MARINE MAMMAL COMMISSION

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Dear Dr. Meehan:

On 18 June 2009 the Fish and Wildlife Service published a *Federal Register* notice (74 Fed. Reg. 28947) requesting comments on draft stock assessment reports for the Pacific walrus and the two stocks of polar bears that occur in the United States. The Marine Mammal Commission, in consultation with its Committee of Scientific Advisors on Marine Mammals, has reviewed the draft reports for the two stocks of polar bears and offers the following recommendations and comments. Comments on the stock assessment report for the Pacific walrus are being provided in a separate letter.

RECOMMENDATIONS

With respect to the draft stock assessment report for the Southern Beaufort Sea stock of polar bears, the Marine Mammal Commission recommends that the Fish and Wildlife Service—

- (1) reassess all relevant data on polar bear distribution and movement to determine the eastern boundary of the Southern Beaufort Sea stock in the most scientifically credible manner and (2) reassess its minimum population estimate for this stock to take into account the most scientifically valid new stock boundary;
- revise downward its estimate of the maximum net productivity rate for this population to reflect ongoing and predicted changes in polar bear habitat that will prevent polar bear stocks from achieving growth rates that might be expected in a favorable environment; and
- work with the North Slope Borough, the Inuvialuit Game Council, and Canadian authorities to review whether the current harvest limits for this population are sustainable and to consider whether they should be reduced, keeping in mind the need for application of the precautionary principle.

With respect to the draft stock assessment report for the Chukchi/Bering Seas stock of polar bears, the Marine Mammal Commission recommends that the Fish and Wildlife Service—

- give its highest priority to reaching an agreement with Russia on a joint strategy to determine the status of this stock and the current levels of productivity in major denning areas and establish a program to monitor this stock in subsequent years, including the establishment of mechanisms to give researchers from both countries access to polar bears and polar bear habitat throughout their range in and adjacent to the Chukchi and Bering Seas;

- provide an explanation as to why it believes the number 2,000 can be used as both the best estimate of population size and the best estimate of the minimum population size, particularly because the Service believes that the stock has been declining in recent years and the data on which the best estimate (i.e., 2,000) is based are more than 10 years old;
- revise downward its estimate of the maximum net productivity rate for this population to reflect ongoing and predicted changes in polar bear habitat that will prevent polar bear stocks from achieving growth rates that might be expected in a favorable environment; and
- use the first meeting of the United States–Russia Polar Bear Commission to begin to address overharvest from this stock.

RATIONALE

Southern Beaufort Sea Stock

For the most part, the Commission believes that the draft assessment report for the Southern Beaufort Sea stock of polar bears does a good job of presenting the relevant information concerning the status and trends of this population. However, the implications of this information are not always reflected in the analyses provided in the draft assessment.

For example, the discussion of stock definition and geographic range notes that recent information supports a shift in the boundary between this stock and the Northern Beaufort Sea stock. Figure 6 of Amstrup et al. (2005) indicates that any bear encountered near Tuktoyaktuk, Canada, has a 50 percent chance of being from either the Southern or Northern Beaufort Sea stocks. However, only a relatively short distance farther east, the ratio becomes 70 percent from the Northern Beaufort Sea stock and only 30 percent from the Southern Beaufort Sea stock. This suggests that a boundary farther to the east would be more precautionary and beneficial to the conservation of the Southern Beaufort stock. Nevertheless, the draft assessment continues to use the older range because the new range has yet to be accepted by the parties to the Polar Bear Management Agreement for the Southern Beaufort Sea between the Inuvialuit Game Council of Canada and the North Slope Borough of Alaska. Although the Commission appreciates the role played by the parties to that agreement in managing the shared Southern Beaufort Sea polar bear stock and recognizes the desirability of securing their acceptance of the new stock boundary, their views on the proposed boundary change should not be determinative for purposes of the stock assessment report. As required by section 117(a) of the Marine Mammal Protection Act, the stock assessment report should reflect the best scientific information available. If the Service chooses to defer using the new stock boundary pending review by the parties to the Native-to-Native agreement, it should seek to have those parties complete their review quickly, using all the relevant information on movements, so that the stock assessment report reflects the best available scientific information.

