UNITED STATES DEPARTMENT OF COMMERCE
NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION

In the matter of:	Docket No.
PROPOSED REGULATION GOVERNING THE TAKING OF COOK INLET, ALASKA, BELUGA WHALES BY ALASKA NATIVES	000922272-0272-01
Respondents	

RECOMMENDED DECISION

Issued: November 8, 2005

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INTRODUCTION AND OVERVIEW

The National Marine Fisheries Service (NMFS) initiated this formal rulemaking proceeding as a result of a designation by the Secretary of Commerce that the Cook Inlet Beluga Whale population is "depleted" under the Marine Mammal Protection Act (MMPA). The purpose of this rulemaking is to establish a framework for the recovery of this population while at the same time attempting to preserve the traditional subsistence hunting of these whales by Alaska Natives. These subsistence hunts are very important to the Alaska Natives because it supports their cultural, spiritual, social, economic, and nutritional needs. The MMPA authorizes NMFS, when acting on behalf of the Secretary of Commerce, to regulate Alaska Native subsistence harvests of depleted marine mammal stock after regulations specific to the depleted stock are issued and an opportunity for notice and hearing on the record. 16 U.S.C. § 1371(b)(3).

Between 1994 and 1998, Cook Inlet Beluga Whale stocks dramatically declined to an estimated 347 whales. During this timeframe, an average annual subsistence harvest of 67 Cook Inlet Beluga Whales were taken by Alaska Natives residing in or near Anchorage. This was the primary reason for the decline. (NMFS B). NMFS believes that the optimal sustainable population level is 780. On March 3, 1999, NMFS received two petitions to list Cook Inlet Beluga Whales as endangered under Section 4 of the Endangered Species Act (ESA). (NMFS B). Specifically, the petitions sought to have NMFS promulgate an emergency listing under section 4(b)(7) of the ESA, designate critical habitat for the Cook Inlet Beluga Whale, and take immediate action to regulate the harvest of Cook Inlet Beluga Whales. (NMFS B). At that point in time, no Federal regulation existed nor was there a co-management agreement under Section 119 of the Marine Mammal Protection Act to control the harvest. (NMFS B).

In May of 1999, Congress enacted a temporary moratorium (which was made permanent on December 21, 2000) on Alaska Native subsistence hunts of the Cook Inlet Beluga Whale unless the taking occurred pursuant to a cooperative/co-management agreement between NMFS and the affected Alaska Native organizations. Pub. L. 106-31 § 3022, 113 Stat 57, 1000 (May 21, 1999); Pub. L. 106-553, § (1)(a)(2), 114 Stat. 2762 (Dec. 21, 2000). Citing the unregulated harvest of Cook Inlet Beluga Whales prior to the 1999 moratorium, NMFS determined that listing the Cook Inlet Beluga Whales under the Endangered Species Act was not necessary. (NMFS B). However after six years of little or no permitted harvests, there has been no detectable recovery of the stock, and it appears that unidentified factors are causing mortality or acting to depress the population growth. (Tr. at 175-176; MMC A). In other words, something besides the harvest is now causing the failure of the population to recover. (Tr. at 405). The Whale Hunters and two tribes of the Cook Inlet Treaty Tribes believe the Cook Inlet Beluga Whale should be listed under the Endangered Species Act. (CITT Response; Whale Hunter's Response).

On May 31, 2000, NMFS issued a Final Rule designating Cook Inlet Beluga Whales as depleted within the meaning of the MMPA. 65 F.R. 34590. Following this designation, NMFS issued proposed regulations that would limit subsistence harvests of

Cook Inlet Beluga Whales, and in accordance with section 103(d) of the MMPA, interested persons were provided an opportunity to file an initial notice of intent to participate in the hearing scheduled for December 5, 2000. 65 F.R. 59164.

However, the evidence presented at the December 5, 2000, hearing conclusively demonstrated that there was an appreciable degree of uncertainty concerning the population dynamics of the Cook Inlet Beluga Whales (i.e. the population size, carrying capacity, optimum sustainable population, and intrinsic growth rate). At the conclusion of the hearing, the parties were ordered to establish a scientific review committee to establish a scientifically acceptable subsistence harvest quota that would take into account the uncertainty surrounding the Cook Inlet Beluga Whales. Based on the findings of the scientific review committee, the parties (except for the Trustees for Alaska), entered into the following stipulation:

> Six strikes over the next four years (2001 – 2004) to be allocated by NMFS through co-management agreements. Four of the strikes, not to exceed one per year, are to be allocated to the Native Village of Tyonek. The remaining two strikes will be allocated to other Cook Inlet subsistence hunters, with no more than one strike being allocated during any single year.

The parties further stipulated that the Undersigned would retain jurisdiction over the rulemaking while NMFS collected data in consultation with the other parties, so that a harvest regime could be developed for 2005 and beyond. NMFS agreed to submit the long-term harvest regime for 2005 and beyond no later than March 15, 2004. On March 29, 2002, a recommended decision was issued, and on April 6, 2002, NMFS published the final rule governing subsistence takes of Cook Inlet Beluga Whales through 2004. 69 F.R. 17973.

On March 8, 2004, NMFS filed a Motion for Extension of Time for Filing of NMFS Proposed Harvest Regime seeking an eighteen (18) day extension to file the proposed harvest regime for 2005 and beyond. On March 15, 2005, the Motion was granted and NMFS was directed to file the proposed harvest regime for 2005 and beyond by close of business of May 3, 2004. On or about April 30, 2004, NMFS filed its proposed "Subsistence Harvest Management Plan for Cook Inlet Beluga Whales." Upon receipt of the proposed Subsistence Harvest Management Plan, an Order was issued scheduling the hearing on the Plan to commence on August 2, 2004 at 9:00 a.m. at the United States District Court in Anchorage, Alaska.

The following parties participated at the hearing: (1) the National Marine Fisheries Service; (2) the Marine Mammal Commission (MMC); (3) the Native Village of Tyonek (Tyonek); (4) the Cook Inlet Treaty Tribes (CITT); and (5) Native Alaska Whale hunters (Whale Hunters). At the hearing, CITT indicated that it had not received MMC's submissions. As a result, MMC was instructed to provide CITT with copies of MMC's submissions and CITT was given 20 days to respond. (Tr. at 28). Since the parties have not raised any further concerns regarding this point, I have assumed this issue has resolved itself.

For this rulemaking, the parties have stipulated that the long-term harvest regime is to be science based and:

1. provide a reasonable certainty that the population will recover, within an acceptable period of time, to the point where it is no longer considered depleted;

2. take into account the uncertainty of the knowledge about the population dynamics and vital rates of growth for the Cook Inlet Beluga Whale population;

3. allow for periodic adjustment of the allowable strike levels based upon the results of the population abundance surveys and other relevant information, recognizing that the strike level and allocation regime will not be reduced below 1.5 whales per year without substantial information demonstrating that subsistence takings must be reduced below that level to allow recovery of the Cook Inlet Beluga Whale population from its depleted status; and

4. be readily understood by diverse constituencies.
(NMFS I; MMC A).

After the hearing concluded, the parties attempted to resolve their disagreements, but they were unable to do so. Accordingly, an Order was issued on March 7, 2005 establishing a schedule for the parties to file briefs. All parties filed briefs and responses in accordance with that schedule. The briefs filed by the parties in response to the Order of March 7, 2005 are herein referred to as: NMFS brief, Tyonek Response, MMC Response, CITT Response, Whale Hunters Response, and NMFS Reply. In these briefs, NMFS and Tyonek each proposed new harvest regimes that were not presented at the August 2004 hearing, and these new proposals contained issues that would ordinarily have been resolved through a hearing. However, at the urging of the Undersigned, the parties stipulated that the best course of action would be for the case to be decided based on the existing filings in the record. Although the parties have successfully resolved some of their disagreements and reached an agreement on the interim harvest regime that would be in effect until 2009, several issues are unresolved and must be decided herein.

The issues the parties disagree on regarding the two most recent proposed rules can be summarized as follows: (1) whether MMC has standing to participate in these proceedings; (2) whether NMFS's plan is entitled to deference; (3) what is NMFS's burden of proof; (4) whether allowing subsistence hunts is subservient to the goal of recovering the population to OSP; (5) what is the appropriate floor below which no hunts will be allowed; (6) how quickly should the plan allow recovery; (7) how quickly the harvests should be stopped when there is a low growth rate; (8) what is the appropriate harvest when the population is between 350-399 and there is an intermediate growth rate;

(9) how should the plan account for unusual mortality events; (10) how should the proposed rule account for future reductions in funding for annual surveys; (11) whether "on the ground" estimates of the population should be included in the survey effort; (12) whether the plan should be formally reviewed every ten years; (13) how should the growth rate be calculated; (14) whether the Technical Team should reconvene to review NMFS's second proposed rule; (15) whether subsistence hunts should target male whales; and (16) whether the proposed rule should allow the taking of stranded whales that are going to die anyway.

FINDINGS OF FACT

1. Cook Inlet is a large tidal estuary that flows into the Gulf of Alaska and is approximately 220 miles long, 30 miles wide, and generally only about 200 feet deep. (NMFS B). The Inlet's waters come from several tributaries but primarily from the Knik, Matanuska, and Susitna Rivers. (NMFS B). Cook Inlet Beluga Whales are genetically and geographically isolated from other Alaska populations of beluga whales, and their optimum sustainable population is 780. (Tr. at 120; NMFS B; MMC D). The Beluga Whale is a small, toothed whale that may reach 16 feet in length, but the average size is 12 to 14 feet in length. (NMFS B; MMC D). Some native hunters have reported that some Cook Inlet Beluga Whales may reach 20 feet in length. (NMFS B).

2. Female Beluga Whales can live 30 years or more, and they first give birth at age five or six and reproduce at about three year intervals. (MMC D). The gestation period for female beluga whales is 13 months followed by a two year lactation period. (Tr. at 239-240; NMFS B at 22). Adult females older than 20 or 25 years of age show reduced reproduction and increased mortality. (MMC D). Most of the calving in Cook Inlet is assumed to occur between mid-May and mid-July, but native hunters have observed calving from April though August. (NMFS B at 22). There is a relatively high juvenile mortality rate in the first few years of life. (MMC D).

3. Beluga Whale calves are born dark gray to brownish gray and as adults become white to yellow-white. (NMFS B). Beluga Whales do not have a dorsal fin and do not produce a visible "blow" when surfacing. (NMFS B). Additionally, native hunters report the whales often surface with only the blowhole out of water. For these reasons, Beluga Whales are often obscure and difficult to see. (NMFS B at 22).

4. Beluga Whales are opportunistic feeders known to prey on octopus, squid, crabs, shrimp, clams, mussels, snails, sandworms, and fish. (NMFS B at 26). Cook Inlet Beluga Whales often aggregate near the mouths of rivers and streams where salmon runs occur. (NMFS B at 26).

5. Historically, Cook Inlet Beluga Whales were hunted by Alaska Natives as a source of meat and oil for the hunter's family and dogs. (NMFS B at 33). Today, the hunting of Cook Inlet Beluga Whales continues to play an important role in the lives of the Alaska Natives by reaffirming social ties and providing a strong sense of ethnic identity. (NMFS B at 36; Tr. at 292-295, 299-301, 520; Tyonek C). Additionally, the

Cook Inlet Beluga Whales remain a significant source of meat and oil for the Alaska Natives. (Tr. at 295, 299-301). In order to satisfy the Native Alaskans' needs, the Village of Tyonek needs approximately three belugas a year, and it is unclear how many the Cook Inlet Treaty Tribe (CITT) needs per year. (Tr. at 519).

6. The hunts are also necessary in order for Alaska Natives to pass on generational knowledge of the Cook Inlet Beluga Whales, such as how to hunt them. (Tr. at 295, 307-308, 514; Tyonek C). In addition to teaching younger generations how to hunt and butcher the whales, the hunts are also used to teach younger generations discipline, respect for the water, respect for animals, and respect for the hunters that are with them. (Tr. at 307-308, 520). The restrictions on the Native Alaskans ability to hunt whales are having a negative impact on the younger generations of Native Alaskans. (Tr. at 307-308). Further, Native Alaskans view the Cook Inlet Beluga Whales with respect and believe people and whales are all part of the same circle of life. (Tr. at 293-305).

7. Prior to the 1940s, the Native Village of Tyonek hunted six or seven whales per year. (NMFS B at 35). However, between the late 1940s and 1978, there was little interest in hunting beluga whales and other marine mammals, because of the growing number of moose in the area. (NMFS B at 35). Since 1979, the beluga whale hunt has been reestablished in Tyonek. (NMFS B at 35). From the late 1980s to 1998, Cook Inlet Beluga Whales were subject to increasing harvest and harvest related mortality (individuals struck and lost) which for 1995 through 1998 reached estimates of 67, 98, 70, and 78 individuals respectively, representing about 10 to 20 percent of the population. (MMC D). The decrease in population size of Cook Inlet Beluga Whales has also been accompanied by a decrease in their summer range, which formerly included the whole of Cook Inlet and offshore areas. (MMC D). Since the 1990s, almost all of the sightings occurred in shallow water near river mouths in the upper Cook Inlet. (MMC D).

8. At the hearing, Dr. Hobbs testified on behalf of NMFS. Dr. Hobbs has a Ph.D. in ecology and did his dissertation on the population dynamics of the Dungeness crab. (Tr. at 92). Additionally, his studies focused on applied math and population dynamics. (Tr. at 92). During the last ten years, Dr. Hobbs has developed methods for conducting abundance estimates of Cook Inlet Beluga Whales, and has researched their movements and distribution. (Tr. at 92).

9. Dr. Hobbs is employed by NMFS and was involved with the Science Committee that was formed as a result of stipulations made at the hearing in December of 2000. (Tr. at 96-97; NMFS C). The Science Committee involved all of the parties. (Tr. at 97). On July 8, 2003, the parties had a telephone conference and established a subcommittee of the Scientific Committee (herein after the "Technical Committee") consisting of Dr. Hobbs, Dr. Punt, and Dr. Goodman, who were charged with reviewing the available data, developing a population model for the Cook Inlet Beluga Whales, and then applying the model to inquiries from the full Science Committee. (Tr. at 96-97; NMFS C).

10. After the initial telephone conference, the Technical Committee discussed the issues that needed to be addressed and agreed on several points that needed to be

presented to the full Science Committee. (Tr. at 98). Each member of the Technical Committee then developed their own presentations, and the presentations were given to the full Science Committee in Seattle. (Tr. at 98). The purpose of the meeting in Seattle was to review the abundance estimates, how the abundance estimates were developed, information related to the movement and distribution of Cook Inlet Beluga Whales, the harvest levels, and the observed mortalities. (Tr. at 98).

