwhal management is new and some factors appear inconsistent in its application.

The PBR method is a technique that was developed by the United States National Marine Fisheries Service that calculates limits to human-caused mortality of cetaceans. Its aim is to provide the maximum number of animals that may be removed from a population or stock while allowing the population or stock to reach or maintain its optimum sustainable value. The method explicitly takes into account uncertainty and potential biases in the available information by using the minimum population estimate (20<sup>th</sup> percentile of the log normal

distribution of the population size estimate), a fixed coefficient of 0.5, a maximum annual population growth rate, and a recovery factor coefficient that ranges between 0.1 and 1.

However, there is no rationale provided on the value of recovery factors that are being used for different stocks. For example, it does not appear to follow a process or independent expert assessment such as provided by COSEWIC. Instead, it appears to be set at the discretion of DFO personnel.

*“Applying a PBR calculation to a very outdated survey is undesirable and in some cases this introduces considerable uncertainty; if new survey data are not obtained, at minimum the recovery factor in the model should be reduced from 1.0 to 0.5.”* (DFO, 2011, pg. 9)

To calculate the PBR for the Admiralty Inlet stock in 2008, a minimum population estimate of 3600 animals and a recovery factor of 0.5 was used despite acknowledgement by the authors that there were major issues with the survey effort and that the population estimate was likely biased.

*“The northern and central parts of Admiralty inlet were surveyed in poor visibility conditions due to rain, while the southern part of the inlet and adjacent fords could not be surveyed because of low ceilings. Once again, despite higher coverage, the survey design missed a large herd of narwhals, which was observed while in transit between two transects in the middle of the inlet. As in 2003, the rough counts made of narwhals in that herd are probably low because the numbers were over-whelming. Worsening weather did not allow us to finish the survey area or to make a second attempt”.* (Richard, Laake, Hobbs, Heide-Jorgensen, Asselin & Cleator, 2010)

One must assume the status of this population was assessed as depleted since the recovery factor was set at 0.5. This conclusion was drawn despite information that the estimate was biased and concerns expressed by the community, HTO, and RWO that the survey was inadequate to make an assessment.

*“For populations not known to have been depleted, the recovery factor is set to 1 as was done here except for Admiralty Inlet where it was set to 0.5.”* (DFO, 2008, pg. 3)

This eventually led to the harvest being assessed as unsustainable and a negative Non-Detrimental determination for this stock was unilaterally designated by DFO.

*“Given that the quota/harvest limit for this management unit is nearly five times greater than the recommended TALC, current harvest levels are considered unsustainable. The proportion of other management units harvested in the spring is unknown, as is the extent to which other communities are harvesting from this management unit at different times of the year. Although a new survey was conducted in 2010 and its results may lead to a revised population abundance estimate, those data are not yet available and cannot be taken into consideration in this assessment.”* (DFO, 2010, pg. 4)

After the 2010 population analysis for Admiralty Inlet was completed, the population estimate that was generated numbered 18,049 animals. The recommended Total Allowable Landed Catch (TALC) became 233 animals with a recovery factor set at 1 since the population was no longer considered depleted. This is a difference of 205 animals from the 2008 recommended TALC of 28 animals. This represents an increase of about 700%. As a result, DFO Management determined that the population was not only sustainable but a retrospective analysis indicated that it has been sustainable for the past five years.

*“Narwhals are abundant, harvests are within the recently updated recommended TALC for this summering aggregation, and the outcomes of the retrospective analysis indicate sustainable harvests. This is different than the advice produced in 2010 as new abundance estimates are available and the allocation model was not yet developed.”*  
(DFO, 2012, pg. 8)

The application of PBR and selection of certain recovery factor values may be justified but explicit justifications ideally should be made transparent in order to understand the process.

**3. The use of a constant struck loss rate correction to calculate total allowable catch is a major assumption.**

The management response assumes that the struck loss rate is constant both spatially and temporally. For example, there may be large variation in the struck-loss rates for different environments (floe edge, open lead, and open water), different hunters, and different environmental conditions (rough ice, sea conditions). However, there is little to no information provided in the calculation or rationale of the loss rate corrections.

**4. There are other sources of information available for Parry Channel, Jones Sound and Smith Sound for management objectives.**

Because there are no scientific population estimates for other putative stocks which include Parry Channel, Jones Sound and Smith Sound, DFO has not generated a total allowable catch level for these stocks. This poses a serious problem for the community of Grise Fiord which has historically harvested and currently harvest narwhal for subsistence. However, there are other sources of information available for these stocks that include Inuit harvest, Inuit knowledge, and incidental observations. The harvest of this management unit has never been previously considered a threat to the Baffin Bay or North Hudson Bay populations. However, its relationship to the Baffin Bay population as well as narwhals in Greenland is considered unknown by DFO Science and Management.

