



MARINE MAMMAL COMMISSION

16 October 2015

Mr. Geoffrey Haskett
Director, Alaska Region
U.S. Fish and Wildlife Service
1011 East Tudor Road
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Dear Mr. Haskett:

The Marine Mammal Commission (the Commission), in consultation with its Committee of Scientific Advisors, has reviewed the draft Polar Bear Conservation Management Plan (CMP or Plan) prepared by the Polar Bear Recovery Team and Fish and Wildlife Service's (the FWS) Alaska Region. In general, the Plan is well-written and laid out in a logical and accessible fashion. The Plan contains many positive provisions that should promote the conservation and recovery of polar bears. However, the Commission has fundamental concerns with some of the most important aspects of the Plan. These include whether the Plan will be successful in achieving its goals without bolder actions to combat climate change, the proposed recovery criteria under the Endangered Species Act (ESA), and the proposed conservation criteria under the Marine Mammal Protection Act (MMPA).

Climate Change

The listing of the polar bear as a threatened species was premised largely on the anticipated loss of sea ice in the foreseeable future and the expected impacts of that loss on polar bears and their prey. This is reflected in the draft CMP, which explains that “[i]t cannot be overstated that the single most important action for the recovery of polar bears is to significantly reduce the present levels of global greenhouse gas emissions, which are the dominant source of increasing atmospheric levels that are the primary cause of warming in the Arctic.” As observed in the Executive Summary of the draft CMP, “[s]hort of action that effectively addresses the primary cause of diminishing sea ice, it is unlikely that polar bears will be recovered.” In addition to greenhouse gas emissions, deposits of black carbon and other light-absorbing impurities are resulting in more frequent and extensive snow melts at higher latitudes (Dumont et al. 2014, Keegan et al. 2014) and could be a significant factor in accelerating loss of polar bear habitat. Models suggest that the Arctic climate is particularly sensitive to black carbon emissions generated within the Arctic compared to those generated at mid-latitudes (Sand et al. 2013), with even greater implications for loss of sea ice habitat as human activities increase in the Arctic. As such, the Commission recommends that the FWS consider and address all sources that potentially are significant contributors to sea ice loss in the CMP, not just greenhouse gas emissions.

Despite the primacy of the need to stem climate change, the draft CMP includes few actions for doing so. Instead, the Plan notes that “USFWS lacks the authority to regulate greenhouse gas emissions” and “must rely on the United States and other nations to address the emissions [problem].” The FWS sees its role as contributing a “science-based communication effort highlighting the urgent need for sufficient reductions in emissions to help achieve a global

atmospheric level of greenhouse gases that will support conditions for recovery of polar bears from projected declines.” That effort is included in the draft CMP as the first identified conservation and recovery action under section IV.B., with a fairly modest projected cost of \$671,000 per year.

There is some truth to the FWS’s assertion that it has limited ability to regulate, or even influence, decisions on whether and how to regulate greenhouse gas emissions. However, the recovery and conservation duties under the ESA and the MMPA are assigned to the Secretary of the Interior, who has broader authority to take action to counter or influence decisions that have implications concerning greenhouse gas emissions and other sources contributing significantly to sea ice loss. In this regard section 7(a)(1) of the ESA specifically directs the Secretary to “review other programs administered by [her] and utilize such programs in furtherance of the purposes of this Act.” Those programs include oil and gas leasing and other energy development and production activities on the Outer Continental Shelf (OCS) and on federal lands. Decisions under those programs have direct impacts on what energy sources are tapped and at what rates, which, in turn, have implications related to greenhouse gas emissions. This being the case, the Commission recommends that the CMP take a broader look at the Department of the Interior’s full portfolio of authorities that could be brought to bear on all sources contributing to sea ice loss, including greenhouse gas emissions, and incorporate them into its conservation and recovery actions.

The FWS needs to think more expansively about the full suite of actions it might take to combat the effects of anthropogenic climate change other than pursuing a communications effort highlighting the need for urgent action to curb emissions of greenhouse gases. For instance, it could dedicate staff and make a concerted effort to track and comment on actions being taken or contemplated by other federal agencies or international bodies that have implications for greenhouse gas emissions and other sources contributing significantly to sea ice loss to inform them of the consequences for polar bears and to tap the scientific expertise and resources of other federal agencies that could be applied to polar bear conservation and recovery. It could also seek to have FWS staff serve on U.S. delegations to international fora addressing climate change and reductions of greenhouse gas emissions to apprise them of the targets needed to conserve polar bear habitat. Support for these types of activities should be included in the CMP.

