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James W. Balsiger, Ph.D.
Administrator, Alaska Region
National Marine Fisheries Service
P. O. Box 21668
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Dear Dr. Balsiger,

Thank you for the opportunity to comment on the draft long-term subsistence harvest plan for Cook Inlet beluga conveyed by the NMFS letter of 15 January 2004. Tyonek, representing itself and the Cook Inlet Marine Mammal Council (CIMMC), hereby submits its comments to the draft. In summary, Tyonek and CIMMC (hereinafter Tyonek) stand by the compromise they agreed to during a 7 December 2003 meeting with NMFS for a harvest of 8 beluga from 2005 through 2009. The remainder of the proposed plan attempts to utilize what little is currently known about the beluga population far beyond where that information can credibly be taken. Given the lack of information and great uncertainty about the CI beluga stock, and given the insignificance of taking 8 beluga over 5 years, it is Tyonek's position that NMFS should adopt the 7 December compromise as an interim harvest regime, and, depending on what is learned, look at developing a long term harvest plan after 2009.

Dr. Andre Punt's comments, attached hereto, are adopted by Tyonek and hereby incorporated as part of Tyonek's comments.

**Comments on The Underlying Fundamentals Used to Develop NMFS
Draft Harvest Management Plan**

1. The NMFS letter states that the "proposed plan will be guided by the management goal of recovering the depleted . . . stock to a population of 780 whales." Tyonek continues to contest the use of 1300 as the "carrying capacity" for the CI beluga stock, and the corresponding NMFS target of 780 whales for recovery to Optimal Sustainable Population (OSP). The designation of "carrying capacity" is a major factor in the proposed harvest management plan. Yet, the uncertainty surrounding the use of 1300 for this critical factor was acknowledged by NMFS and Judge McKenna in his decision of 29 March of 2002 (pages 26-28). The court found that "NMFS would need a number of years of annual estimates to determine the carrying capacity of Cook Inlet beluga whales with any degree of certainty." Tyonek is unaware of any claim by NMFS, the MMC or any other party that the information collected since the December 2000 administrative hearing adds any degree of certainty to the designation of 1300 as the carrying capacity.

To the contrary, a good argument exists that even more uncertainty surrounds the carrying capacity (it could be much lower) since the beluga population seems to have experienced little if any growth over the last several years despite almost no subsistence harvest. Carrying capacity is related in no small part to habitat. If the habitat changes, so does carrying capacity. There is some indication that the beluga population may have remained stable or experienced only minimal growth over the past several years despite little or no subsistence hunting pressure. Therefore, factors other than harvest may, at this point, be determinative of population growth, such as changes in habitat. Thus, it seems well worth considering the possibility that the habitat may have changed and the carrying capacity may need to be reconsidered. It is also a possibility that the carrying capacity was far over-estimated to begin with, thereby leading to errors in population modeling calculations that are dependent upon an estimate of carrying capacity. In any event, it seems clear that there is no more certainty (and probably less) as to carrying capacity than there was when the court convened in 2000. NMFS should acknowledge the uncertainty in regards to the carrying capacity, institute the interim harvest management plan for 2005-2009, and continue to collect and analyze information to reach a better understanding of the carrying capacity.

2. NMFS states that the "underlying objective of this plan is that harvests should not delay time-to-recovery by more than 25% with, with 95% certainty (25-95 criteria)." Tyonek strongly disagrees with the use of "delay in time-to-recovery" as the driving force for a subsistence harvest plan. NMFS has provided no support in law, fact, or policy for using delay in recovery time as a fundamental principle for its proposed management plan. NMFS has also not explained what other options it has considered and why these were rejected. Tyonek would be interested in understanding more about the subsistence management plan used for bowhead whales and what can be taken from that management plan and applied here. A better alternative to the 25-95 regime may be¹ to simply state that the objective is recovery to OSP² without adding the unnecessary, inflexible and arbitrary criteria of 25-95. A range for OSP could be set. When the population reaches the lower end of the range for OSP, restrictions on subsistence uses could be greatly reduced or eliminated.³