*“Harvests from these areas are considered opportunistic, no population estimates exist, and TALC has not been estimated. The relationship of the Parry Channel narwhals to other summering aggregations is unknown. Narwhals are also present in Jones Sound and are*

*genetically different than those in the Somerset Island summering aggregation; these whales are harvested by the community of Grise Fjord. In addition, narwhals are also present in Smith Sound and are harvested by Greenland hunters. Little is known about the relationship of the narwhals in Jones Sound and Smith Sound to the Baffin Bay population, as well as to narwhals in Greenland.” (DFO, 2012, pg. 9)*

**5. The Inuit harvest of narwhal is not exclusive to summering stocks. The mixed stock structure model has multiple assumptions and sources of uncertainty.**

Currently, Inuit harvest takes place in multiple seasons. Narwhals display a distinct annual migratory cycle. During the fall and spring migration, Inuit may harvest from different stocks. DFO is unable to assign exactly the amount of spring and fall migration harvest to a specific stock.

*“It is not possible to directly assess the number of narwhals from different Baffin Bay MU that are killed during spring/fall migration” (DFO briefing note to NWMB, 2012, pg. 1)*

The allocation model is the best attempt to address these uncertainties. However, there are some major assumptions with the DFO stock allocation model. For example, there is uncertainty associated with the proportion of each stock that is available to each community during the spring and fall migration. Although, the exact proportion of animals belonging to any particular stock for the migratory harvest is unknown, the stock allocation model assumes that access to these animals is proportional to the size of each stock relative to the total number of animals in the mixture of stocks. Some sensitivity of the modeling analyses to this assumption was evaluated using risk modeling and considered not to have a significant impact on the demographic units.

**6. The survey areas did not include all areas of known summer occupation.**

The most recent survey effort for East Baffin Island did not include waters adjacent to Cumberland peninsula which is a known area of narwhal occupation. A substantial part of the known range of the Somerset stock was not surveyed. Hence DFO is relying upon an estimate from 1996 for their TALC recommendation. Furthermore, not all fjords and inlets of East Baffin Island were explored by reconnaissance or other methods. The current population and summering stock estimates are likely underestimates because the entire summering range was not surveyed in the last major survey effort. This could have a significant effect on the total allowable catch levels for certain stocks.

*“In conclusion, the narwhal population in the Canadian High Arctic is distributed broadly in summer, and numbers are larger than was previously thought. While the largest numbers of these narwhals were again found in the western part of their summer range, particularly in Prince Regent Inlet and Eclipse Sound, this study has shown that*

*substantial numbers of narwhals also occupy the fjords of east Baffin Island and the gulf of Boothia. The results, although imprecise, do show that there is a large population out there, one that can probably sustain a large hunt. However, because of the imprecision of the estimates and questions of stock structure, management should be exercised with caution”* (Richard et al., 2010).

**7. The distribution of narwhal has expanded in the Nunavut Settlement Area. The temporal and geographic variation with respect to summer site fidelity remains uncertain.**

Inuit have observed narwhal expansion into Boothia Peninsula. It is possible that narwhals had previously summered in other areas. Narwhal display behavioural plasticity in their migratory behaviour based on Inuit knowledge and recent satellite telemetry information. Narwhal have only recently become more abundant near the community of Kugaaruk. More animals have also been observed near the community of Grise Fiord. Recently, several satellite tagged animals have moved between Eclipse Sound and Admiralty Inlet both within and between years. The nature of animal fidelity to summering areas remains uncertain.

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## APPENDIX 1 – Population estimates and Harvest calculations

### A. Two wintering populations

<u>Baffin Bay population</u> estimate =	93,693	narwhal
5 year harvest mean (4 aggregations) =	396	narwhal / yr
Recommended TALC =	1,123	narwhal/ yr
Rec. TALC percentage of estimate =	1.2%	

<u>Northern Hudson Bay population</u> estimate=	12, 083	narwhal
5 year harvest mean =	101	narwhal / yr
Recommend TALC =	157	narwhal / yr
Rec. TALC percentage of estimate =	1.3%	

### B. 4 Summering stocks and NHB population

<u>Somerset Island</u> estimate =	45,358	narwhal
5 year harvest mean =	71	narwhal / yr
Recommended TALC =	532	narwhal / yr
Rec. TALC percentage of estimate =	1.2%	

<u>Admiralty Inlet</u> estimate =	18, 049	narwhal
5 year harvest mean =	129	narwhal / yr
Recommended TALC =	233	narwhal / yr
Rec. TALC percentage of estimate =	1.3%	

<u>Eclipse Sound</u> estimate =	20,211	narwhal
5 year harvest mean =	66	narwhal / yr
Recommended TALC =	236	narwhal / yr
Rec. TALC percentage of estimate =	1.2%	
<u>East Baffin</u> estimate =	10,075	narwhal
5 year harvest mean =	130	narwhal / yr
Recommended TALC =	122	narwhal / yr
Rec. TALC percentage of estimate =	1.2%	
<u>N Hudson Bay</u> estimate =	12,485	narwhal
5 year harvest mean =	101	narwhal / yr
Recommended TALC =	157	narwhal / yr
Rec. TALC percentage of estimate =	1.3	