The FWS also should consider possible amendments to its polar bear regulations issued under section 4(d) of the ESA that would provide additional tools to combat climate change and its effects on polar bears. In particular, the Commission recommends that the FWS reconsider existing section 17.40(q)(4), which specifies that none of the potentially applicable prohibitions under the ESA apply to “any taking of polar bears that is incidental to, but not the purpose of, carrying out an otherwise lawful activity within the United States” other than incidental taking caused by activities conducted within the current range of the polar bear. The upshot of this provision is that activities conducted in most of the United States that could be significant contributors to sea ice loss and have detrimental effects on the persistence of polar bears go unregulated. The Commission appreciates the difficulty in tracing the impacts of particular sources of emissions on polar bears and their habitat. Nevertheless, the current regulations give major sources of greenhouse gas emissions and other sources contributing to sea ice loss a complete pass from the taking prohibitions of the ESA, despite the fact that these sources, at least collectively, are contributing significantly to undermining the recovery of polar bears. Although the FWS maintains that it “lacks the authority to regulate greenhouse gas emissions,” it has clear authority to regulate activities that result in the taking of polar bears, which greenhouse gas emissions collectively do.

Another significant contribution that the FWS (and the U.S. Geological Survey) can make is to conduct the additional research necessary to refine our understanding of how greenhouse gas emissions and other factors are contributing to and affecting the rates of sea ice loss and how that loss is affecting polar bear populations, and whether some sources present greater risks than others. That research could be used to inform the messaging contained in the FWS's envisioned communications effort. The message would be most effective if the FWS were able to make specific recommendations about the types and levels of reductions in greenhouse gas and other sources, such as black carbon, that would be needed to preserve sufficient sea ice habitat to achieve recovery of polar bears. That research also could be used to inform the Department's decisions concerning energy development on the OCS and federal lands.

The draft CMP includes at least two conservation and recovery actions in section IV.B. that could contribute to this function—the monitoring activity under section IV.B.1.c. (which includes updating sea ice predictions as substantial new data or research tools become available) and the demographic research envisioned under section IV.B.1.b. However, it is not clear from the descriptions in the draft Plan whether a concerted effort will be made to collect the information and develop the tools needed to identify the greenhouse gas emissions targets that must be met to conserve polar bears and achieve their recovery in the four identified recovery units (ecoregions). The Commission therefore recommends that the FWS include in the CMP specific activities directed at identifying and refining the greenhouse gas and black carbon reduction levels that will be needed to conserve and achieve recovery of the polar bear and what needs to be done to achieve them, so that information can be incorporated into the FWS's communications strategy. In making this recommendation, the Commission recognizes that the CMP states that “[t]he best prognosis for polar bears entails prompt and aggressive mitigation of greenhouse gas emissions (so that forcing is kept under 3.5 W/m^2) combined with optimal polar bear management....” However, it will not be apparent to most readers of the CMP and most recipients of the FWS's communications message what that means in a practical sense. Explaining what levels of reductions are needed to achieve the 3.5 W/m^2 goal and what actions will be needed to achieve those reductions should be central to the FWS's message.

ESA Recovery Criteria

The draft CMP includes two fundamental recovery criteria related to the ESA. First, the probability of the species' persistence over 100 years must be at least 95 percent. Second, the probability of persistence in each of the four recovery units must be at least 90 percent over 100 years. Some may argue that these probabilities of persistence are too low. That is, should the polar bear's survival no longer be considered threatened if there is still a 1 in 20 chance that it will go extinct (or persist only at very low numbers) over the next 100 years? Given current projections concerning future greenhouse gas concentrations, associated climate change, sea ice coverage and quality, likely prey availability, and the persistence of polar bears under such conditions, it is unlikely that the proposed 95/90 percent probabilities of persistence will be met. As such, it may not matter that the recovery criteria in the Plan do not reflect higher probabilities of persistence. Nevertheless, the FWS should explain its rationale for selecting those values. As the draft CMP notes, other plans have used values as high as a 99 percent probability of persistence over a century as the criterion for recovery (delisting).