Even if delay in time-to recovery is relevant to a subsistence harvest plan, the 25-95 criteria is arbitrary and in no way reflects the appropriate balance between providing for the survival of the subsistence way of life while allowing for the recovery of the beluga population. The inflexible and restrictive 25-95 criteria could result in either no harvest or a very limited subsistence harvest for a number of years merely to speed recovery by some arbitrary amount of time. Such a restriction on subsistence uses is not

¹ The example provided below is only for the purposes of demonstration and does not reflect a specific proposal by Tyonek or CIMMC.

² The uncertainty about the OSP should be acknowledged by NMFS in any harvest regime, as well as a commitment to adjust the OSP after more information is collected and there is a better understanding of the CI beluga stock and the carrying capacity of the environment.

³ For example, once the bottom range of OSP has been reached, restrictions on taking could be eliminated for permanent Alaska Native residents of Cook Inlet. Restrictions prohibiting the sale of beluga meat and forbidding hunting by non-Cook Inlet residents could continue until the population has reached a higher part of the OSP range.

consistent with the law, is bad policy, and simply does not make sense. For example, assume a 20-year recovery time for the CI beluga population without subsistence harvest. A 25% delay would result in recovery in 25 years rather than 20 years. Also assume that subsistence harvests must be severely restricted to meet this 25-95 goal during which time elders and hunters are lost, and children grow up without knowing or experiencing any part of the beluga traditional way. NMFS accomplishes recovery of the stock but fails to protect a long-standing, traditional and significant subsistence use. Why risk the continuation of a way of life that long predates western contact with the tribes of Cook Inlet in order to achieve some arbitrary timeline for recovery? Why not a 100% delay in recovery time (40 years instead of 20 years) if such a delay is necessary in order to both preserve the stock and provide for the continuation of the subsistence way of life? The MMPA charges NMFS to strike a balance between recovery and subsistence, and the proposed 25-95 regime comes nowhere close to achieving this mandate. Moreover, the balance between delay in recovery time and providing for subsistence uses has not been a topic of any significant discussions between NMFS and Tyonek or CIMMC. This oversight is inconsistent with the policy of co-management expressed in section 119 of the MMPA and with the commitment to co-management NMFS has expressed to subsistence users throughout this process.

Finally, calculating delay in recovery time is nothing more than a guess given the current state of information about CI beluga, and thus not a reasonable basis to serve as the fundamental premise for structuring a subsistence harvest regime. NMFS should abandon the focus on recovery time. It should also reconsider its underlying assumption that subsistence uses must be restricted until the beluga population fully reaches the point it designates as OSP. Section 101(b) of the MMPA does not require the Secretary to regulate subsistence uses after a finding of depletion ("he *may* prescribe regulations"). Nor does the Act require the Secretary to regulate until the population reaches OSP. Section 101(b) allows the Secretary to remove restrictions on subsistence uses as soon as the "Secretary determines the need for their imposition has disappeared" rather than requiring regulation until recovery to OSP has been achieved.

Comments on Proposed Criteria for Adjustment to Harvest Level in 2005 and Beyond

Tyonek will not repeat the comments above related to its over-riding objections to using the 25-95 criteria and recovery to an OSP of 780 whales as underlying principles to guide the management plan.

3. Tyonek agrees with the annual strike limits for 2005-2009 as negotiated at the 7 December meeting and stated in NMFS criteria 1. This should be designated as a 5-year interim plan. NMFS acknowledges (see 4(g) for example) that there currently exists a lack of data for developing important aspects of a long-term harvest plan. Tyonek does not believe it is in the best interest of subsistence users or the beluga stock for the parties to needlessly push ahead to develop a long-term harvest plan before sufficient reliable information exists to form such a plan.

4. If a long-term harvest plan is developed in 5 year or other multi-year intervals, there should be a method for adjusting harvests upwards within the 5-year period as well as a provision for "emergency restrictions" (criteria 3). If, for example, two years of population surveys demonstrate unexpectedly strong recruitment, the harvest should be increased.