11. At the meeting in Seattle that occurred on the 25th and 26th of September 2003, Dr. Hobbs, Dr. Goodman, and Dr. Punt each presented the parts of the abundance and distribution information that they had reviewed. (Tr. at 99; NMFS D). Additionally, the Technical Committee explained how they had developed the population model and provided some ideas on how to manage Cook Inlet Beluga Whales using the data. (Tr. at 99). The purpose of the model is to predict how the population of Cook Inlet Beluga Whales will respond to a proposed future harvest. (Tr. at 342). To do this, the scientists need a reliable estimate of what the population is at the time the harvest regime is started and what is the intrinsic growth rate (hereinafter Rmax or growth rate). (Tr. at 342).

12. The population model the Technical Committee used is an algebraic representation of the numbers of the Cook Inlet Beluga Whales that keeps track of the total number of animals in the population but does not account for gender, age, or size. (Tr. at 99, 401; NMFS D). The model uses the information on the size of the population and the numbers that were harvested from the population that year to calculate the size of the population in the following year. (Tr. at 99-100; NMFS D). The model was used to test a harvest matrix to see whether the harvest would actually allow the population to meet the goal of recovering to optimal sustainable population. (Tr. at 100).

13. By choosing an annual growth rate (Rmax) and applying it to an initial population size, the model can be applied year after year to allow the scientists to see how the population will recover with and without a harvest. (Tr. at 100-101). The members of the Technical Committee have agreed on the model itself, but have not agreed on how the model has been applied. (Tr. at 101-102).

14. The model is based on the following assumptions: (1) the population will grow to a maximum size, referred to as the carrying capacity; (2) the per capita rate of increase of the population declines as the population increases in size; (3) hunting related mortality does not affect reproduction in the year that it occurs and equally impacts males and females; (4) migration and emigration do not occur; and (5) there is no population size below which the birth rate collapses. (NMFS B at 40; NMFS D). NMFS Exhibits O and Q show the population projection model algebraically written as:

$$Nt + 1 = (Nt-Ht)(1 + Rmax)(1 – ((Nt-Ht)/K)z)).$$

Nt = abundance calculated from previous year

Ht – harvest in year t

Rmax = annual growth rate

K = 1,300

Z = 2.39

However, there is considerable uncertainty regarding the growth rate and the current population size. (Tr. at 436).

15. The population model that the Technical Committee used requires a value for K (the carrying capacity). (Tr. at 210). However, when a population is well below the carrying capacity, it is difficult to estimate what the carrying capacity will be, and there are three methods that can be used to estimate the carrying capacity in that situation. (Tr. at 128). First, if there is data going back to a time when the population was at carrying capacity, those numbers can be used. (Tr. at 128). Second, if there is harvest data, the population can be reconstructed by working backwards from the harvest data. (Tr. at 128). Finally, the various biological limitations on a population can examined to identify which one would limit the population's growth. (Tr. at 128).

16. For Cook Inlet Beluga Whales, the Technical Committee estimated the carrying capacity using the highest recorded count of Belugas in the Cook Inlet and a correction factor. (Tr. at 128; NMFS O). Since the Cook Inlet Beluga Whales are so far below carrying capacity, the Technical Committee agreed that fixing a value for the carrying capacity (or K) would be better than trying to develop a model that accommodates variations in both the carrying capacity and the growth rate at the same time, with the understanding that the value of the carrying capacity could be changed in the future if there is better information on it. (Tr. at 129, 210-211; NMFS O). Based on an abundance estimate from 1979, the Technical Committee chose a value of 1300 for the carrying capacity. (Tr. at 127-128, 210-211; NMFS O). However, there is considerable uncertainty regarding this figure, and it is based on sketchy information. (Tr. at 407-408; NMFS O). Since the earlier abundance estimates used to fix a value for the carrying capacity were imprecise, the value fixed for the carrying capacity may be underestimating the actual carrying capacity. (Tr. at 407-408). To change this figure, data will need to be collected as the population grows to see when the population levels off or the biological limitations will have to be examined. (Tr. at 128-129).

A. THE ABUNDANCE ESTIMATES

Between 1994 and 2003, NMFS conducted annual aerial surveys in June /July to estimate the abundance of the Cook Inlet Beluga Whales. (Tr. at 103; NMFS Q).

The survey method developed by Dr. Hobbs has been peer reviewed and neither reviewer had any major objections. (Tr. at 203-204). The reviewers made some recommendations for estimating the variance, and the recommendations were incorporated. (Tr. at 204-205). After incorporating the recommendations, the estimate for 1999 changed from 357 to 367 whales and the other estimates remained the same.

(Tr. at 205). The only substantial change that was recommended was to increase the survey efforts which NMFS has been doing for the last few years. (Tr. at 205-206).

The aerial surveys are conducted in June/July by flying over the lower and upper Inlet during low tide with a four person observation team. (NMFS D). Six to seven surveys are conducted, and five to six of those are conducted in the upper Inlet and one is conducted in the lower Inlet. (Tr. at 349; NMFS D). The survey covers the entire coastline up to 2 kilometers from shore. (Tr. at 349). Additionally, survey tracks are also flown over the center part of the Inlet. (Tr. at 349). After the surveys are completed, the survey maps are reviewed and if NMFS believes an area was missed where Cook Inlet Belugas might be then that survey is discarded as one of the survey samples. (Tr. at 350). Most of the whales observed in the surveys are within one kilometer of the coastline. (Tr. at 350).[1]

Once a group of whales is located, several passes are made in order to insure that the entire group is identified. (NMFS D). The passes are counted by the observers and recorded on videotape for analysis. (NMFS D). The plane is equipped with two video cameras (wide and narrow settings). (NMFS D).

When the observers fly passed a group of whales they have 20 to 30 seconds to count them. The water in Cook Inlet is very cloudy. (Tr. at 178). Some whales may be missed by the observers, because some whales are going to be deep under water, out of the observers' sight, or just missed. (Tr. at 178; 202). Therefore, NMFS has developed techniques for counting whales that were missed by reviewing videos and comparing them to photographs and by estimating the number of whales missed. (Tr. at 178-179). Although the observers make counts during the aerial surveys, the primary counts are based on analysis of the video data, and these counts are corrected for whales missed by using dive interval data from tagged studies and by using a higher magnification video of a portion of the visual field captured on the wide angled counting video. (Tr. at 202; NMFS D; NMFS O). The dive interval data is used to estimate the fraction of time whales are near the surface so they can be counted. (NMFS O). Currently, NMFS uses data from only five tagged whales in one area. If there is a difference between the whales in other areas from the area of the tagged whales, that could create a variation (underestimate) in the abundance estimates. (Tr. at 202-203).[2] On the aerial video, a beluga group is a collection of small dots, and the dots in the aerial video are compared to the zoomed area and the missed belugas are noted. (Tr. at 353; NMFS D).

To determine the abundance estimate, NMFS averages the totals for each section of the survey and then adds the section estimates to estimate the annual population abundance. (NMFS D). However, there is a possibility that the abundance estimates do

[1] In 2003 and 2004, Dr. Hobbs observed a shift in the locations where Cook Inlet Beluga Whales were being observed. (Tr. at 350-351). In 2004, the largest number of whales was observed in Turnagain Arm instead of Knik Arm. (Tr. at 350-351). Dr. Hobbs does not understand why there was a change in the distribution of the Cook Inlet Beluga Whales. (Tr. at 351).

[2] Within a year or two, NMFS hopes to conduct a study of the dive behavior of the whales in the other areas and compare that data to the currently tagged whales, so they can make adjustments in their abundance estimates. (Tr. at 203).

not account for whales that may be in areas NMFS does not survey. (Tr. at 179). Under the current research efforts, the abundance estimates and the series of abundances estimates over time are the only data that would give NMFS the ability to calculate the growth rate. (Tr. at 209).

The abundance estimates for 1994 through 2004 are as follows:

Year	Abundance Estimate of Cook Inlet Beluga Whales	NMFS calculated there is a 95% chance the actual population size will fall within this range
1994	653	1464 – 291
1995	491	1120 – 215
1996	594	1018 – 347
1997	440	578 – 335
1998	347	606 – 199
1999	367	482 – 279
2000	435	679 – 279
2001	386	458 – 326
2002	313	396 – 248
2003	357	440 – 289
2004	366	(Not available)

(Tr. at 104-107; NMFS Q; http://www.fakr.noaa.gov/protectedresources/whales/beluga/research.htm[3]).

Since the abundance estimate is not an actual count of the population and is only an estimate, the range in which there is a 95% chance that the actual population would fall is determined.[4] (Tr. at 108-111). Over the years, the range in which there is a 95% chance that the actual Cook Inlet Beluga Whale population would fall has decreased, because the survey methods have improved over the years through the use of better cameras and more survey time. (Tr. at 104-105; 206-207). The abundance estimates between 1999 and 2003 are not significantly different in a statistical sense. (NMFS O). Based on the abundance estimates, NMFS has determined there was a significant decline in the Cook Inlet Beluga Whale Population between 1994 and 1999, and there has been essentially no growth since 1999. (Tr. at 106).

In 2000, NMFS believed the Cook Inlet Beluga Whale population would immediately begin recovering at a rate of 2 to 6 percent a year. (Tr. at 168-169). However, NMFS also believed in 2000 that it would take time before NMFS could statistically verify that the population was growing at that projected rate. (Tr. at 169-171). Although it is still too early to tell, the actual growth rate is likely to be between .044 and -0.36 whales per year, and the most likely growth rate (Rmax) for Cook Inlet

[3] At the time of the hearing in August of 2004, the abundance estimates for 2004 were not available. However, that information is now publicly available at the web site noted above.

[4] The Native Community spends time out on the water and believes the abundance estimates underestimate the number of Cook Inlet Beluga Whales. (Tr. at 289-290; 306).

Beluga Whales is .4%. (Tr. at 122-123; 171-172).[5] There is a 26 percent chance that the whales are actually growing between 2 and 6 percent and a 74 percent chance that the growth rate is below 2 percent. (Tr. at 164-167, 175-176; 366; 437; MMC A; MMC E). Also, there is a 46 percent chance that the growth rate is negative. (Tr. at 438; MMC A).

After six years of little or no permitted harvests each year, there has been no detectable recovery of the stock, and it appears that unidentified factors are causing mortality or acting to depress the population growth. (Tr. at 175-176; MMC A). To determine what some of these factors maybe, NMFS is developing methods of counting calves so the ratio of calves to adults can be examined. (Tr. at 177). NMFS is also taking blood samples from captured or tagged whales and examining the blubber and other tissues of beached whales for pollutants. (Tr. at 177). So far, these tests have been inconclusive. (Tr. at 177-178).

However, Chief Merryman, based on his experience as a hunter and from observing the Cook Inlet Beluga Whales from his village, opines that the population, especially the juveniles, is increasing. (Tr. at 518). Additionally, Chief Merryman has observed a build up of silt in the Inlet that maybe reducing the Cook Inlet Beluga Whale habitat and preventing fish from reaching their spawning grounds. (Tr. at 518-519).

B. NMFS's FIRST PROPOSAL

At a meeting on December 7, 2003, all of the parties except MMC agreed on a harvest of 1.5 whales per year for 2005 to 2009, alternating between a one whale take one year and a two whale take the following year. (Tr. 254-256; 258). At the 2004 hearing, NMFS proposed the following table to determine the annual harvest beginning in 2010. (Tr. at 118-119).

Lower Limit of 5 year Average	Upper Limit of 5 Year Average	Increasing Trend Previous 10 years	No Trend Previous 10 years	Declining Trend Previous 10 years	Unusual Mortality Limit
0	259	0	0	0	
260	299	5	5	5	16
300	349	9	7	7	19
350	399	9	8	8	22
400	449	10	9	9	25
450	499	12	9	9	28
500	549	12	11	11	31
550	599	12	11	11	34
600	649	12	11	11	37
650	699	12	12	12	40
700	779	12	12	12	43

[5] If the population is around 357 and 1.5 whales are harvested per year, the harvest would be a little under .4% of the population. (Tr. at 172).

(Tr. at 142; NMFS I; NMFS Q).

Under this regime, co-management agreements will be developed for five year intervals, in which harvest levels will be derived from the abundance estimates averaged over the previous five year interval. (NMFS I). The co-management agreements will include specific limitations regarding the number and allocation of strikes, hunting periods, hunting practices (prohibitions on the taking of mothers with calves and juvenile whales and methods to improve efficiency of the harvest), reporting procedures, mitigating measures, and enforcement. (NMFS I). The co-management agreements would also include measures for preferential harvest of male animals. (NMFS I).

The above table was developed under the assumption that the growth rate was between 2% and 6%, because NMFS believes there is not enough data to accurately determine the growth rate and therefore using the default range of 2% to 6% is appropriate. (Tr. at 179; 276). Under this regime, every five years the program determines the trend category for the previous ten years and estimates the average abundance for the previous five years to determine the harvest levels for the next five years using the table. (NMFS I; NMFS O). This regime allows a harvest even if there is a declining trend, on the assumption that the harvest would be sufficiently small so that it would not represent a significant increase in the decline of a population or impede a recovering population. (Tr. at 142-143). For clarification, in this context declining trend means a decline in growth but not necessarily a negative growth rate, and the declining trend column in the chart assumes the population is growing between 2% - 6%. (Tr. at 143-144, 196-197). Also, this proposed regime allows a more liberal harvest when the population is smaller and a more conservative harvest when the population is larger based on the idea that once the population reaches the level of the more conservative harvests, the population growth will make up for time lost during the more liberal harvests. (Tr. at 216).

The five year intervals in the plan NMFS has proposed are intended to allow a reasonable management period so that the hunters can proportion the harvest appropriately and to allow NMFS a certain amount of fine tuning in the harvest. (Tr. at 144-145).

NMFS has proposed that the above harvest regime not take effect until 2010, because existing data does not provide sufficient information on the population trends for the above harvest regime. (Tr. at 131-132; NMFS I). A minimum of 10 years of abundance estimates are required in order to distinguish among increasing, stable, or decreasing growth trends with a 95% degree of certainty. (Tr. at 214; NMFS I; NMFS O). If the statistical criteria for determining the trend were loosened, increasing and decreasing trends would be detected sooner. (Tr. at 449-451).

NMFS would like to conduct abundance estimates every year but cannot guarantee funding over the life of the plan. (Tr. at 289). NMFS may conduct abundance estimates every other year if that is scientifically acceptable. (Tr. at 289; NMFS I). However, the ability to detect population trends is lower if surveys are conducted less

frequently. (Tr. at 194-195; MMC A). Since the proposed harvest table assumes there is no growth unless there is an indication otherwise, this would also likely cause the harvest to be determined by the no trend category when the population is actually increasing or decreasing. (Tr. at 195).