As the Service notes, a realignment of the stock boundaries will probably necessitate a downward adjustment of the abundance estimate for the Southern Beaufort Sea stock to reflect the smaller range. Here, the Service should provide a basis for concluding that the shift does not simply

reflect an increased density of bears. In addition, the Service should discuss the extent to which the estimated abundance will be affected and how that might be reflected in the recommendations for reduction in the total harvest. More important, the lower number should be reflected in the minimum population estimate provided in the report. In accordance with the definition of the term set forth in section 3(27) of the Act, the minimum population estimate is not only to be based on the best available scientific information but is to provide reasonable assurance that the stock size is equal to or greater than the estimate. The assessment cannot provide such assurance if abundance is known to be overestimated. For these reasons, the Marine Mammal Commission recommends that the Fish and Wildlife Service (1) reassess all relevant data on polar bear distribution and movement to determine the eastern boundary of the Southern Beaufort Sea stock in the most scientifically credible manner and (2) reassess its minimum population estimate for this stock to take into account the most scientifically valid stock boundary.

The Commission also is concerned that the maximum net productivity rate (6.03 percent) used in the draft assessment is unrealistically high. As noted in the last sentence of the section on the maximum net productivity rate, the Service's analysis "mimics a life history scenario where environmental resistance is low and survival high." Such a scenario is not relevant now and almost certainly will not be relevant in the foreseeable future. This polar bear stock currently is experiencing the initial effects of changes in sea ice conditions related to climate change, a situation that is predicted to worsen. As recognized by the Service, "[s]ea ice provides a platform for hunting and feeding, for seeking mates and breeding, for movement to terrestrial maternity denning areas and occasionally for maternity denning, for resting, and for long-distance movements." Each of these factors can be expected to affect the productivity of the stock in a material way. Already bears are showing signs of nutritional stress and the population is declining. That being the case, the Service should not continue to use a maximum net productivity rate published in 1995—before polar bears began to experience the effects of climate change—as an indication of the stock's current growth potential. The Marine Mammal Commission therefore recommends that the Fish and Wildlife Service revise downward its estimate of the maximum net productivity rate for this population to reflect ongoing and predicted changes in polar bear habitat that will prevent polar bear stocks from achieving growth rates that might be expected in a favorable environment.

Using the data presented in the draft assessment, the Service calculates the potential biological removal (PBR) level of the stock to be 22 bears per year. This number would be even lower if the Service were to revise its estimate of the minimum population size to reflect new stock boundaries and to use a more realistic maximum net productivity rate as the Commission has recommended. The primary source of human-related removals from the population is subsistence hunting, which occurs both in Alaska and in Canada. According to the draft assessment, subsistence removals during the past five years have averaged somewhat more than 50 bears per year. The Commission appreciates that, under the Marine Mammal Protection Act, the practical impact of a stock's PBR level is limited to taking in commercial fisheries, which for polar bears is practically non-existent. The Commission also recognizes that PBR provides a precautionary approach to assessing a stock's ability to withstand removals, being that it is based on the minimum population estimate and, in the case of polar bears, incorporates a recovery factor that reduces the PBR level by

half because the species is listed as threatened under the Endangered Species Act. Nevertheless, it is hard to ignore the fact that recent harvests from this stock are nearly two-and-a-half times the calculated PBR level. As such, the Marine Mammal Commission recommends that the Fish and Wildlife Service work with the North Slope Borough, the Inuvialuit Game Council, and Canadian authorities to review whether the current harvest limits for this population are sustainable and to consider whether they should be reduced. In this context, the Commission strongly supports application of the precautionary principle.

The final paragraph in the draft stock assessment indicates that Canada has a well-regulated and controlled harvest that results in accurate reporting. The Service then notes that the harvest management system in Alaska is voluntary and concludes that it is less efficient overall than the system in Canada. Under regulations published by the Service (50 C.F.R. § 18.23(f)), Alaska Native hunters who take polar bears are required to report the taking and present the skull and hide for marking and tagging within 30 days of the taking. The Commission was under the impression that compliance with these specific requirements was high and that the Service had considerable confidence in its estimates of the number of polar bears taken in Alaska. On the other hand, the Commission is concerned about the amount of information collected regarding the bears taken, particularly information related to age class, sex, and animal condition (i.e., see Brower et al. 2002). In either case, the discussion in the stock assessment report should be expanded to discuss why the Service believes that hunters are not complying with the marking and tagging regulations and what would be required to (1) improve compliance regarding the number of bears taken and (2) collect information on the characteristics of those bears. Similarly, compliance with the harvest levels adopted under the agreement between the Inuvialuit Game Council and the North Slope Borough is not enforceable under federal law, but would be useful to know. The Commission has received conflicting reports regarding compliance under this agreement and, again, the Service should describe what it knows about compliance and explain why it believes that the Canadian system is more effective and efficient.