5. Something similar to criteria (2)(a-c) could be workable as a 5 or 10-year plan⁴ if the 25-95 criteria is eliminated and depending upon how recovery is determined. For example⁵, a simple plan (one similar in many respects to that proposed in section 2) could use the annual abundance estimates to determine if the population is recovering. Harvest could be raised or lowered according to the abundance estimates (i.e. population at 400-450 means a harvest of 3.5 beluga/year, 250-200 means a harvest of 1/year, and a range of harvests between these values). There must be a floor for subsistence harvest (for example 1/year) unless the population falls below some level (for example 200 beluga). If the population stabilized at, for example, 450 with a harvest of 3.5/year, other questions such as changes in habitat and carrying capacity need to be addressed since it is unreasonable to conclude that such a minimal subsistence harvest is the cause for the population failing to grow past 450. This example of a harvest regime, in contrast to the proposed 25-95 regime, is based on somewhat reliable and available data, is easily understandable, and can be implemented in a straightforward, flexible manner that serves to protect both the beluga population and subsistence uses.

6. It may be reasonable and necessary to set a floor below which no harvest is allowed. However, Tyonek does not believe that there has been enough consultation with the hunters regarding the basis for selecting a floor of 200 beluga as suggested by NMFS. Tyonek also holds the position that declaring a moratorium on subsistence taking for a full 5 year period once the floor has been reached is too drastic, and some shorter period (perhaps a year-by-year assessment through the co-management process) would better strike the balance between the goals of recovery and providing an opportunity for subsistence uses.

7. Criteria (2)(b) is particularly inappropriate for times when the beluga population has increased to levels approaching but not at OSP. For example, if OSP is 780 and the population is at 650, and there is a temporary and slight decline in the population over a 5-year period, hunters would lose the opportunity to harvest 2 whales (really 2.5 whales which does not make much sense). There should be no lost harvest for insignificant and relatively temporary population declines after the stock has reached

⁴ Tyonek believes that for the time being nothing more than an interim plan for the next 5 years is needed, and that there is insufficient information to develop a long-term plan. If NMFS, however, is determined to develop a plan governing harvests past 2009, Tyonek suggested that the plan not extend more than two 5 year cycles, and that a process be put in place whereby the plan is fully reviewed at the end of each 5 year period through a co-management process between NMFS and CIMMC, with notice and an opportunity to comment provided to the MMC and the public for any alterations to the plan proposed through the co-management process.

⁵ Again, the suggested harvests at particular population levels are only set forth to provide an example, and are not the official position of Tyonek or CIMMC.

some level of recovery short of the point that NMFS determines to be OSP. If the population stabilizes at some level short of what is believed to be the OSP, it may be an indication that NMFS has miscalculated OSP rather than a signal to restrict subsistence uses. Tyonek suggests that until the population and its habitat are better understood, it makes more sense to determine a range for OSP, and to set the goal of the management plan as eliminating most restrictions on subsistence harvests once the population grows to the lower end of the range. The range of OSP should be re-examined at least every 5 years.

8. Criteria 3 – emergency restrictions may be necessary, but Tyonek is not convinced that what is proposed strikes the correct balance, and refers NMFS to the comments of Dr. Andre Punt. Even in a year of unusually high beluga mortality, subsistence uses should not be eliminated or further restricted unless it can be demonstrated that such restrictions are necessary because the scheduled subsistence take would have a material and negative effect on the recovery of the population to the bottom of the OSP range.⁶ This determination, and any corresponding reduction in take, should be made through the co-management process, using minimal and flexible guidelines that are incorporated into the co-management agreement⁷.

Comments on Stipulations and Background Information

Issues which have already been addressed above such as items proposed in sections 4(g) and (h) of the NMFS letter will not be repeated here.

9. Regarding 4(a): The method for conducting annual surveys should be continually re-evaluated using, among other sources, the participation and knowledge of local subsistence hunters.