If in any one year, observed mortalities exceed the Unusual Mortality Limit, emergency restrictions will occur and the harvest rates will be reduced by the number of mortalities above the limit. (NMFS I). If at the end of the five year period in which the unusual mortality event occurred, there are any remaining mortalities not accounted for by a reduction in the harvest, they will be subtracted from the five year average abundance for the purpose of determining the harvest level in the next five year interval. (NMFS I). The Unusual Mortality Limit is calculated by multiplying 6 percent times the median of each five year population range. (NMFS I). NMFS believes 6 percent is a reasonable index of excessive mortality. (NMFS I). However, in determining what level of mortality is unusual, NMFS has assumed the mortalities observed since 1999 are typical. (Tr. at 173-175). If the population has been experiencing unusual mortalities since 1999, the numbers in NMFS's first proposed harvest regime would have an upward bias. (Tr. at 175).

Between now and 2010, NMFS proposes the following harvest regime: two (2) strikes for 2005, one (1) strike for 2006, two (2) strikes for 2007, one (1) strike for 2008, and two (2) strikes for 2009. (NMFS I).

NMFS used the population model to test the above harvest regime to see if the regime would actually allow the population to recover. (Tr. at 101). The harvest levels are set so that if the population of Cook Inlet Beluga Whales recovers with a growth rate between .02 and .06 (between 2 to 6 percent) per year there is a 95 percent chance the population would recover to 780 with only a 25 percent delay from the harvest (herein after "95/25").[6] (Tr. at 101, 123, 127; 179). The 25 percent delay criterion is a policy decision and not a quantity that can be determined from research or science. (NMFS D).

In fisheries management, NMFS has used a management approach for the last 13 years that allows harvesting if there is a 95% chance the harvest will only delay the population's recovery by 20 percent. (Tr. at 123-125). The delay in recovery is calculated from the time to recovery in the harvested and unharvested population projections. (NMFS O). This is the first time NMFS has proposed allowing a harvest to delay recovery by more than 20 percent. (Tr. at 125).

However, when there is no growth or a decline in population occurs, the harvest must be reduced to zero in order to meet a goal of 95/25. (NMFS N). Under this plan NMFS allows subsistence hunting even when the goal of 95/25 cannot be met in order to balance the goal of recovery with the need to provide a reasonable opportunity for traditional subsistence hunts by Alaska Natives. (NMFS N). Under NMFS's proposed

[6] The harvest table is based on the assumption that once the harvest rule is applied, not necessarily before, Rmax is between 2% and 6%. (Tr. at 432). Also, the 95/25 criterion is not the only criterion that can be used for measuring the performance of recovery. (Tr. at 434-436, 439-442).

harvest regime, if the population declines below the current level, strikes will be adjusted downward until the population reaches a critical threshold of 260 whales and below that there will be no harvest. (Tr. at 139-140; NMFS N; NMFS Q).

In determining the floor, NMFS considered (1) an Allee effect, (2) inbreeding depression, (3) loss of genetic variability, (4) vulnerability to environmental perturbations due to reduced range, (5) vulnerability to environmental perturbations due to reduced population size, and (6) vulnerability to demographic stochasticity due to reduced population size. (Tr. at 188; NMFS I). In considering the impacts of the various factors, NMFS believes the loss of genetic variability is the most important factor. (Tr. at 139-140). Considering the risks associated with a small population size, NMFS believes a harvest from a population of 200 or fewer whales could represent an irreplaceable loss to the genetic diversity of the population. (Tr. at 140; NMFS O).

NMFS proposed a floor of 260 and not 200, because there is a lag time between when the data is collected and when the data is applied. (Tr. at 140). Dr. Hobbs calculated that 260 was the point at which there is a 95% chance that the actual whale population would not be below 200 even if there is a rapidly declining population.[7] (Tr. at 140-141; 228). Further, NMFS proposed a floor of a five year abundance estimate average of 260 whales to ensure there is less than a 5 percent chance that a harvest is taken from a population of 200 or fewer beluga whales, with a breeding population of 60 females. (NMFS I). In a population with approximately 60 breeding females, a loss of one breeding female equals approximately a 1 percent loss of genetic variability. (Tr. at 140). Additionally, the taking of one breeding age female is more likely to have a greater impact on the population than the taking of a breeding age male, because female Cook Inlet Beluga Whales generally produce one offspring every three or four years whereas one adult male can breed with several females. (Tr. at 186-187; 239-240; NMFS B at 22). However, neither the population model nor the proposed harvest plan account for the differential impact on the population from taking males versus females.[8] (Tr. at 187; 227).

NMFS also concluded the Allee effect would not act on Cook Inlet Beluga Whales until the population was reduced to the point where the currently observed group structure breaks down. (NMFS I). The Allee effect is the impact of reduced social interactions and loss of mating opportunities in a small population. In other words, reproduction is reduced at low population levels, because the animals have difficulty finding suitable mates. (Tr. at 191-192). The Allee effect is more applicable to widely dispersed populations where the animals may have to search to find a mate. (Tr. at 191-192). Currently, the Cook Inlet Beluga Whale population is distributed among a few groups, and although the groups are smaller on average now than in the past, the group sizes are still within the range of the typical group sizes. (NMFS I). Further, tagging

[7] A slowly declining population may actually remain above 200 when it hits the floor of 260. (Tr. at 228).
[8] At the moment, the scientific community does not know how many males are needed in one generation to contribute to the next generation or what breeding or social structure is required for Cook Inlet Beluga Whales. (Tr. at 406).

data indicates that whales frequently move between groups, so mating opportunities are not reduced. (NMFS I).

Based on published scientific information, NMFS concluded that inbreeding depression would not be a relevant factor until the population dropped below 200 individuals. (NMFS I). In evaluating the loss of genetic variability, NMFS believes that 99% of the diversity of the population can be maintained in a population of 200 individuals as long as the population does not remain small for several generations. (NMFS I). NMFS assumes the population will recover to more than 780 individuals within three to five generations or 30 to 50 years. (NMFS I).

NMFS also believes that significant range reduction resulting in increased vulnerability to small scale perturbations is not likely to occur until the population is substantially smaller than its current size. (NMFS I). However, a reduced population may be closer to a threshold such that a catastrophic event that removes a significant portion of the population could reduce the population to the point where other risks, such as inbreeding depression or an Allee effect are significant. (NMFS I). NMFS believes the risks to the Cook Inlet Beluga Whale population from environmental perturbations due to reduced population size are unknown but fairly small. (NMFS I). Additionally, NMFS does not believe the Cook Inlet Beluga Whales are vulnerable to demographic stochasticity due to reduced population size since the population is greater than 200. (NMFS I).

Importantly, there is not a method that would allow the scientists in this case to determine the absolute floor for harvesting below which would lead to catastrophic results. Rather the science indicates small populations are more vulnerable than larger populations. (Tr. at 397-398). In this context, a small population is a population under a few thousand. (Tr. at 398). In reaching the determination that the population should not be allowed to decline below 200, NMFS did not do a detailed review of the literature on conservation biology but instead relied on the literature cited by Doug DeMaster (Tr. at 192); the current consensus among geneticists is that a population between 1,000 – 2,000 is necessary to protect against genetic damage from inbreeding and that a population of 200 individuals is dangerously small[9] (Tr. at 193, 385; and MMC A); if the carrying capacity actually turns out to be 1300, the Cook Inlet Beluga Whale population may be vulnerable to chance fluctuations and may always require special care even if it recovers under the MMPA (Tr. at 385-386, 397-400); that a brief stay at a small population size would be relatively harmless if there were assurances the population would recover quickly from the small size, that this determination is not possible given the present data and especially considering that the Cook Inlet Beluga Whale population has been below 500 for almost a decade (MMC A); that the population may always be fragile; that the population is much more vulnerable when it is around 350 than the population would be if it were twice that size (Tr. at 424-425); and that many species with populations greater than 200 are listed under the Endangered Species Act. (MMC A).

[9] Specifically, the current consensus is that an effective population of 500 to 1,000 animals is necessary to prevent genetic damage from inbreeding, which translates into a total population of 1,000 to 2,000 individuals. (Tr. at 193).

At this time, there is a great deal of uncertainty about the outcome of this population, and without the harvest, the chances the population will recover or decline below 200 are equally likely. (Tr. at 147: NMFS Q).

To predict how the population will respond to the proposed harvest, reliable estimates of the starting population[10] and growth rates are required. (Tr. at 342). At this point, there is enough data about the Cook Inlet Beluga Whale population that uncertainty about the starting population size is not an issue from a technical point of view. (Tr. at 345-346, 365). Although the Native Alaskans believe the Cook Inlet Beluga Whale population is higher than the abundance estimates indicate, Dr. Hobbs' method is more objective than the hunters' impressions about the whale population. (Tr. at 353-354). Since the Native Alaskans are good hunters and know the Cook Inlet Beluga Whales very well, there is a natural tendency to go where the whales are likely to be, and this gives them an unrepresentative sample. (Tr. at 353-355). Although discussions between NMFS and the Native Alaskans may lead to improvements in the counting methods, from a scientific point of view the impressions of the Native Alaskans regarding the population estimates cannot be used to modify the abundance estimates determined by NMFS. (Tr. at 358-359). However, if the survey methods used by NMFS are redesigned to survey more of the areas the Native Alaskans believe contain more whales, the results of the survey would not be expected to change, but the results of the survey would have a lower coefficient of variation. (Tr. at 360-361). Assuming the correction procedures are not flawed, any errors that are in NMFS's survey method are random errors. (Tr. at 361-362). However, the uncertainty about the growth rate is the critical issue. (Tr. at 345-346).

In order for NMFS's first proposed rule to meet the 95/25 criterion, the growth rate would have to be greater than or equal to 3%. (Tr. at 373; MMC E). However, the performance of the proposed harvest regime begins to deteriorate when the growth rate is between two and three percent. (Tr. at 373; MMC E). If the growth rate is 1%, then there is a 100% delay in recovery under the proposed rule, and if the growth rate is below one-half of one percent, the proposed rule prevents recovery. (Tr. at 373-374; MMC E). There is a 13% chance that the growth rate is greater than or equal to 3%, an 11% chance that the growth rate is between 2% and 3%, a 12% chance that the growth rate is between 1% and 2%, and a 19% chance the growth rate is between 0 and 1%. (Tr. at 374; MMC E). Based on these calculations, there is an 18% chance the proposed rule will prevent recovery when recovery would have been possible without the harvest. (Tr. at 375; MMC E).

C. TYONEK'S FIRST PROPOSAL

Tyonek argues that a minimal harvest of 1.5 whales per year is only acceptable for the short term while the population recovers, and at this low level, the cultural and nutritional needs of the Native community are not being met. Tyonek also argues that a

[10] In this context, the phrase starting population means the population the year the harvest regime is applied. (Tr. at 342).

long term harvest at this level would have severe detrimental effects on the subsistence way of life. (Tyonek A). Instead, Tyonek argues that the subsistence harvests should increase beyond minimal levels as the Cook Inlet Beluga Whale population increases. (Tyonek A). Additionally, the main criterion in the NMFS plan that there be 95% certainty that there will not be more than a 25% delay in recovery does not achieve a reasonable balance of the dual goals of recovery and providing for the continued subsistence hunts. (Tyonek A). Instead Tyonek argues that the 95/25 criterion or a variation of it is appropriate in the early, more critical stages of recovery, but once the population reaches a certain point, the criterion unnecessarily restricts harvests. (Tyonek A). Specifically, Tyonek argues that the goal should simply be demonstrating recovery of the population and how long recovery takes does not matter, because this population is always going to be fragile. (Tr. at 423-424).

Tyonek argues that although the 95/25 criterion is appropriate for long recovery times, the 95/25 criterion is not the only criterion[11] (Tr. at 434-436, 439-442); a harvest regime's performance can also be evaluated by examining the population size in the future as a ratio of the starting population size (Tr. at 440); that the performance of a plan is not measured by how long recovery takes, but instead by the probabilities the population will increase (Tr. at 440); that the performance of a plan can also be evaluated by its ability to satisfy the needs of subsistence users or by examining the relative delay in population size rather than in time (Tr. at 440-441; Tyonek E); and that if a population would recover to 780 whales in ten years without a harvest and 600 whales with a harvest, then there is a delay in 180 whales. (Tr. at 441).

Tyonek made the following proposal based on the idea of getting the population away from the smaller numbers as quickly as possible, but slowing down the rate of recovery and allowing higher harvests as the population approaches OSP. (Tr. at 471). Unlike NMFS's first proposal where the goal was to recover the population to OSP with only a 25% delay, Tyonek's proposes a harvest regime with intermediate goals that are based on risk to the population. (Tr. at 460-461; 480-481). The first goal under this proposal is to recover the population to 500. (Tr. at 460-461; Tyonek E). After reaching 500, the goal is to reach 600 whales and then OSP. (Tr. at 460-461; Tyonek E).

Tyonek's proposal is:

5 Year Population Averages	Increasing Trend	Stable	Decreasing Trend
0 – 259	0	0	0
260- 299	5	5	0
300- 349	6	6	0
350 – 399	8	7	0
400 – 449	9	8	5
450 – 499	10	8	5

[11] For short recovery times, the 95/25 criterion is less appropriate. For example, if the recovery time was two years, the resulting delay caused by a harvest would be six months, which in most contexts would be inconsequential. (Tr. at 441-442).

500 – 524	12	9	6
525 – 549	14	10	6
550 – 574	17	15	7
575 -599	20	16	7
600 – 624	22	17	8
625 – 649	24	18	9
650 – 699	26	19	10
700 -780	28	20	10

(Tr. at 445 -450; Tyonek E).

In developing this table, Tyonek states that it took a common sense approach to the harvest and did not base the proposal on a mathematical algorithm. (Tr. at 446). Similar to NMFS's first proposal, this plan also determines trends based on ten year periods and requires a 95% detection rate. (Tr. at 448-449). Compared to NMFS first proposal, Tyonek's proposal reduces the harvest when the population is low, but allows for an increased harvest as the population gets closer to OSP. (Tr. at 462-463). Under Tyonek's proposal, the probability the population will decline is higher when the population is higher, because the proposal has more conservative factors built in at lower population levels. (Tr. at 467). Also, the proposal allows for fairly high strikes at high population levels that may be higher than the population growth even when the population is declining. (Tr. at 467).

If the growth rate is between 0 and 1% and the population is between 300 and 349, this proposal will not meet the 95/25 criterion, but there is a 95% chance that the population will not drop below 256 under this harvest regime. (Tr. at 467-468; Tyonek E). The table below represents what could happen to the population if a harvest regime designed for a population with a growth rate between 2% - 6% is applied to a population that actually has a growth rate of 0 – 1%. (Tr. at 468).

	Point to which there is a 95% chance the population would not go below if Tyonek's proposed harvest regime designed for a population with a growth rate between 2% and 6% is applied to a population with a growth rate between 0 and 1%.		
Population Range	Increasing Trend	Stable	Decreasing Trend
0 – 299	243	243	243
300-349	256	256	260
350 – 399	282	282	284
400-449	315	317	318
450 – 499	349	350	347
500 – 549	382	384	383
550 – 599	409	409	406
600 – 649	432	430	429
650 – 699	452	452	457
750 – 799	476	478	485

(Tr. at 467-468; Tyonek).