Chukchi/Bering Seas Stock

The two biggest shortcomings in the polar bear stock assessment reports are the lack of a reliable population estimate for the Chukchi/Bering Seas stock and lack of a recent assessment of productivity in the better known maternity denning areas. These are crucial data gaps, not just for purposes of preparing an adequate stock assessment report, but because the lack of up-to-date information makes it next to impossible to detect trends in population size, reproductive and survival rates, and age/sex composition as the stock experiences threats from climate change and habitat loss. The Commission recognizes the difficulty of producing a reliable estimate given the large area inhabited by the stock, the low densities of polar bears within that area, the remoteness and inhospitable conditions of the area, and the constraints that limit access by researchers to polar bear habitat in Russia where much of the population resides. In this regard, the Commission notes that the first meeting of the United States–Russia Polar Bear Commission will take place later this week. The bilateral agreement that established the Polar Bear Commission calls on the parties to carry out a scientific research program, including jointly conducted programs for the study,

conservation, and monitoring of polar bears. The Commission believes that obtaining a reliable population estimate and an assessment of the current levels of productivity in the key denning areas is critical to the conservation and management of this stock of polar bears. The Marine Mammal Commission therefore recommends that the Fish and Wildlife Service give its highest priority to reaching an agreement with Russia on a joint strategy to survey and monitor this stock, including the establishment of mechanisms to give researchers from both countries access to polar bears and polar bear habitat throughout their range in and adjacent to the Chukchi and Bering Seas.

The Service uses the most recent abundance estimate for the Chukchi/Bering Seas polar bear stock—that provided by IUCN's Polar Bear Specialist Group in 2006—as the basis for its selection of a minimum population size of "approximately 2,000 animals." It appears that the referenced document (IUCN 2006) used 2,000 as its best estimate of the number of bears in this population, rather than as a minimum estimate. If this is the case, the stock assessment report should be revised accordingly and a lower population estimate used that provides reasonable assurance that the current population size is actually equal to or greater than the estimate. That is, the minimum estimate should incorporate both the best estimate plus a measure of the uncertainty in that best estimate. Therefore, the Marine Mammal Commission recommends that the Fish and Wildlife Service provide an explanation as to why it believes 2,000 can be used as both the best estimate of population size and the best estimate of the minimum population size, particularly because the Service believes that the stock has been declining in recent years and the data on which the best estimate (i.e., 2,000) is based are more than 10 years old.

As with the Southern Beaufort Sea stock, the Service uses a maximum net productivity rate of 6.03 percent for the Chukchi/Bering Seas stock. The points made previously in this letter for the Southern Beaufort Sea stock hold true for this stock as well. As such, the Marine Mammal Commission recommends that the Fish and Wildlife Service revise downward its estimate of the maximum net productivity rate for this population to reflect ongoing and predicted changes in polar bear habitat that will prevent polar bear stocks from achieving growth rates that might be expected in a favorable environment.

Because the PBR calculation uses both a questionable minimum population estimate and the maximum net productivity rate, the result is an inappropriately high estimate for PBR. The Service appears to discount the value of this PBR estimate by stating that it "has little utility for management purposes." To be clear, the Commission suggests that this sentence be restated to suggest that "because of the potential biases involved, this particular estimate of PBR has little value for management purposes." Even so, the estimated level of removals still exceeds the calculated PBR level by some unknown multiple, perhaps by a factor of as much as 10 if one uses the upper bound of the estimated take in Russia (250 per year) cited in the section on "other removals." The Marine Mammal Commission therefore recommends that the Fish and Wildlife Service use the first meeting of the United States–Russia Polar Bear Commission to begin to address this overharvest problem.

Finally, the last paragraph in the discussion of Alaska Native subsistence harvest notes that no user agreement similar to that in place for the Southern Beaufort Sea stock exists for the

Chukchi/Bering Seas stock. This section should be revised to recognize the existence of the bilateral polar bear agreement between the United States and Russia, which, unlike the agreement between the Inuvialuit Game Council and the North Slope Borough, provides authority for the establishment of enforceable harvest limits, and the Native-to-Native agreement between the Alaska Nanuuq Commission and the Association of Traditional Marine Mammal Subsistence Hunters of Chukotka.

I hope these comments and recommendations are helpful. Please contact me if you have questions.

Sincerely,

Timothy J. Ragen, Ph.D.
Executive Director

Literature cited

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