10. Regarding 4(c): This statement minimizes NMFS obligation to balance the goal of recovering depleted stocks with its responsibility to provide for the continuation of opportunity for subsistence uses. Tyonek suggests that this statement be amended to read: "The goal of the MMPA is to recover depleted stocks to OSP consistent with causing the least adverse impact to subsistence uses."

⁶ Section 10(e) of the ESA provides that the Secretary may regulate subsistence takings by Alaska Natives after finding that a species is threatened or endangered and after finding that subsistence taking "materially and negatively affects the threatened or endangered species". It seems reasonable to employ a similar standard in the event of unusual mortality.

⁷ Tyonek believes that section 101(b) and section 119 of the MMPA provide ample authority for the NMFS to shift some of the issues raised in developing a harvest management plan from the context of formal rule-making to the co-management process. Section 101(b) allows, but does not require, the Secretary to prescribe regulations on subsistence takings after a finding of depletion. Section 119 allows NMFS to enter into cooperative agreements with ANOs "to conserve marine mammals." Thus, it is Tyonek's position that instead of issuing detailed regulations for every specific of a harvest management plan, some issues like those suggested in the above comments could be reserved for the co-management process.

11. Regarding 4(e): Data suggests that the population may not be recovering within the normal range for beluga populations despite an extremely minimal subsistence harvest over the past several years. Thus, it is no longer accurate to state unequivocally that managing subsistence harvests is the "primary management tool" for recovery. NMFS should fully acknowledge the probability that there are habitat concerns. A commitment by NMFS to develop a conservation plan (section 115(b) of the MMPA) that addresses habitat and all other issues, including a firm timeline for development of the plan, should be included in this subsistence management plan so that subsistence users do not unfairly bear the sole burden for recovery and blame for depletion.⁸ A conservation plan will also help ensure that the stock does not continue to decline despite severe restrictions or even elimination of subsistence hunting. NMFS should also commit to considering a listing of the stock under the Endangered Species Act if the population continues to decline despite the regulation of subsistence uses. If subsistence harvests are to be eliminated when the population declines to less than 200 beluga (see item 4(k)), it would seem that a listing under the ESA should occur sometime prior to the stock declining to this point⁹.

12. Regarding 4(l): Co-management agreements should also include a process and substantive measures to ensure that subsistence users are meaningfully involved in all aspects of CI beluga management.

Conclusion

Many of the issues raised in the NMFS proposal need further consideration and discussion between NMFS and subsistence users. Tyonek suggests that, prior to submission to the Judge, it may be helpful for NMFS to provide a second draft proposal taking into consideration the parties comments, and then reconvene the parties along with the technical group to see if a consensus plan can be developed or at the very least if the issues can be narrowed.

⁸ Development of a conservation plan should include full consultation and meaningful involvement of local tribes and subsistence users through the co-management process.

⁹ Consideration of an ESA listing should be done in full consultation through the co-management process.

**Comments of Dr. Andre Punt regarding NMFS 15 January 2003
Proposed Subsistence Harvest Plan for CI Beluga**

1. The 25-95 criterion is stated as the objective of the long-term harvest plan for Cook Inlet beluga whales. It is further stated [4g)] that a harvest of 1.5 whales/year is consistent with this criterion.

Figure 1 plots a histogram of the realized growth rate in the absence of harvesting from 1994-2003 based on the application of a preliminary model. This distribution captures the current uncertainty of the quantity that has the greatest influence on whether any recovery criterion is satisfied for a given long-term harvest regime, namely the increase rate in the absence of harvest. This model has not been agreed to by the Technical Committee but is sufficient for the purposes of illustration.