Of greater concern to the Commission is the proposed definition of “persistence.” As defined on page 24 of the draft CMP, persistence means “maintaining the population size in a

recovery unit (or worldwide) at greater than 15% of the population size of the unit at the time of listing or greater than 100 individuals, whichever is larger.” If, at any point within a 100-year forecast, the projected population drops below this threshold, the FWS will consider it not to have persisted. For a K-selected species such as the polar bear, setting the persistence floor at 100 animals is too low (see, e.g., Frankham et al. 2014), particularly given the large ranges covered by the identified recovery units, as discussed below, and the fact that the 19 identified subpopulations are fairly discrete. It is unclear whether the FWS is assuming that, as polar bear numbers drop, the existing subpopulation structure will change, with bears coalescing into smaller ranges within the four recovery units and showing a greater propensity to breed with bears from other subpopulations. If so, this assumption should be identified clearly. The FWS should also note that, if remaining bears do not alter their distribution and behavior in the assumed way, the persistence criteria will need to be reassessed at the level of whatever the appropriate management unit turns out to be. That is, if bears from the existing subpopulations do not breed with bears from other subpopulations in the same recovery unit, then persistence should not be evaluated at the recovery unit level.

In addition, it is not clear whether all bears (i.e., adults, juveniles, and cubs) within each recovery unit will be counted when applying the persistence criteria. In assessing the likelihood that a small population will be able to persist, it is the number of mature, reproductively competent individuals that matters most and, in the case of polar bears, the most important factor may be the number of reproductive-age females in the population. This being the case, the Commission recommends that the FWS refine the persistence criteria to specify that the thresholds be based on reproductive-age animals or just reproductive-age females.

The current distribution of bears within the four recovery units also raises some concerns as to whether this is the proper unit for judging persistence. While we recognize and support the underlying rationale to maintain the genetic, behavioral, life-history, and ecological diversity of polar bears by applying the persistence criteria at this scale, we have concerns about whether the proposed population size criteria are appropriate when applied across such large areas. For example, the divergent ice ecoregion stretches from Svalbard in the Barents Sea (at about 10° E longitude), across the northern coast of Russia, Alaska, and the Yukon, and across much of the coast of the Northwest Territories (to almost 120° W longitude). This is a distance of over 5,000 miles along the 70° N latitude arc. Unless there were considerable range contraction and concentration of bears along with the projected population decline, we doubt whether having only 100 bears distributed over such a vast area would allow them to find mates successfully, particularly if not all 100 bears were breeding-age animals. A somewhat different problem exists for bears in the convergent ice ecoregion, which comprises two disjunct subpopulations (Northern Beaufort Sea and East Greenland). If there is no genetic exchange between those two areas, it is unclear why they should be treated as a single recovery unit for purposes of assessing persistence simply because they inhabit areas that share similar ice characteristics.

The Commission notes that the persistence criteria are formulated to consider the default value of 100 or the specified percentage of the population size of each recovery unit at the time of listing, whichever is larger, but the FWS does not provide any information on the sizes of those populations at the time of listing (2008). While there may be questions about the sizes of some of these populations at the time of listing, which sources of population estimates will be used, and whether these criteria will be based on minimum or “best” population estimates, the FWS should be

able to indicate the 2008 population estimates that it intends to use when making these determinations for several of these subpopulations. Likely sources for this information presumably are the status table(s) maintained by the Polar Bear Specialist Group (PBSG)¹ or the various sources from which the PBSG derives its estimates. The Proceedings of the 15th Working Meeting of the IUCN/SSC Polar Bear Specialist Group, 29 June-3 July 2009, Copenhagen, Denmark (Obbard et al. 2010) provide a snapshot of the estimates available at the time of listing. However, in some cases, more recent publications may contain updated estimates of 2008 population sizes. The Commission recommends that the FWS, to the maximum extent possible, include in the final CMP a table setting forth the abundance estimates that it intends to use when applying the persistence criteria. The FWS should also note that, as of 2014, the PBSG status tables identified five subpopulations for which no reliable abundance estimates were available. The Commission therefore recommends that the CMP includes the FWS's plans for estimating the sizes, as of 2008, of the five subpopulations for which population estimates currently are unavailable.