In comparing Tyonek's proposal with NMFS's first proposal, the Tyonek proposal has a lower probability of a delay in recovery greater than 25% when the population is below 500. (Tr. at 470-471). However, the opposite is true when the population is above 500. Additionally, the Tyonek proposal effectively has two floors: when the trend is stable or increasing, the floor is 260, but when the trend is declining the floor is 400. (Tr. at 486-487).

D. TYONEK'S SECOND PROPOSAL

After the August 2, 2004, hearing, the parties attempted to see whether they could resolve the differences in their plans and design a harvest regime that was satisfactory to all involved. Although the parties were unsuccessful in resolving all of their differences, Tyonek made a second proposal that attempts to achieve better results than its first proposal if the growth rate remains low. Tyonek argues that its second plan raises the floor from 260 to 310 and incorporates MMC's concern that the harvest be guided by the growth rate and the most recent 5 year population average. Under this approach, the harvest is determined by calculating the average survey estimate over the last five years and the posterior distribution for the growth rate after which the following decision tree and harvest table are used to determine the harvest.

a. For the five year period between 2005 and 2009, the harvest will be limited to 8 whales.

b. For the period 2010 and beyond, if the arithmetic average survey estimate over the most recent five year period is less than 310 whales, the harvest for the five year period is 0.

c. If the year is 2035 or later and there is more than a 20% probability the Rmax is less than 1%, then the harvest is 0 over the five years.

d. If the year is between 2020 and 2034 and there is more than a 20% probability that Rmax is less than 1%, then the harvest is 3.0 whales over the five years.

e. If the year is 2015 or later and there is more than a 25% probability that Rmax is less than 2%, then use the "low Rmax" column.

f. If the year is before 2015 and there is more than a 75% probability that Rmax is less than 2%, then use the "low Rmax" column.

g. If there is more than a 25% probability that Rmax is greater than 3%, then use the "high Rmax" column.

f. If none of the above applies, then use the "Intermediate Rmax" column

5 year abundance average	High Rmax (High growth rate)	Intermediate Rmax (Intermediate growth rate)	Low Rmax (Low growth rate)
200 – 249	0	0	0
250 – 299	5	5	0
300 – 349	6	7	0
350 – 399	8	8	5
400 – 449	9	8	5
450 – 499	10	8	5
500 – 524	14	9	5
525 – 549	16	10	5
550 – 574	20	15	5
575 – 599	22	16	5
600 – 624	24	17	6
625 – 649	26	18	6
650 – 699	28	19	7
700 – 779	32	20	7

E. NMFS's SECOND PROPOSAL

After examining Tyonek's second proposal, NMFS created another proposed harvest regime that is similar to Tyonek's second proposal. As a result, NMFS filed a "Notice of Filing of March 31, 2005, Harvest Plan and Supporting Documents" (NMFS brief) proposing another harvest regime and requesting five documents be admitted into the record.[12] Between 2005 and 2009, NMFS proposed the following harvest regime: two strikes in 2005, one strike in 2006, two strikes in 2007, one strike in 2008, and two strikes in 2009. (NMFS brief).

Beginning in 2010, NMFS proposes to develop co-management agreements for five year intervals in which the strike levels are determined by the average abundance estimates in the prior five year interval and the cumulative probability statistics of the posterior distribution of the growth rate estimated for the population using the abundance figures starting in 1994. (NMFS brief). The co-management agreements will include specific limitations regarding the number and allocation of strikes, hunting periods, hunting practices (prohibitions on the taking of mothers with calves and juvenile whales, methods to improve efficiency of harvest), reporting procedures, mitigating measures, and enforcement.[13] (NMFS brief).

[12] These documents are: (1), (2), (3), (4), and (5). None of the parties filed objections to the admission of these documents. NMFS's second proposal and the supporting documents are hereby admitted into evidence as NMFS U, NMFS V, NMFS W, NMFS X, NMFS Y, NMFS Z.

[13] The Alaska Native parties are encouraged to consult with one another to ensure that hunting "best practices" are employed to eliminate, as much as possible, inadvertent strikes of females, females with calves, and juveniles. This consultative process might involve Joel Blatchford, Peter Merryman, and other experienced beluga whale hunters jointly participating in the 2006 and 2007 hunts to maximize the transfer/exchange of hunting techniques and knowledge.

Since there is uncertainty regarding the potential growth rate of the Cook Inlet Beluga Whales, NMFS has proposed determining the harvest based on three growth categories: "low," "intermediate," and "high." (NMFS brief). Essentially, NMFS proposes that harvests should be determined by using the following calculation, decision tree, and harvest table. (NMFS brief). Under this approach, NMFS will first calculate the average stock abundance over the previous five year period and then calculate the likely distribution of the growth rate for the period from 1994 to the most recent year for which abundance estimates are available. (NMFS brief). Next, NMFS proposes to calculate the probabilities that the growth rate would be less than 1%, less than 2%, or greater than 3%. (NMFS brief). After making these calculations, the decision tree below will be used to determine the proper box on the harvest table to determine the harvest levels. (NMFS brief).

a. Is the average stock abundance over the previous five year period less than 350 beluga whales?

   If yes, the Harvest Table provides that, the harvest is zero over the next five year period.

   If no, go to b.

b. Is the current year 2035 or later and is there more than a 20 percent probability the growth rate is less than 1%?

   If yes, the harvest is zero over the next five year period.

   If no, go to c.

c. Is the current year between 2020 and 2034 and there is more than a 20 percent probability the growth rate is less than 1%?

   If yes, the harvest is three whales over the next five year period.

   If no, go to d.

d. Is the current year 2015 or later and is there more than a 25 percent probability the growth rate is less than 2 percent?

   If yes, go to the harvest table using the "Low" growth rate column.

   If no, go to f.

e. Is the current year prior to 2015 and is there more than a 75 percent probability the growth rate is less than 2 percent?

If yes, go to the harvest table using the "Low" growth rate column.

If no, go to f.

f. Is there more than a 25 percent probability the growth rate is more than 3 percent?

If yes, go to the harvest table using the "High" growth rate column.

If no, go to the harvest table using the "Intermediate" growth rate column.

Five year population averages	"High" growth rate	"Intermediate" growth rate	"Low" growth rate	Expected Mortality Limit
< 350	0	0	0	
350 – 399	8 belugas in 5 years	5 belugas in 5 years	5 belugas in 5 years	21
400 – 449	9 belugas in 5 years	8 belugas in 5 years	5 belugas in 5 years	24
450 – 499	10 belugas in 5 years	8 belugas in 5 years	5 belugas in 5 years	27
500 – 524	14 belugas in 5 years	9 belugas in 5 years	5 belugas in 5 years	30
525 – 549	16 belugas in 5 years	10 belugas in 5 years	5 belugas in 5 years	32
550 – 574	20 belugas in 5 years	15 belugas in 5 years	5 belugas in 5 years	33
575 – 599	22 belugas in 5 years	16 belugas in 5 years	5 belugas in 5 years	35
600 – 624	24 belugas in 5 years	17 belugas in 5 years	6 belugas in 5 years	36
625 – 649	26 belugas in 5 years	18 belugas in 5 years	6 belugas in 5 years	38
650 – 699	28 belugas in 5 years	19 belugas in 5 years	7 belugas in 5 years	39
700 – 779	32 belugas in 5 years	20 belugas in 5 years	7 belugas in 5 years	42
780+	Consult with co-managers to expand harvest levels while allowing continued growth of the population			

(NMFS brief).

Under this second proposal, limited harvests are allowed when the population averages are between 350 and 500 whales, and the number of strikes allowed increases as the population increases provided growth rates remain positive. (NMFS brief). The plan also establishes a floor of a five year population average of 350 whales. (NMFS brief). This floor was set to insure that there would be a low likelihood of harvesting from a population that had declined by 5 percent or more from the level observed between 1999 and 2003 where the abundance average for these five years is 371 whales. (NMFS brief).

Further, the harvest levels are also subject to an Expected Mortality Limit (EML). (NMFS brief). The Expected Mortality Limit (6% of the population average) represents the 95th percentile of the distribution of observed mortalities in the years 1999 – 2003. (NMFS brief; See also NMFS U). The 95th percentile represents a high probability that an event significantly greater than the typical level of mortality has occurred. (NMFS brief; See also NMFS U). If at the end of the year the number of beach cast and floating dead whales exceeds the expected mortality limit, then an unusual mortality event has occurred, and the Estimated Excess Mortalities (EEM) will be calculated as twice the number of reported dead whales above the expected mortality limit. (NMFS brief). NMFS proposes an expansion factor of two in order to account for dead whales that were not reported. (NMFS brief). The harvest will then be adjusted as follows:

1. The harvest level for the remaining years of the current five year period will be recalculated by reducing the five year average abundance from the previous five year period by the Estimated Excess Mortalities. The revised abundance estimates will then be used to determine the harvest levels from the harvest table.

2. For the following five year period, the estimated excess mortalities would be subtracted from the abundance estimates of the year of the excess mortalities so the five year average would reflect the loss to the population. This average would then be used in the table to determine the harvest. (NMFS brief).

Essentially, the differences between the harvest plan NMFS proposed at the August 2004 hearing and the one proposed now can be summarized as follows.

Item	2004 Harvest Management Plan	2005 Harvest Management Plan
Harvest Table		
Strike / harvest levels	Would have allowed an average of 1.5 strikes per year after 2009 while the population was low or not growing.	Would allow one strike per year while the abundance is low and not growing.
95/25 criterion	Increasing the harvest would meet the 95/25 criterion, assuming moderate to high population growth rates.	Increasing the harvest would meet the 95/25 criterion with low, moderate, or high population growth rates.

No harvest	Below a five year average population of 260 animals	Below a five year average population of 350 animals
Harvest Adjustments due to abnormal mortalities	Abnormal mortality limit - defined as anything exceeding 6 percent of the population. - the number of mortalities above that limit will reduce the harvest rates for the following year(s).	Expected Mortality Limit (EML) - defined as 6 percent of the population - Estimated Excess Mortality (EEM) will be calculated as twice the number of reported dead whales exceeding the EML - harvest rates for the following year(s) will be recalculated by reducing the average abundance from the previous 5 year period by the EEM.

(NMFS brief).

DISCUSSION AND DECISION ON CONTESTED ISSUES

In enacting the Marine Mammal Protection Act, Congress found that certain species and population stocks of marine mammals are or may be in danger of extinction or depletion as a result of man's activities. 16 U.S.C. § 1361(1). Further, Congress found, in part, that such species and population stocks should not be permitted to diminish below their optimum sustainable population and measures should be immediately taken to replenish any species or population stock that has already diminished below that population. 16 U.S.C. § 1361(2). To that end, Congress established a moratorium on the taking and importation of marine mammals and marine mammal products subject to a few exceptions. See generally 16 U.S.C. § 1371. However, this moratorium, except as provided in 16 U.S.C. § 1379, did not apply to the taking of any marine mammal by any Indian, Aleut, or Eskimo who resides in Alaska and who dwell on the coast of the North Pacific Ocean or the Artic Ocean if such taking is not accomplished in a wasteful manner and is (1) for subsistence purposes or (2) done for purposes of creating and selling authentic native articles of handicrafts and clothing. 16 U.S.C. § 1371(b). However, if the Secretary determines any species or stock of marine mammal subject to taking by Indians, Aleuts, or Eskimos is depleted, the Secretary may prescribe regulations upon the taking of any such marine mammal by any Indian, Aleut, or Eskimo. 16 U.S.C. § 1371(b). Such regulations shall be prescribed after notice and hearing required by 16 U.S.C. § 1373 and shall be removed as soon as the Secretary determines that the need for their imposition has disappeared. 16 U.S.C. § 1371(b).

CITT has argued that several other treaties and federal and/or state laws are relevant; however, the statute at hand limits the jurisdiction of the proceedings. (Tr. at 311-327; CITT Response). Additionally, CITT argues there are several other factors causing the population of the Cook Inlet Beluga Whales to decline. (Tr. at 311-327; CITT Response). Although there may be violations of law and other factors impacting the

growth of the population, the jurisdiction of these proceedings is limited to recommending a long term harvest regime and other potential violations of law are not properly within the jurisdiction of these proceedings.

A. MMC's STANDING

Tyonek argues that MMC does not have standing to participate in these proceedings. Tyonek argues that it has been "sandwiched" in between two government agencies and Congress did not intend to "sandwich" subsistence users between two government agencies when it created the MMPA. (Tr. at 22-24). Specifically, Tyonek argues that 16 U.S.C. § 1402(a) sets forth the duties of the MMC, and the duties relevant here are to: (1) review activities of the United States pursuant to existing laws and international conventions relating to marine mammals; (2) conduct continuing reviews of the condition of marine mammal stocks and methods for their conservation; (3) undertake studies for the protection and conservation of marine mammal stocks; (4) recommend to the Secretary such steps as may be necessary for the protection and conservation of stocks; (5) recommend to the Secretary measures for further protection of subsistence uses by Alaska Natives; and (6) consult with the Secretary as needed . (Tr. at 22-24; Tyonek Response).

Tyonek also argues the MMC is authorized to interact with the Committee of Scientific Advisors on Marine Mammals in formulating studies and recommendations. (Tyonek Response). Further under 16 U.S.C. § 1405, Congress gave the MMC access to all studies and data compiled by federal agencies relating to marine mammals. (Tyonek Response). However, Tyonek argues Congress did not provide MMC any authority beyond conducting studies, making recommendations, and providing consultations. (Tyonek Response).

Tyonek argues that under Section 202 of the Marine Mammal Protection Act, Congress intended for NMFS to give MMC's recommendations serious consideration but stopped short of authorizing MMC to participate as a party in an administrative hearing. Further, MMC is also required to submit an annual report to Congress that includes all recommendations made by MMC and the Secretary's responses to those recommendations. Tyonek argues that the MMC, unlike any other party, is authorized early consultation with the Agency, access to all of the Agency's information, the power to make recommendations before a hearing is scheduled and throughout the proceedings, to have its recommendations responded to by the Secretary, and finally oversight by Congress through its annual report. Further, section 103(b)(3) of the MMPA is intended to give Alaska Natives and other members of the public an opportunity for a hearing before the Agency and not to give MMC a second bite at the apple and/or require the public to make its case against two government agencies. Finally, MMC's admission at the August 2004 hearing that it would not be able to seek judicial review is a strong indication that MMC does not have standing as a party in this proceeding. Therefore, Tyonek requests MMC be dismissed from this proceeding but not strike any information or testimony that MMC has provided thus far.

In reply, NMFS argues that MMC has fully participated in all previous hearings pursuant to 16 U.S.C. § 1371(b), and NMFS prefers MMC to continue their role in these proceedings. (NMFS reply).