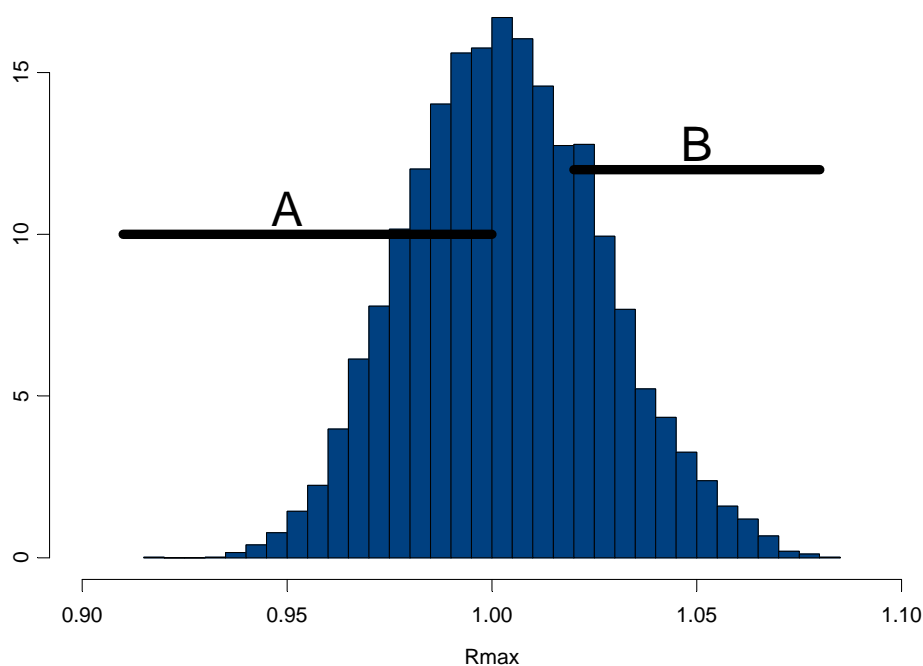


Figure 1 : Probability density function for the realized growth rate in the absence of harvest over 1994-2003 based on a preliminary population model analysis.

Region A of this figure corresponds to the probability that the realized growth rate over 1994-2003 was negative. This probability is 43% for the preliminary model. If the future growth rate remains negative, population recovery cannot occur even in the absence of a harvest. Marine mammal populations are expected to have a positive increase rate in the absence of harvest if they are below their current carrying capacity. If the growth rate remains less than zero, recovery to the management goal cannot occur and the reason for the lack of recovery is, by definition, not related to the harvest. The long-term harvest plan makes no provision for lack of recovery for reasons other than harvest.

Region B of Figure 1 corresponds to the range of growth rates considered “normal” for CI belugas. If the growth rate is in this region (a probability of 25% given Figure 1), there will be more than a 95% probability that the delay in the recovery to a population size of 780 is less than 25% under a harvest of 1.5 whales per annum. In fact, somewhat larger harvests would be consistent with the 25-95 criterion if the growth rate is in region B.

The analyses above have several implications for the draft long-term harvest plan.

- a) The plan makes no provision for the possibility that recovery to 780 will not occur even in the absence of a harvest. Given the currently available data, there is a reasonably large probability of this. There is a need for an additional management goal if continued reduction is likely.
 - b) The statement that a harvest of 1.5 whales/year is consistent with the 25-95 criterion is only correct if the implications of the growth rate being less than about 1.5% are discounted as being implausible.
2. The management goal involves recovery to a population level of 780; an estimate of the lower limit of the stock’s Optimum Sustainable Population level based on a carrying capacity of 1,300. The plan needs to acknowledge that the 1,300 figure is subject to considerable uncertainty (more so that the annual estimates of abundance from surveys) and to include a provision that the target population size can be changed given improved understanding of the carrying capacity for CI beluga whales. Even if the carrying capacity was 1,300 at some point in the past, the impact of habitat change may have led to a change to this value. The plan needs to be based on the current carrying capacity as agreed to, for example, by the Technical Committee
 3. The draft long-term harvest plan refers to annual harvest levels. For operational reasons it makes more sense to refer to changes in the level of harvest over 5-year periods. The 5-year harvest level would be divided into annual harvest levels in the smoothest possible way. This is how the 1.5 harvest over 2005-9 is envisaged to be taken, i.e., the total 2005-9 harvest is 8 whales and this is allocated as integer harvest levels in as smooth a way as possible.
 4. Some of terms used in the draft long-term harvest plan are undefined or inadequately defined – this makes the current plan inoperable as drafted. There are often several ways to interpret / define some of these terms. Population modeling could be used to evaluate the implications of different definitions.
 5. The draft long-term harvest plan needs to be clearer that the sub-criteria under 2) are evaluated after each five year period and that no changes in harvest levels will occur during a 5-year block unless an unusual mortality or decline event occurs.
 6. The criteria under 2) are not fully-specified nor have their implications been tested using the framework used to evaluate the delay in recovery consistent with the management goals. This is particularly the case for options under sub-criterion