Tyonek's arguments on this issue are very compelling. Indeed, at the commencement of this case, I had reservations as to MMC's participation as a party in these proceedings. However, since no objections were raised by any party, the issue was never raised for ruling by the Undersigned. Indeed, Tyonek waited until the hearing that commenced on August 2, 2004 to raise this objection after all parties were prepared and ready for the hearing to commence. After fully considering the arguments of the parties, I find this objection is untimely. I note that the first hearing in this case commenced on December 5, 2000, and almost four years later the hearing reconvened on August 2, 2004. Further, in my order of June 10, 2004, I directed the parties to submit any rebuttal or reply comments, objections, or proposed witnesses testimony on or before July 22, 2004. Since Tyonek waited until the hearing of August 2, 2004 to raise an objection to MMC's standing, I find that objection is barred. In fact, "Tyonek's Response to the Submissions of the MMC and the NMFS" did not contest MMC's expert witness' qualifications to testify. Finally, Tyonek does not move that MMC's documentary and witness testimony be stricken. This omission speaks volumes as to the positive contribution that MMC has had in resolving this very difficult case. While I still have institutional reservations about MMC's participation as a party, I specifically find that Tyonek's objections are untimely and thus its Motion to Dismiss is hereby denied.

B. THE GOAL OF THE MMPA AND DEFRERENCE TO THE AGENCY.

NMFS argues that under Chevron U.S.A., Inc. v. NRDC, 467 U.S. 837, 843-44 (1984) the NMFS plan is entitled to deference provided NMFS does not ignore a material fact or otherwise present an arbitrary or capricious plan. (NMFS brief). Specifically, NMFS argues its second proposal fulfills, to the extent feasible, the stipulated criteria for developing a long term harvest regime, and the proposal (1) accounts for uncertainty in the knowledge of the population dynamics of Cook Inlet Beluga Whales, (2) allows for periodic adjustment of the harvest and does not eliminate a minimum level of harvest unless essential for the conservation of the stock, and (3) is readily understandable by diverse constituencies. (NMFS brief). However, NMFS states that harvest regime cannot provide a reasonable certainty that the population will recover within an acceptable period of time. (NMFS brief). The Marine Mammal Commission has interpreted the stipulation that the plan should provide reasonable certainty that the population will recover, within an acceptable period of time, to the point where it is no longer considered depleted to mean that there should be a 95% certainty that the population would recover within 100 years. However, based on existing data, NMFS cannot conclude with 95% certainty that the population would recover within 100 years even without a harvest. (NMFS brief). Therefore, NMFS argues the question is whether a harvest should be allowed if there is no detectable population growth, and the answer to this question must consider the need for a continued harvest as well as the effects of a harvest on the population. (NMFS brief).

NMFS argues that subsistence hunts are an integral part of Alaska Native culture, and the MMPA only allows NMFS to restrict subsistence hunts under very limited circumstances. (NMFS brief). Citing the House of Representatives Report No. 92-1488, October 2, 1972, NMFS asserts that the Secretary can only curtail or terminate subsistence hunts when the takes are endangering, depleting, or inhibiting the restoration of endangered or depleted stocks. (NMFS brief). Under NMFS's second proposal, a harvest of 5 strikes in 5 years is allowed when the population is not growing as long as the population is above 350, and this would be reduced to 3 strikes in 5 years in 2020 and 0 strikes after 2035. (NMFS brief). NMFS argues this plan would not increase the risk of extinction, and the low level of harvest would have no detectable effect on the population's ability to recover. (NMFS brief). Also, this would continue to allow subsistence hunts, which are an integral part of Native Alaskan culture, while NMFS continues to conduct research to determine the underlying causes of the population's failure to increase and address those in a different forum. (NMFS brief).

At the hearing, Tyonek and the Whale Hunters argued that if the population is going to die regardless of what anyone does, then the hunters should be allowed to hunt the whales. (Tr. At 308-309). However, MMC argues that under 16 U.S.C. § 1361(2) marine mammal stocks should not be permitted to diminish below their optimum sustainable population and that measures should be immediately taken to replenish any stock that has already diminished below that population. (MMC Response) (Citing 16 U.S.C. § 1361(2) and § 1361(6)). Although 16 U.S.C. §1371(b) recognizes the value of subsistence hunts and establishes considerable procedural and substantive safeguards for actions to regulate it, providing hunting opportunities for Alaska Natives is not included in the findings and policies of the MMPA and allowing subsistence takes is therefore subservient to the goal of restoring depleted marine mammal stocks to OSP. (MMC Response). Further, the importance of recovery over subsistence hunting is also demonstrated by section 1371's allowance for the regulation of subsistence hunts when allowing continued hunts would interfere with recovery of the depleted stocks or their maintenance once OSP has been achieved. (MMC Response).

For depleted species, I believe that under the MMPA subsistence hunting is subservient to recovery. Under 16 U.S.C. § 1371(b), the Secretary may prescribe regulations regarding the taking of any depleted marine mammal species or stock after notice and hearing required by 16 U.S.C. § 1373. As stated above, 16 U.S.C. § 1373(a) provides that on the basis of the best scientific evidence available and in consultation with MMC, the Secretary shall prescribe regulations regarding the taking and importing for each species of marine mammal as he deems necessary and appropriate to insure that such taking will not be to the disadvantage of those species and population stocks and will be consistent with the purposes and policies set for in section 1361. Since Section 1373(a) requires regulations on takings so as to not disadvantage the species, subsistence hunting must be subservient to the recovery of a depleted stock. Further, even though there is a possibility of extinction even without a harvest, I do not believe that means the MMPA allows unregulated subsistence hunts, because such an interpretation would frustrate the Congressional goal of recovering depleted species to their optimum sustainable population. Even though extinction may be an inevitable possibility,

Congressional intent of the MMPA requires a recovery attempt. Therefore, I think the MMPA mandates that recovery is the first consideration in evaluating harvest regimes and subsistence hunting must be the secondary consideration.

MMC argues that NMFS's reliance on Chevron U.S.A. v. NRDC for the proposition that the presiding officer should give deference to the agency positions on all contested issues provided that it does not "ignore a material fact in the administrative record, or otherwise present an arbitrary or capricious plan to the administrative law judge in this proceeding" is misguided. (MMC Response). MMC argues that Chevron concerns the level of judicial deference to final agency action in informal rulemakings, and it does not apply to formal rulemaking or to the development of a recommended decision by an administrative law judge, which does not constitute final agency action. Further, 5 U.S.C. §§ 554(d) and 557(b) indicate that the presiding officer is the person who shall formulate the recommended decision and not the agency advocates. Also, under 5 U.S.C. § 706(2)(E), the more rigorous "substantial evidence" standard applies to formal rulemaking instead of an "arbitrary and capricious" standard. (MMC Response). Additionally, under the APA and agency regulations, the agency is free to deviate from the recommended decision provided it has sufficient justification, and this weighs against applying the level of judicial deference accorded final agency action to this intermediate stage in the process. (MMC Response).

In reply, NMFS disagrees with MMC's view that NMFS is not entitled to deference. Specifically, NMFS argues that under 16 U.S.C. § 1371(b)(3) when the Secretary promulgates regulations, the record must demonstrate that the regulations, findings, and determinations are supported by substantial evidence. (NMFS reply). However, the standard of proof for formal adjudications under the APA is the preponderance of the evidence standard. (NMFS reply). In other words, NMFS argues that while the Secretary's determination must be based on substantial evidence, the presiding officer's determination does not. (NMFS reply).

After due consideration, I find that NMFS positions are not entitled to deference because the Agency Head has not yet adopted either of NMFS's proposed rules. Instead, NMFS is entitled to have their plan evaluated under the preponderance of the evidence standard. Under 50 C.F.R. § 228.3, this hearing is governed by 5 U.S.C. §§ 556 & 557. Section 556(d) provides in part that a rule may not be issued except in consideration of the record as a whole and in accordance with the reliable, probative, and substantial evidence. In Steadman v. Securities and Exchange Commission, 450 U.S. 91, 100-103(1981), the Supreme Court interpreted the phrase "substantial evidence" in this section to mean the preponderance of the evidence.[14]

[14] Likewise, MMC's argument that 5 U.S.C. § 706(2)(E) applies is incorrect, because that section governs the scope of judicial review and not the standard by which the presiding officer is to base a recommended decision. Since section 556(d) governs the decision at hand, I do not see any need to discuss the standard to be applied by the Secretary or a court on review.

C. THE FIRST PROPOSALS

In Response to NMFS's first proposal, MMC argues that NMFS's first proposal fails to assure a timely recovery and fails to detect departures from its own assumptions rapidly enough. (Tr. at 337; MMC A). For example, NMFS's first proposed rule has a mechanism for detecting a declining trend, but the statistical burden of proof built into the rule does not detect the trend until it becomes obvious. (Tr. at 338; MMC A). Also, when the first proposed rule does detect a declining trend it does not do anything about that event. (Tr. at 338; MMC A). In other words, NMFS's first proposed rule assumes the growth rate is between 2 to 6 percent even though existing data indicate the growth rate is .4 percent, and NMFS's first proposed rule does not correct for discrepancies when the growth rate is not between 2 to 6 percent. (Tr. at 338; MMC A). In addition, MMC argues NMFS's first proposed rule does not make sense, because it does not adjust the harvest when a declining trend is detected as compared to no trend. (MMC A). Instead, MMC argues that the proposed rule should be based on what existing data indicates is the growth rate of the Cook Inlet Beluga Whales, and especially considering that NMFS's first proposed rule is based on continued monitoring of Cook Inlet Beluga Whales, the rule should make good use of information as it becomes available. (Tr. at 339; MMC A).

MMC believes the 95/25 criterion NMFS has proposed is an acceptable method to measure whether the plan would provide for recovery of the Cook Inlet Beluga Whales within an acceptable period of time, but argues that there is very high probability that the delay in time to recovery will be much higher than 25%. (Tr. at 375-376; MMC E).

MMC also argues that the analysis of the scientific data through 2003 casts a much different light on the status of the population than the scientific data did at the hearing in 2000. (MMC A). In 2000, the scientists involved assumed that the high harvests of Cook Inlet Beluga Whales were the only important factor causing the population decline, and the modeling at the time assumed that if the harvest was curtailed, the population would recover at the expected growth rate of between 2 to 6 percent. (MMC A). However, since 1999, there has been a minimal harvest of the Cook Inlet Beluga Whales, and there have been no signs of the expected recovery. (MMC A). Further, MMC argues that the harvest should not be considered the only factor affecting the population, and the management plan should consider the evidence of depressed population growth in regulating future harvests. MMC suggests that research should be done to determine why the population is not recovering as expected. (MMC A).

Additionally, MMC asserts that time is of the essence for the recovery of the Cook Inlet Beluga Whales and the floor of 260 is too low to prevent genetic deterioration. Because harmful genetic effects accrue at low population sizes, the population may experience social disruptions that impede recovery at low population sizes. Moreover, the population will be vulnerable to random environmental disturbances that raise the probability of extinction at low population sizes; and while the population is low, it may not be fully fulfilling its role in the ecosystem. (Tr. at 192-193; MMC A). MMC also argues that the sooner the population recovers, the sooner it can be sustainably harvested at or near its long term production potential. (MMC A). In response, NMFS argues that

the Cook Inlet Beluga Whale population has been below 2,000 for a long time. (Tr. at 193-194).

MMC notes that the proposed harvest regime of alternating between two strikes and one strike per year during 2005 and 2009 averages out to 1.6 whales and is too high to meet the 95/25 goal. (MMC A). MMC only proposes using this harvest regime until 2007. (Tr. at 417; MMC A). After 2007, there should be enough data to know what the growth rate is and start operating under a regime that responds to the data rather than a default regime. (Tr. at 417; MMC A). Although MMC has not done any analysis to determine what the additional risks would be if the temporary regime went until 2009 instead of 2007, Tyonek has compared the population size of 2005 with that of the population in 2010 under this temporary regime and found even if the growth rate is between 0 and 1 percent the population remains where it is today. (Tr. at 417, 472-473).

As a result of the collaborative efforts of the parties to resolve their differences on the remaining issues, NMFS and Tyonek prepared modified proposals. Each of these proposals attempted to address the concerns raised by the other parties. Therefore, no rulings will be made as to NMFS's and Tyonek's first proposal since they have been superseded.

D. THE SECOND PROPOSALS

Although NMFS second plan adopts much of Tyonek's second plan, Tyonek argues that the floor in NMFS's second plan is not supported by substantial evidence; that NMFS does not provide a reason for why it reduced the harvest when there is an intermediate growth rate and the population is between 350 – 399; and that it is not clear why NMFS has chosen a factor of two to derive the Estimated Excess Mortality.

The Marine Mammal Commission acknowledges that NMFS's second proposal is an improvement over the earlier proposals submitted by NMFS and Tyonek. (MMC Response). Although MMC continues to express concerns about allowing the harvest regime covering the years 2005 to 2009, MMC nevertheless now recommends the harvest regime in NMFS's second proposal for 2005 to 2009.[15] (MMC Response). However, MMC believes that some elements of NMFS's second proposal are deficient, because it does not (1) satisfy the stipulations agreed to by the parties for governing the long term harvest of Cook Inlet Beluga Whales, (2) respond quickly enough to population declines

[15] Specifically, MMC raises four concerns about the interim harvest regime. First, the interim harvest regime slightly increases the harvest from 1.5 whalers per year under the plan for the years 2001 through 2004 to 1.6 whales per year, and this does not make sense considering the population has not shown signs of recovery. Second, a harvest regime based on the actual observed growth is possible by 2008, and the sooner a harvest regime can be implemented based on the actual observed growth the better. Third, the proposed harvest in the interim regime is more than one and a half times the level of harvest that would be allowed under the proposed long-term harvest regime if population trends detected over the past decade persist. Fourth, over-harvesting in the early years will have the greatest adverse impact on recovery of the stock. (MMC Response). Nevertheless, MMC can abide by the proposed interim harvest regime, because the difference between NMFS's proposal and what MMC advocates would only mean the difference of one whale. (MMC Response).

or continued low growth rates, and (3) provide reasonable certainty that future survey efforts will be sufficient to provide data of equal or better quality to that collected during the past 10 years. (MMC Response). Also, some aspects of the decision tree need additional description and justification. (MMC Response).

CITT argues that NMFS's second proposal was not developed in cooperation with CITT as NMFS's brief indicates; that the harvest regime should build on a harvest base of two whales per year and not subtract there from; and that there is no evidence that building a harvest regime on a base of two whales per year would disadvantage the population.