- b). The following provide more technically complete specifications for each point – there was, however, insufficient time to fully evaluate the cumulative impact of the various sub-criteria. The points below are based on the need to set a harvest level for year y . N_{\min} , as used in these sub-criteria, is defined as the average population size over years $y-5$ to $y-1$ where each point is weighted by its sampling variance.
- a) If the population is shown to be recovering (the lower 90th percentile of the confidence interval for the slope of a linear regression of the population size estimates for years $y-5$ to $y-1$ on year y , where each point is weighted by its sampling variance exceeds 0%), the population model will be used to recalculate the harvest level for the 5-year period starting in year y consistent with the 25-95 criterion. Allowable increases in harvest will be restricted to lie between 0.5 and 5 for each future 5-year block. Note that population recovery should be expected, so evidence for a population increase may not lead to any change in harvest level.
 - b) If the population is shown to be declining (the upper 90th percentile of the confidence interval for the slope of a linear regression of the population size estimates for years $y-5$ to $y-1$ on year y , where each point is weighted by its sampling variance is less than 0%) then:
 - i) if $N_{\min} > 300$, the harvest level for the 5-year block ($y, y+1, \dots, y+4$) is set to the minimum of 2% of N_{\min} and the current 5-year block harvest less 2.5. [Note: no basis is provided for this 2.5 figure nor for the 2% of N_{\min} – the latter corresponds to a harvest rate of 0.4% per annum];
 - ii) if $200 < N_{\min} < 300$, the 5-year harvest level is set to 2% of N_{\min} (i.e. if $250 < N_{\min} < 300$, the 5-year limit will be 5 and if $200 < N_{\min} < 250$, the 5-year limit will be 4);
 - iii) if $N_{\min} < 200$, no strikes will be permitted for years $y, y+1, \dots, y+4$.
7. The emergency clause is unclear. Specifically, if an event was detected for year y , the abundance estimate for that year would be reduced by the difference between the observed mortality and $6\%N_{\min}$ (and its coefficient of variation unchanged?). The clause then states that “Harvest rates for the remainder of the five year period would be adjusted using the revised abundance estimate and the criteria in section 2 of the plan.”. How would be this done operationally? In principle, application of sub-criteria 6a) and 6b) above could actually lead to an increase to the harvest for the remainder of the 5-year period if the population was increasing prior to the unusual mortality or if the harvest was not taken in the some of the years prior to the year with unusual mortality. The implications of unusual mortality need to be rethought and tested using various scenarios regarding, for example, N_{\min} and the recent trend in population size.
8. It is stated 4g) that “Thus, a population model approach that would set harvest levels under criterion 2 will necessarily assume a positive growth rate (R_{\max} between 2% and 6%)” – the scientific basis for this is unclear given, for example, Figure 1 which suggests a sizable probability of decline even had no harvest occurred during 1994-2003. This statement also seems inconsistent with the

statement that “Maximum rate of increase (R_{max}) as estimated within a population model for the CI beluga whales under development by the Technical Committee”

9. The adjustments depend on the “Observed annual rate of change during the previous 5 or 10 year period of constant harvest...”. This statement is logically inconsistent with the clauses in criteria 2) because these clauses would lead to non-constant harvest levels.
10. There is a reference to “the Technical Committee”. However, its Terms of Reference are not listed.