1. MEASURES TO IMMEDIATELY REPLENISH THE BELUGA WHALE STOCK

MMC argues that 16 U.S.C. § 1361 requires NMFS take immediate action to replenish depleted marine mammal stocks, and Congress's use of the word "immediately" suggests Congress believed that recovery should be achieved as quickly as possible. (MMC Response). However, Congress recognized that there may be instances when recovery is not possible or the rate of recovery may be beyond human control. (MMC Response). Although the MMPA does not specify what degree of certainty should attach to the likelihood that the measures taken to replenish a depleted stock will succeed in attaining OSP, MMC argues that the Act's policies and purposes suggest a fairly high degree of certainty. (MMC Response). In this case, the parties resolved this statutory ambiguity by stipulating that the long term harvest regime would provide "reasonable certainty that the population will recover, within an acceptable period of time, to the point where it is no longer considered to be depleted."

MMC further argues that it is the only party in this proceeding that has attempted to quantify the terms "reasonable certainty" and "acceptable period of time." In this regard, MMC recommends that the harvest regime should provide a 95 percent certainty that recovery of the stock will be achieved within 100 years. (MMC Response).[16] After evaluating NMFS's second proposal, MMC argues the harvest regime only meets the 95/100 criterion when the growth rate is in the "high" category, and the proposal needs to be revised to reduce or suspend the allowable harvest when growth potential is low. (MMC Response). MMC notes that it did not have time to evaluate NMFS's second proposal to see whether the harvest at low population growth would prevent recovery. (MMC Response). Additionally, MMC agrees that the adoption of the 95/25 criterion in NMFS's second proposal is an appropriate criterion; for setting harvest limits. (MMC Response). However, when MMC filed its response to NMFS's second proposal, MMC had not had time to analyze NMFS's second proposal to determine whether it met the

[16] MMC argues that a 95% certainty is the proper quantification of reasonable, because it is a standard that is almost universally accepted in science based management to avoid undesirable errors or consequences. (MMC Response). Additionally, MMC argues that 100 years is an "acceptable" recovery period, because it should be easily attainable if the population were growing at a normal rate for cetacean stock. (MMC Response). The 100 year criterion also equates to approximately 10 generations, which is four to five times the number of generations required under optimal conditions, and MMC argues the more generations recovery takes the greater the risk of inbreeding and dilution of genetic variability. (MMC Response).

95/25 criterion, and MMC is concerned that NMFS's proposal is not appropriately responsive to situations where harvest limits need to be reduced in response to the population trend. (MMC Response).

In Reply, NMFS argues that revisions to its second proposal are unnecessary when the growth potential is low, because the plan terminates the harvest in over 80% of the cases when the population declines by more than 5% between 1999 and 2009. (NMFS reply). Further, the plan terminates the harvest in 98% of the most critical cases when the population falls below 300. (NMFS reply). For cases, where the population is not declining rapidly, NMFS prefers to allow a limited harvest while collecting further data to determine if the population can indeed recover in 100 years. (NMFS reply).

Also, in responding to MMC's argument that NMFS's second proposal disproportionately places harvest pressure at the low end of the stock, NMFS argues that the plan allows an increased fraction of the population to be harvested at higher population levels for the intermediate and high growth rate population cases. (NMFS reply). For low growth rate population cases, NMFS prefers to maintain a minimum harvest of five whales in five years at low abundance levels to continue a minimum harvest while NMFS identifies and addresses other factors affecting recovery of the population. (NMFS reply).

Upon consideration of the entire record, I find that the adoption of NMFS's second plan is supported by the preponderance of the evidence. Importantly, given the future uncertainty of the population dynamics of the Cook Inlet Beluga Whales, independent, intervening variables might foreclose a population recovery within 100 years. This outcome may materialize even without a harvest by the Alaska Natives. Moreover, such variable may render the proposed benchmarks of 95/25 or 100 years meaningless. Given this circumstance, the Undersigned recommends that the Assistant Administrator maintain maximum flexibility and consider these benchmarks as "goals" and not adopt rigid, hard and fast "rules." This recommendation is indisputably clear when viewed against the data and initial positions of the scientific community and policymakers in 1999. Who would have imagined the population dynamics that have developed since the commencement of this proceeding? Thus, the Assistant Administrator should view any recommendation that attempts to further define "within an acceptable period of time" as 100 years with a jaundice eye. Similarly, the adoption of a mathematical formula such as 95/25 should also be a goal and not mandatory. These should be adopted as "goals" so that the decisionmaker can use his/her best judgment in the future.

2. REDUCING AND STOPPING THE HARVEST

The following sections discuss the controverted issues regarding reducing or eliminating Alaska Native subsistence hunts. In NMFS's second proposal, it proposes that the subsistence harvest be reduced or eliminated under specific criterion when population growth is negative or abnormally low. These triggers are: (1) if the 5 year average abundance estimate declines below 350 the harvest is stopped; (2) if in 2020

there is more than a 20% probability that the population's growth rate is less than 1 percent, the harvest is reduced; and (3) if in 2035 there is more than a 20% probability that the population's growth rate is less than 1%, the harvest is stopped. MMC argues that triggers two and three fail to respond in a timely manner under a low growth situation. (MMC Response). On the other hand, Tyonek objects to the floor being set at 350, while CITT objects to use of any triggers. (Tyonek Response; CITT Response). The following discussion analyzes the positions of the parties relative to NMFS's proposed floor and each of the proposed NMFS triggers.

i. NMFS's PROPOSED FIRST TRIGGER TO STOP SUBSISTENCE HARVEST OCCURS WHEN THE BELUGA WHALE POPULATION HITS A FLOOR OF 350 WHALES

Tyonek argues that NMFS is not entitled to deference on the floor issue, because a large increase in the floor in NMFS's first proposal of 260 to 350 is not justified by substantial evidence or necessary when balanced against the hardship to subsistence users. (Tyonek Response). Tyonek stands by the floor in its second proposal that increases the floor from 260 to 310. (Tyonek Response). Further, Tyonek argues that the floor under Tyonek's second plan is a better balance between recovery and subsistence use. This is because a harvest is only allowed when the 5 year abundance average is between 310 and 349 if the growth rate is in the intermediate or high range and no harvest is allowed if the growth rate is in the low range. (Tyonek Response). Under NMFS's second plan, if the five year average is below 350, the hunters may end up having to go without a harvest for 15 or 20 years even if the population is growing at an intermediate to high rate. In other words, an entire generation could pass without a hunt, experienced hunters would be lost, and a way of life threatened. (Tyonek Response). Finally, Tyonek asserts that NMFS should demonstrate to the court and parties that raising the floor from 310 to 350 is warranted by a risk/benefit analysis. (Tyonek Response).

In response to Tyonek's arguments, NMFS states that it considered a floor of 310 but concluded that a floor of 310 was inconsistent with the recovery goals. (NMFS reply). NMFS argues that the consequences of the floor were modeled and the results indicated that a floor of 350 was the best compromise between continuation of subsistence harvests and responsible management. (NMFS reply). Further, the floor of 350 would primarily be felt if the population declines by more than 5% between 1999 and 2009, and some harvest would be allowed for 95% of the cases where the decrease was less than 5%. (NMFS reply). Also, for the populations that would recover in 100 years, 74% would be unaffected by the floor of 350. (NMFS reply).

MMC has recommended that for any stock below half of its maximum net productivity level, the floor should be set so that there is a 95% certainty that the stock will not decline by more than an additional 5% before terminating the harvest. (MMC Response). MMC notes that the floor of 350 roughly captures the standard MMC

suggests. However, MMC is concerned that under NMFS's second plan, the population could fall below 350 whales before a decline is detected.[17] (MMC Response).

Tyonek's recommendation is not adopted because there is no scientific methodology that would allow the scientists to determine the absolute floor below which harvesting would lead to catastrophic results. (Tr. at 397-398). Instead, the science indicates small populations are more vulnerable than larger populations. (Tr. at 397-398). I find that this issue must be resolved as a matter of law. In 1999, Congress enacted a temporary moratorium on Alaska Native subsistence hunts of the Cook Inlet Beluga Whales unless the taking occurred pursuant to a cooperative/co-management agreement between NMFS and the affected Alaska Native organizations. At that time, there were approximately 367 Cook Inlet Beluga Whales. Pub. L. 106-31 § 3022, 113 Stat 57, 1000 (May 21, 1999); (Tr. at 104-107; NMFS Q). The Congressional intent and the MMPA requirement that taking regulations will not disadvantage the species requires the floor to be set somewhere around 367. See16 U.S.C. § 1373(a). Otherwise, a floor below the approximate population level in 1999 would allow harvesting below the point at which Congress felt a moratorium on subsistence hunting of Cook Inlet Beluga Whales was necessary. Considering that abundance estimates are not exact population counts and there is a degree of uncertainty in the abundance estimate for 1999, I find that NMFS's proposed floor of 350 is a reasonable reflection of Congressional intent. I note that the current five year abundance average is 371, so the floor should not become an issue for the Native Alaskans unless the population declines more than 5.7 percent.

ii. NMFS'S PROPOSED OTHER TWO TRIGGERS

NMFS proposes to reduce the harvest if in 2020 there is more than a 20% probability that the population's growth rate is less than 1 percent and to stop the harvest if in 2035 there is more than a 20% probability that the population's growth rate is less than 1%. MMC argues that these triggers respond too slowly to situations where there is continued low growth. (MMC Response). Specifically, MMC asserts that under this approach a harvest would be allowed over the next 30 years even if no recovery occurs. (MMC Response). Further, the harvest would result in the removal of more than 7% of the current population if the population maintains its current trend of no or low growth but does not decline to 350 whales. (MMC Response). MMC argues that the removal of this many whales and their progeny may mean the difference between a population that is growing and one that is hovering on the brink of extinction. (MMC Response). Also, since there is an interim regime that governs the harvest until 2009, a harvest could be allowed even if there was no growth for 40 years as long as the 5 year population average did not go below 350. (MMC Response). Therefore, MMC recommends the schedule for implementing the second and third triggers be shortened so that the second trigger takes effect before 2015 and the third trigger takes effect in 2020. (MMC Response). In reply, NMFS argues these two triggers are part of a plan that already limits the harvest for low growth rate populations to an average of 8 whales between 2009 and 2024. (NMFS reply).

[17] MMC argues there is a need to establish a concomitant understanding that NMFS's survey effort will remain at a level capable of detecting any such decline with reasonable certainty. I agree.

Based upon the preponderance of the record evidence, NMFS's second proposed rule should be adopted. I note that Tyonek has only objected to the floor NMFS's proposes, but as discussed above, I find the floor must be set at a five year abundance average of 350. Tyonek does not object to the other two triggers. Specifically, under Tyonek's second proposed rule, if in 2020 there is more than a 20% probability that the population's growth rate is less than 1 percent, the harvest would be reduced to 2.5 whales for the five year period. However, under NMFS's second proposed rule, the harvest is only reduced to 3 whales under the same circumstances. Tyonek agrees with NMFS's modification. (Tyonek response). The Whale Hunters did not raise any objections to the triggers in NMFS's second proposed rule. CITT does not agree to the formulas in NMFS's second proposal. CITT argues that the harvest regime should be built on an allocation of two whales per year. After considering all of the record evidence, I find that NMFS's proposed triggers are hereby adopted. CITT's proposal that the harvest regime be built on a two whale per year minimum regardless of population is reluctantly, but necessarily, rejected. Indeed, the overwhelming record evidence does not support such a proposal.

3. THE HARVEST REDUCTION

NMFS's second proposal allows a harvest of 5 whales over 5 years if the population is between 350 and 399 and there is an intermediate growth rate. In contrast, Tyonek's second proposal allows a harvest of 8 whales over 5 years when the population is between 350 and 399 and there is an intermediate growth rate. Tyonek argues that NMFS has not produced any analysis as to why a reduction in the harvest is appropriate; and NMFS should have to demonstrate that reducing the harvest as proposed will achieve some significant benefit for the population commensurate to the loss that will be suffered by subsistence users. (Tyonek Response). Further, Tyonek argues that lowering the harvest from 8 whales to 5 whales will not meaningfully contribute to meeting MMC's harvest management principle that a long term harvest regime should have a 95% certainty of not allowing more than 5% further decline before terminating the harvest for population stocks that are below one-half of their OSP.

Tyonek argues that the failure to give subsistence users a benefit when the population is recovering at an intermediate rate rather than a low rate does not make sense. (Tyonek Response). MMC asserts that under present conditions the harvest needs to be reduced from 1.5 whales per year in order to allow recovery. MMC notes that NMFS must have concluded that reducing the harvest from 1.5 whales per year to 1 whale per year must have been necessary in order to allow the population to recover. (MMC Response).

In reply, NMFS explains the difference between its and Tyonek's second proposals. Under NMFS's analysis, there is a significant likelihood that a population with a 5 year average abundance between 350 and 399 and meeting the intermediate growth criterion will actually be a low growth rate population. (NMFS reply). Therefore, in order to limit the maximum harvest that can occur from a low growth rate

population case, NMFS chose to set the intermediate level equivalent to the low growth rate level for this abundance range. (NMFS reply). Based on the filings in this record, I recommend NMFS's proposal on this issue, because it is intended to insure that the harvest will not disadvantage the Cook Inlet Beluga population. In essence, NMFS's second proposal appropriately errors on the conservative side and strikes the proper balance between recovery and subsistence hunting.

4. UNUSUAL MORTALITY EVENT

NMFS's second plan contains a provision to account for unusually high mortalities by subjecting the harvest levels to an Expected Mortality Limit (EML). (NMFS brief). If at the end of the year the number of beach cast and floating dead whales exceeds the Expected Mortality Limit, then an unusual mortality event has occurred. Thus, the Estimated Excess Mortalities (EEM) will be calculated as twice the number of reported dead whales above the expected mortality limit. (NMFS brief). NMFS proposed an expansion factor of two in order to account for dead whales that were not reported. (NMFS brief). The harvest will then be adjusted as follows:

1. The harvest level for the remaining years of the current five year period will be recalculated by reducing the five year average abundance from the previous five year period by the Estimated Excess Mortalities. The revised abundance estimates will then be used to determine the harvest levels from the harvest table.

2. For the following five year period, the estimated excess mortalities would be subtracted from the abundance estimates of the year of the excess mortalities so the five year average would reflect the loss to the population. This average would then be used in the table to determine the harvest. (NMFS brief).

Although Tyonek's second proposal does not contain a provision to account for unusual mortalities, Tyonek recognizes the need to account for large mortality events that are unrelated to hunting. However, Tyonek raises several concerns about the unusual mortality aspect of NMFS's second proposal. (Tyonek Response). First, Tyonek argues the reason why NMFS chose a factor of two to derive the Estimated Excess Mortality Limit from the difference between the number of whales reported dead and the Expected Mortality Limit is not clear. (Tyonek Response). Tyonek attacks NMFS's justification that the factor of two is a conservative bias correction to account for the whales that die in certain parts of Cook Inlet and have a lesser chance of being observed before drifting out to sea than whales that die in other parts of the Inlet. (Tyonek Response). Tyonek asks whether the currents and tides are figured into this bias. (Tyonek Response). Further, Tyonek argues large publicized strandings account for a significant portion of the observed mortalities even when the strandings occur in remote parts of Cook Inlet. Thus, Tyonek asserts that it does not make sense to use the conservative bias NMFS has proposed. (Tyonek Response). Also, Tyonek questions whether the same conservative bias factor should be applied to immature gray belugas as is applied to the mature belugas, because under NMFS's plan the observed mortality of an immature gray beluga

may in effect be counted as two mortalities when calculating the Estimated Excess Mortality. (Tyonek Response).

In reply, NMFS states that it has anecdotal information indicating that a significant fraction of the dead belugas are undetected, so a factor of 1 would be an underestimate. (NMFS reply). Specifically, NMFS argues that few of the observed mortalities are reported in the winter, the beluga whale population may utilize areas where mortalities are unreported, and there is not sufficient data available to quantify the likelihood of a mortality being reported. (NMFS reply). Therefore, NMFS argues that the factor of "2" is a reasonable estimate.

Tyonek also raises several concerns regarding the method in which mortalities are counted and applied to the harvest regime. Specifically, Tyonek argues that NMFS includes mortalities that are "reported by a reliable source" but not confirmed by the Agency. Tyonek asserts that before such whales are counted NMFS should confer with CIMMC through its co-management agreement. (Tyonek Response). Also, since mortalities vary from year to year and the hunters do not receive a benefit under NMFS's second proposal when the mortality rate is below the Expected Mortality Limit, Tyonek suggests averaging the mortalities over a 5 year period. Thus, Tyonek argues that a reduction in the harvest should only be taken if the mortality average exceeds the Expected Mortality Limit. (Tyonek Response).

In reply, NMFS argues that its methods for counting mortalities are not necessarily biased by differing probabilities or reporting. (NMFS reply). To count mortalities, NMFS relies on public reports of stranded belugas that are alive or dead and most of the reported strandings occur in the Turnagain Arm. (NMFS reply). However, this does not itself mean the probability of a stranded whale being reported to NMFS is higher in Turnagain Arm than anywhere else; this could be explained by the fact that more whales are found in Turnagain Arm than anywhere else; or that the waters and tides of the Arm are more dangerous to whales. (NMFS reply). Further, unlike the previous plan which subtracted excess mortalities directly from the allowed harvest, NMFS's second plan subtracts excess mortalities from the abundance average and recalculates the harvest. (NMFS reply).

Further, Tyonek suggests that allowing the parties a short additional opportunity to work on the unusual mortality issue may be beneficial, because the issue was not addressed at the August 2004 hearing. (Tyonek Response). However, since the excess mortality limitations are a major part of the plan, NMFS does not believe that they are separable from the rest of the plan, and therefore it would not be appropriate to leave this section unresolved or subject to future discussions. (NMFS reply)

On the other hand, MMC expresses concern about using the period since 1999 as the baseline for determining "normal" mortality rates. (MMC Response). Since there has been no discernable growth between 1999 and the present, it is possible that mortality rates during this period were unusually high. (MMC Response). Although NMFS attempts to respond to this concern by doubling the expansion factor, it does not account

for the fact that the baseline itself may represent an unusually high mortality. (MMC Response). The Commission is also concerned that some undetermined fraction of dead beluga whales will not be detected and factored into the determination of whether the expected mortality limit has been exceeded. (MMC Response). Therefore, MMC suggests the final rule require NMFS to conduct additional research to verify the assumptions underlying the unusual mortality provision and/or increase its monitoring effort to detect dead beluga whales in areas that currently are not well covered. (MMC Response).

In reply, NMFS argues the baseline conditions were developed from the number of normal strandings. The number of stranding mortalities between 1998 and 2004 has remained fairly constant between 2.6% and 4.2%. (NMFS reply). Since this figure is below the expected mortality rates within any marine mammal population, this suggests that these figures are not unusually high. (NMFS reply). Also, baseline figures may appear unreasonably high, because the level of effort in counting has increased in the last seven years. (NMFS reply).

Based on the information currently available and the uncertainty surrounding this particular issue, I find this part of NMFS's second proposal is based on the best available science. I find that Tyonek's and MMC's concerns surrounding the methods and the formula NMFS has selected to estimate the mortality rate is really nothing more than a request for better science when better scientific evidence is not currently available. In this case, I find that an expansion factor of two is a reasonable method to account for missed mortalities, and based on existing data, I find the normal mortality estimate of 6% is the best estimate currently available. Further, Tyonek and MMC have both argued about potential problems, that may or may not materialize, with the science NMFS has used to determine an unusually high mortality rate, but neither party has come forward with evidence indicating there is better scientific evidence available than that which NMFS has relied upon.

Although Tyonek has suggested that the mortalities be averaged over five years to account for yearly variations, I find that the formula NMFS's second proposal uses to recalculate the harvest when an unusual mortality event occurs sufficiently accounts for yearly variations and protects both the whales and the hunters. Therefore, I recommend the unusual mortality provisions in NMFS's second proposed rule and deny Tyonek's request to allow the parties additional time to work on this issue. Further, without an unusual mortality provision in Tyonek's second proposal, I cannot recommend that the Agency adopt its proposal. As for MMC's request that the final rule require NMFS to conduct additional research to verify the assumptions in their proposal, I leave that decision entirely for the Agency to decide, because the Agency is currently proposing a number of studies regarding the Cook Inlet Beluga Whales and the Agency is in the best position to determine which areas of research should take priority.

5. FUNDING FOR ANNUAL SURVEYS

NMFS has indicated that each year its surveys are subject to annual appropriations and cannot be guaranteed. If the frequency of future surveys decreases, Tyonek argues that NMFS should agree to enter into discussions with Tyonek and the hunters as soon as possible. The purpose of these discussions would be to revise the management plan to account for the change in quality of survey information. (Tyonek Response). MMC has also raised concerns about reducing the survey effort, because a reduced survey effort may reduce the ability to detect a population decline. (MMC Response).

In reply, NMFS states it intends to perform annual surveys, but there are several circumstances that may prevent NMFS from conducting an annual survey. These circumstances include funding, weather, or equipment failure. (NMFS reply). Since NMFS's second proposal allows future surveys to be scheduled every other year if it can be shown to meet NMFS's data requirements, NMFS argues there is no need to open negotiations whenever annual surveys do not occur. (NMFS reply).

Since these circumstances are beyond the control of these proceedings, such as Congressional funding, I do not recommend a provision for automatic review of the management plan. Likewise, I do not find it appropriate to establish a rule in the event that NMFS is unable or does not believe that conducting surveys every year is scientifically required. Instead since all proposals are science based, I recommend that questions regarding whether population surveys should be conducted every year or every other year be decided by Agency scientists, subject to funding.

6. "ON THE GROUND" ESTIMATES

The hunters have consistently questioned the accuracy of the NMFS population surveys. Tyonek also requests that the abundance estimates that drive the harvest plan include an "on the ground" count done by the hunters. (Tyonek Response). Tyonek argues that "on the ground" validation of the estimates for some parts of Cook Inlet would increase hunter confidence in the survey methodology; and may identify areas where the survey methodology can be refined to provide more accurate estimates. (Tyonek Response).

In reply, NMFS states that it has found "on the ground" abundance survey efforts to be unreliable especially compared to aerial surveys, which offer a broader visual perspective and provide more robust estimates. (NMFS reply). However, NMFS recognizes the need to compare and validate population monitoring against the traditional knowledge of Native subsistence hunters. Thus, NMFS has stated that it intends to continue to acquire such knowledge through co-management meetings and agreements. (NMFS reply).

Under 16 U.S.C. § 1373(a), the regulation must be based on the best available scientific evidence, and there was testimony at the hearing that "on the ground" counts

are not as reliable as aerial surveys. Therefore, I find that it would not be appropriate to incorporate a mechanism into the regulation providing for "on the ground" counting. This is especially true considering NMFS's intention to improve its counting methodology through the co-management agreements and meetings. Therefore, I recommend that any incorporation of "on the ground" estimates be handled through the co-management agreements.

7. FORMAL REVIEW

Tyonek argues that the "Conservation Plan" should be reviewed every ten years through the co-management agreement because of the numerous assumptions and uncertainty about this population and its carrying capacity. (Tyonek's Response). Tyonek also argues that the review should include the question of revising the Conservation Plan or listing the Cook Inlet Beluga Whales under the Endangered Species Act if the subsistence harvest drops below 1 whale per year. (Tyonek Response). Further, either party should be able to call for a review before 10 years if significant new information comes to light that may impact the plan or the harvests fall below 1 whale per year or stagnates at low levels. (Tyonek Response).

In reply, NMFS argues that formal review of the plan every ten years would be overly restrictive and time consuming, and that the regulations are intended to provide a permanent plan for harvests until the stock is recovered. (NMFS reply). Although the regulations are intended to be permanent, 16 U.S.C. § 1373(e) provides that any regulation prescribed pursuant to this section shall be periodically reviewed.

After fully considering the arguments of the parties, I find that there is no legal requirement that the Conservation Plan be revised every ten years. Further, all proposed plans require continued monitoring of the population in order to determine the harvest, which builds a certain amount of review into the system. As NMFS conducts future abundance estimates, NMFS should be able to determine whether the Conservation Plan requires modification without the need for a formal review process. Therefore, I do not recommend the harvest plan include a provision that the plan must be formally reviewed every ten years in order to carry out 16 U.S.C. § 1373(e). However, in my recommended rule below, I have incorporated parts of Tyonek's suggestion that the Agency be required take a serious look at listing the Cook Inlet Beluga Whale population under the Endangered Species Act if the subsistence harvest drops below 1 whale per year.

8. CALCULATION OF THE GROWTH RATE

Under NMFS's second plan, it proposes to calculate the likely distribution of the growth rate for the period from 1994 to the most recent year for which abundance estimates are available. MMC does not object to this methodology as long as there is a relatively constant rate of growth or decline. (MMC Response). However, MMC argues that it is possible that trends may shift over a long period of time and that criteria needs to be developed for shorter intervals (e.g. 5 to 10 years). Indeed, the growth of the population in some years may be offset by declines in other years. (MMC Response).

This phenomenon may result in unusual swings in the allowable harvest based solely on long term harvest trends that may not be reflective of current conditions. (MMC Response).

Although I find that NMFS's method for calculating the growth rate should be adopted, its proposal has not been vetted through cross examination. There may be a technical reason why NMFS has chosen to calculate the growth rate in this manner which is unclear to the Undersigned. It is recommended that the Assistant Administrator consider MMC's suggestion and serious consideration should be given to making the best use of information as it becomes available. This approach would better balance the needs of recovery with the needs of subsistence hunters.

9. TECHNICAL TEAM REVIEW

After receipt of NMFS's second proposal, MMC argues that it has not had sufficient time for scientific review. MMC notes however that at least one error has been identified by NMFS's technical expert. Thus, MMC requests that the Undersigned refrain from endorsing specific numbers or charts in the recommended decision. Instead, MMC advocates that the recommended decision focus on the underlying principles. (MMC Response). Further, MMC requests the technical team be given appropriate guidance concerning the decision and that it be given the opportunity to assess whether the proposed harvest regime will meet those criteria. (MMC Response). NMFS opposes MMC's request requests to reconvene the science team. (NMFS reply).

MMC's recommendation to refrain from endorsing specific numbers or charts in the recommended decision is rejected. As noted above, the Assistant Administrator should only view the underlying principles endorsed by MMC as goals rather than hard and fast rules. This approach will permit the decision maker maximum flexibility to balance the needs of recovery with the needs of the subsistence hunters in establishing the allowable harvests in the proposed rule. Finally, while MMC's request to reconvene the technical team would result in a more complete record, the parties have all stipulated that the recommended decision be issued without further hearings. Therefore, MMC's request is hereby denied.

10. SEX COMPOSITION OF THE HARVEST

Neither NMFS's nor Tyonek's second proposals contain provisions regulating the sex composition of the harvest. However, MMC and NMFS have both advocated that Native hunters should only target males, because it would impact the reproductive potential less. (MMC A; MMC C). MMC believes the harvest of male whales is significant enough to warrant inclusion in the regulations themselves. (MMC A). MMC also argues that targeting male whales versus reproductive females could provide an effective means of limiting the impact of subsistence taking on the recovery. (MMC Response). Thus, MMC recommends the final rule (1) require NOAA to conduct the research needed to ascertain the impact of a targeted harvest and (2) include sufficient flexibility for establishing additional requirements in the future with respect to sex and/or

age composition of the harvest if research indicates that such requirements would promote recovery of the stock. (MMC Response). NMFS does not believe a regulation is appropriate to address these concerns and instead believes the sex and age composition issue should be specified in the co-management agreements. (NMFS reply).

The scientific community does not know how many males are needed in one generation to genetically contribute to the next generation or what breeding or social structure is required for Cook Inlet Beluga Whales. (Tr. at 406). Since this regulation is intended to establish a long term harvest regime and there is considerable uncertainty surrounding the benefits of adding a provision governing the sex composition of the harvest, I think this issue is best left to the co-management agreements as Agency counsel for NMFS suggests. Considering the uncertainty surrounding this issue, I think adding a provision for the sex composition of the harvest into the regulation itself may only increase the chances that the final regulation would have to be modified in the future and the parties would have to go through this entire process all over again. Therefore, I find that any provisions governing the sex composition of the harvest be left to the co-management agreements.

11. TAKING OF STRANDED WHALES

In addition to the subsistence hunts, the Alaskan Natives have also requested permission to harvest stranded whales that are going to die anyway. (Tr. at 504-517, 525). The harvesting of stranded whales would also allow the Natives to teach the younger generations how to shoot and harpoon the whales, what the difference is between a male and female whale, and how to tell which whale is going to die. (Tr. at 507-508). However, from Tyonek's point of view, the harvesting of stranded whales may not be a realistic option, because weather and water conditions would prevent the Village of Tyonek from reaching the area where most of the strandings occur. (Tr. at 525). Since none of the above proposals have included a provision for allowing strikes of stranded whales that are going to die, I do not believe that it is advisable to include a provision for taking stranded whales that are going to die. There is no definitive, scientific criteria in the record that could be used to determine when a whale is going to die and when a whale would survive a stranding. That said, the Agency Head should direct his/her staff to work closely with the Alaska Native parties to resolve this issue. Facially, it makes sense that the Alaska Natives should be able to harvest the body of a dying whale. However, it is the details that are difficult. Who determines when a whale will not survive? Will the whale count as one of their "takes" for the year? Who will share in the harvest? These issues are best left to the co-management agreement process. The Agency Head should direct his staff to have a resolution of this issue within one (1) year from the date of the issuance of his/her Final Decision.

ULTIMATE FINDINGS OF FACT AND CONCLUSIONS OF LAW

1. This is a formal rulemaking proceeding commenced pursuant to the authority contained in the Marine Mammal Protection Act (16 U.S.C. § 1361, *et. seq.*); and the Administrative Procedure Act (5 U.S.C. §§ 556 & 557).

2. The National Marine Fisheries Service's second proposed rule is hereby adopted based upon the preponderance of the evidence contained in this record.

3. NMFS's first proposed rule, Tyonek's first proposed rule, and Tyonek's second proposed rule (to the extent not incorporated into NMFS's second proposal) are hereby rejected. NMFS's first proposal and Tyonek's first proposal are rejected, because they were superseded by new proposals. Tyonek's second proposal (to the extent not incorporated into NMFS's second proposal) is hereby rejected based upon the preponderance of the record evidence.

4. Tyonek's objection to MMC's standing to participate in this formal rulemaking is untimely and therefore rejected.

5. NMFS's second proposed rule is supported by the preponderance of the evidence and based on the best scientific evidence available.

6. Tyonek's second proposed rule (to the extent not incorporated into NMFS's second proposal) is not supported by the preponderance of the evidence, because it does not insure that the harvest will not disadvantage the Cook Inlet Beluga Whale population.

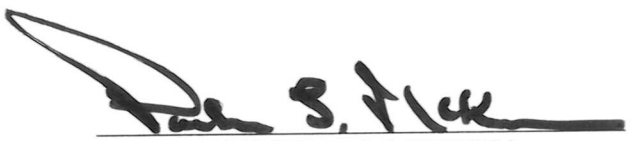
ORDER

WHEREFORE, IT IS HEREBY ORDERED THAT the National Marine Fishery Service Motion for Decision be, and it is hereby is, GRANTED; and

FURTHER IT IS HEREBY ORDERED THAT Tyonek's Motion to Dismiss MMC as a party be, and it hereby is, DENIED; and

FURTHER IT IS HEREBY RECOMMENDED that the Assistant Administrator ADOPT the recommendations set forth herein[18].

Done and Dated November 8, 2005.



HON. PARLEN L. McKENNA
ADMINISTRATIVE LAW JUDGE

[18] Attached hereto as Appendix A is a draft proposed rule for the convenience of the Agency Head. The draft rule is only submitted for illustrative purposes, so that the parties can submit any comments to the Agency Head before he/she issues his/her Final Proposed Rule. Appendix B attached hereto is the witness and exhibit list of evidence admitted into the record.

APPENDIX A

Upon consideration of the record before me, I recommend the Assistant Administrator adopt a rule that allows for an interim harvest of 8 whales between 2004 – 2009 and NMFS's second proposed harvest plan for 2010 and beyond. However, I also recommend the following change. If the population continues to demonstrate no or very low growth, the recommended rule needs to incorporate a provision that before the abundance estimates reach anywhere near 350, the Agency begin studies designed to determine whether the population is being effected by any of the following: (1) habitat destruction, modification, or curtailment; (2) over utilization for commercial, recreational, scientific, or education purposes; (3) disease or predation; (4) inadequate regulatory mechanisms; or (5) other natural or manmade factors are affecting the continued existence of the Cook Inlet Beluga Whales. I note that these studies should not be too burdensome for the Agency, because many of the studies proposed in the Draft Conservation Plan are aimed at these factors. However, at this point in time, I am not making any recommendations as to how the studies should be conducted or which studies should be done. Instead, I am leaving those issues for NMFS, in its best judgment and in consultation with MMC and the Alaska Native groups to resolve.

DRAFT PROPOSED RULE

50 C.F.R. § 216.23

(f) Harvest management of Cook Inlet beluga whales.

(1) Cooperative management of subsistence harvest. Subject to the provisions of 16 U.S.C. 1371(b) and any further limitations set forth in § 216.23, any taking of a Cook Inlet beluga whale by an Alaska Native must be authorized under an agreement for the co-management of subsistence uses (hereinafter in this paragraph "co-management agreement") between the National Marine Fisheries Service and an Alaska Native organization(s).

(2) Limitations.

(i) Sale of Cook Inlet beluga whale parts and products. Authentic Native articles of handicraft and clothing made from nonedible by-products of beluga whales taken in accordance with the provisions of this paragraph may be sold in interstate commerce. The sale of any other part or product, including food stuffs, from Cook Inlet beluga whales is prohibited, provided that nothing herein shall be interpreted to prohibit or restrict customary and traditional subsistence practices of barter and sharing of Cook Inlet beluga parts and product *by said Alaska Natives.*

(ii) Beluga whale calves or adults with calves. The taking of a calf or an adult whale accompanied by a calf is prohibited.

(iii) Season. All takings of beluga whales authorized under § 216.23(f) shall occur no earlier than July 1 of each year.

(iv) The annual strike limitations for the initial planning period, years 2005-2009, are set as follows: two strikes are allocated for 2005, one strike for 2006, two strikes for 2007, one strike for 2008, and two strikes for 2009.

(v) Beginning in 2010, co-management agreements will be developed for five year intervals, in which the harvest levels will be derived from abundance estimates averaged over the previous five year interval and the growth rate of the population.

(A) The co-management agreements will include specific limitations regarding the number and allocation of strikes; hunting periods; hunting practices with prohibitions on the taking of calves and juvenile whales and methods to improve harvest efficiency; reporting procedures; mitigating measures; and enforcement provisions.

(B) The co-management agreements may include, but not limited to, provisions regarding the sex composition of the harvest.

(C) The frequency of the abundance estimate surveys will be determined by the Agency based on Congressional directives and/or funding.

(vi) Strike/harvest levels for each five year planning interval beginning in 2010 will be determined by the recovery of this stock as measured by the average abundance in the prior five year interval and the cumulative probability statistics of the posterior distribution of the growth rate estimated for the population using the abundance starting in 1994. Because of the current depleted abundance of this stock and the uncertainty in the potential growth rate, there are three "growth" categories. Criteria for categorizing growth rates are presented below as an algorithm using the estimated abundance, the distribution statistics for growth rates, and the date. Harvest levels are subject to the Expected Mortality Limit. The established harvest/strike levels are presented in the Harvest Table and the following algorithm will be used to determine harvest levels after 2009.

(A) NMFS will calculate the average stock abundance over the previous five year period.

(B) NMFS will calculate the likelihood distribution of the growth rate for the period from 1994 to the most recent year for which abundance estimates are available.

(C) Using the abundance and growth figures obtained through (vi)(A) and (vi)(B), NMFS will calculate the probabilities that the growth rate within

the population would be (a) less than 1 percent, (b) less than 2 percent, or (c) greater than 3 percent. NMFS will then follow the decision tree below to select the proper square from the Harvest Table to determine the harvest levels.

a. *Is the average stock abundance over the previous five year period less than 350 beluga whales?*

If yes, the Harvest Table provides that, the harvest is zero over the next five year period.

If no, go to b.

b. *Is the current year 2035 or later and is there more than a 20 percent probability the growth rate is less than 1%?*

If yes, the harvest is zero over the next five year period.

If no, go to c.

c. *Is the current year between 2020 and 2034 and there is more than a 20 percent probability the growth rate is less than 1%?*

If yes, the harvest is three whales over the next five year period.

If no, go to d.

d. *Is the current year 2015 or later and is there more than a 25 percent probability the growth rate is less than 2 percent?*

If yes, go to the harvest table using the "Low" growth rate column.

If no, go to f.

e. *Is the current year prior to 2015 and is there more than a 75 percent probability the growth rate is less than 2 percent?*

If yes, go to the harvest table using the "Low" growth rate column.

If no, go to f.

f. *Is there more than a 25 percent probability the growth rate is more than 3 percent?*

If yes, go to the harvest table using the "High" growth rate column.

If no, go to the harvest table using the "Intermediate" growth rate column.

Five year population averages	*"High" growth rate*	*"Intermediate" growth rate*	*"Low" growth rate*	*Expected Mortality Limit*
Less than 350	*0*	*0*	*0*	
350 – 399	*8 belugas in 5 years*	*5 belugas in 5 years*	*5 belugas in 5 years*	*21*
400 – 449	*9 belugas in 5 years*	*8 belugas in 5 years*	*5 belugas in 5 years*	*24*
450 – 499	*10 belugas in 5 years*	*8 belugas in 5 years*	*5 belugas in 5 years*	*27*
500 – 524	*14 belugas in 5 years*	*9 belugas in 5 years*	*5 belugas in 5 years*	*30*
525 – 549	*16 belugas in 5 years*	*10 belugas in 5 years*	*5 belugas in 5 years*	*32*
550 – 574	*20 belugas in 5 years*	*15 belugas in 5 years*	*5 belugas in 5 years*	*33*
575 – 599	*22 belugas in 5 years*	*16 belugas in 5 years*	*5 belugas in 5 years*	*35*
600 – 624	*24 belugas in 5 years*	*17 belugas in 5 years*	*6 belugas in 5 years*	*36*
625 – 649	*26 belugas in 5 years*	*18 belugas in 5 years*	*6 belugas in 5 years*	*38*
650 – 699	*28 belugas in 5 years*	*19 belugas in 5 years*	*7 belugas in 5 years*	*39*
700 – 779	*32 belugas in 5 years*	*20 belugas in 5 years*	*7 belugas in 5 years*	*42*
780+	*Consult with co-managers to expand harvest levels while allowing continued growth of the population*			

(vii) At the beginning of each five year period, an Expected Mortality Limit (EML) is determined from the Table using the five year average abundance. During the course of each calendar year, the number of beach casts carcasses and carcasses found floating either reported to NMFS or observed by NMFS personnel will be the number of mortalities for that year. If at the end of each calendar year this

number exceeds the Expected Mortality Limit, then an unusual mortality event has occurred. The Estimated Excess Mortalities (EEM) will be calculated as twice the number of reported dead whales above the Expected Mortality Limit. The harvest will then be adjusted as follows:

(A) The harvest level for the remaining years of the current five year period will be recalculated by reducing the five year average abundance from the previous five year period by the EEM. The revised abundance estimate would then be used in the harvest table for the remaining years and the harvest adjusted accordingly.

(B) For the subsequent five year period, for the purpose of calculating the five year average, the EEM would be subtracted from the abundance estimates of the year of the excess mortality event so that the average would reflect the loss to the population. This average would then be used in the table to set the harvest level.

(viii) If the Cook Inlet Beluga Whale population continues to experience less than 1% growth and well before the five year abundance average reaches 350, the National Oceanic and Atmospheric Administration will commit to and seek funding for studies designed to determine whether the population is being effected by any of the following: (1) habitat destruction, modification, or curtailment; (2) overutilization for commercial, recreational, scientific, or education purposes; (3) disease or predation; (4) inadequate regulatory mechanisms; or (5) other natural or manmade factors affecting the continued existence of the Cook Inlet Beluga Whales.

APPENDIX B

NATIONAL MARINE FISHERY SERVICE'S EXHIBIT LIST.

NMFS A	Interim Final Rule
NMFS B	Final Environmental Impact Statement
NMFS C	Minutes of ALJ Science Committee Teleconference
NMFS D	Report of Cook Inlet long term harvest work group meeting, Sept. 25-26, 2003.
NMFS E	Report of Cook Inlet long term harvest work group meeting, Dec. 7, 2003.
NMFS F	Letter dated Jan. 15, 2004 from NMFS to Peter Merryman.
NMFS G	Letter dated Feb. 13, 2004 from MMC to NMFS
NMFS H	March 23, 2004 memorandum from John M. Starky, Esq. to NMFS
NMFS I	Subsistence Harvest Management Plan for Beluga Whale from NMFS.
NMFS J	Email from Roderick Hobbs, Ph.D. to parties.
NMFS K	Letter to Lee Stephan to NMFS
NMFS L	Letter dated June 21, 2004 to John M. Starky, Esq. from NMFS
NMFS M	Letter dated June 25, 2004 to David Cottingham from NMFS.
NMFS N	Declaration from Kaja Brix.
NMFS O	Declaration from Roderick Hobbs, Ph.D.
NMFS P	Regulated Subsistence Harvest graph
NMFS Q	NMFS PowerPoint slides
NMFS R	NMFS news release regarding 2004 Beluga Whale count.
NMFS S	Letter dated January 26, 2004 from Lee Stephan to James Balsiger
NMFS T	Dr. Roderick Hobbs' resume

NMFS U	NMFS's second proposed harvest plan dated March 28, 2005
NMFS V	Technical notes for NMFS's second proposed harvest plan
NMFS W	Policy issues related to long-term harvest regime
NMFS X	Subsistence Harvest management for Cook Inlet Beluga
NMFS Y	Tyonek's second proposed harvest plan.
NMFS Z	Review of Tyonek's harvest plan proposal and MMC proposed performance criteria.

MARINE MAMMAL COMMISSION'S EXHIBIT LIST.

MMC A	Declaration of Daniel Goodman, Ph. D.
MMC B	Response of the Marine Mammal Commission to the Initial Filings of the National Oceanic and Atmospheric Administration and the Native Village of Tyonek.
MMC C	Rebuttal testimony of Daniel Goodman, Ph. D.
MMC D	Declaration of Russel S. Lande, Ph. D.
MMC E	Graphs
MMC F	Comparison of NMFS's 07/15/2004 rule with Tyonek's 08/03/2004 rule

WHALE HUNTER'S EXHIBIT LIST.

HUNTER A	Amended Cooperative Agreement between NOAA and the Alaska Native Marine Mammal Hunter's Committee.

COOK INLET TREATY TRIBES' EXHIBIT LIST.

CITT A	Letter dated July 9, 2004 from Delice Calcote to U.S. Coast Guard ALJ Docketing Center.
CITT B	Alaska Lands Conservation Act.
CITT C	Anchorage Daily News article

TYONEK'S EXHIBIT LIST.

TYONEK A	Tyonek's submissions pursuant to pre-hearing order dated June 10, 2004.
TYONEK B	Tyonek's response to MMC's and NMFS's submissions.
TYONEK C	Letter dated July 28, 2004 from the Children of Tyonek to Peter Merryman
TYONEK D	Curriculum Vitae: André Eric Punt.
TYONEK E	Testimony of André E. Punt, Ph. D.

NMFS WITNESS LIST

1. Dr. Roderick Hobbs

2. Ms. Kaja Brix

WHALE HUNTERS' WITNESS LIST

1. Ms. Debra Blatchford

COOK INLET TREATY TRIBES WITNESS LIST

1. Ms. Delice Calcote

MARINE MAMMAL COMMISSION WITNESS LIST

1. Dr. Michael Goodman

VILLAGE OF TYONEK

1. Dr. Andre Punt

2. Ms. Debra Blatchford

3. Mr. Enchot Shiedt

4. Mr. Peter Merryman

Certificate of Service

I hereby certify that I have served the foregoing document[s] upon the following parties (or their designated representatives) to this proceeding at the addresses indicated:

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Done and Dated November 8, 2005.

Cindy Roberson
Para-legal Specialist