A quick analysis by the Commission of the available data in Obbard et al. (2010) and the 2014 status table on the PBSG website indicates that the proposed default persistence floor of 100 bears may not apply in any instance. Using the minimum abundance estimates for each subpopulation from those sources, assigning zero to those subpopulations for which no reliable estimate is available, summing those estimates within each ecoregion, and multiplying the result by 0.15 (15 percent), resulted in a number greater than 100 in each case.² The one outlier is the Arctic Basin subpopulation, for which no abundance estimate was available, but which is not included in any of the identified ecoregions. Thus, there may be no need to have alternate persistence criteria if, indeed, 15 percent of the population size for each recovery unit as of 2008 exceeds 100, which appears to be the case.

A similar issue exists for ESA demographic criterion 3, which also includes 15 percent of the population size in each recovery unit at the time of listing as one of its elements. Again, reviewers would be better able to evaluate the proposed criteria if they had an explanation of how the alternate standards compared with one another when the available population estimates for each recovery unit in 2008 were applied. Also, as with the persistence criteria, the specified thresholds should apply only to adult, reproductive-age animals. Another problem is that criterion 3 is based on the expected carrying capacity in each recovery unit, not the actual number of bears. If, as the narrative for this criterion indicates, the concern is that the populations not drop below the level at which small-population dynamics take over, it would seem that the appropriate measure would be the number of bears in each recovery unit, not some assessment of the number that the habitat is capable of supporting. That being the case, the Commission recommends that the FWS revise ESA demographic criterion 3 to apply to the number of reproductive-age bears in each recovery unit rather than to the "expected carrying capacity" in each unit.

The Commission is also concerned about whether the precision reflected in some of the proposed ESA demographic criteria is warranted. The proposed criteria seem to assume that we

¹ <http://pbsg.npolar.no/en/status/status-table.html>.

² In conducting this analysis we did not account for the fact that the estimates in Obbard et al. and the PBSG tables probably include all animals in a subpopulation, not just breeding-age animals. Applying our recommendation that the population floor be based only on reproductive age polar bears or reproductive-age females, it is possible that 15 percent of the functional population sizes in some eco-regions could be less than 100 animals. The information necessary to conduct a more detailed analysis was not readily available to the Commission, but such an analysis is something that the FWS should consider doing.

have a sufficient understanding of the population dynamics of polar bears to enable us to manage based on fairly small differences in the identified parameters and to project those parameters over the next 100 years with sufficient precision. The Commission questions both of these suggestions. It appears that the FWS is relying on a deterministic model with fairly broad assumptions in its proposed assessments. The Commission recommends that the FWS describe in greater detail the model that it is using and identify the assumptions underlying that model. The Commission further recommends that the FWS also explain how the model accounts for uncertainty when projecting over a 100-year span and, more generally, how uncertainty is addressed throughout its selection of the recovery criteria. The last paragraph on page 26 of the CMP begins to address our concerns. However, FWS needs to do more than acknowledge the shortcomings associated with the proposed criteria, it needs to develop more conservative criteria that account for the recognized uncertainty.

Further, the Commission wonders whether the proposed ESA demographic criteria, even if theoretically sound, would be practical to implement. As noted previously, population estimates are not available for 5 of the identified 19 subpopulations. For 12 of the 19 subpopulations, the PBSG indicates that available data are insufficient to detect the population trend over the past 25 years. Against this backdrop, it is unclear how realistic it is to expect that there will be sufficiently precise estimates of the identified demographic parameters to apply the proposed criteria. Even if the United States were to make a concerted effort, and financial investment, to obtain sufficiently detailed information to make the fine-scale determinations reflected in the proposed criteria for its stocks, there could be substantial gaps if other polar bear range states did not make a similar effort and investment. And, for the two subpopulations that occur in the United States, adequate analyses would still be reliant on similar efforts being made to collect the necessary information in the Canadian and Russian portions of the stocks' ranges. The problem is compounded when projecting the required findings out 100 years into the future. The FWS's ability to secure the information necessary to apply the proposed ESA demographic criteria needs to be factored into the decision to adopt them.

The FWS listed polar bears as being threatened worldwide—that is, as a single species, throughout its range. The recovery criteria in the CMP reflect the way polar bears were listed and seem to assume that delisting would be an all or nothing proposition. However, the FWS recognized in both the listing rule and the CMP that there is substructure within the species, be it subpopulations or recovery units. As such, the CMP and its recovery criteria should take into account that polar bears as a species could be made up of different “distinct population segments” (DPSs) that would qualify for separate listing consideration. That is, although the species as a whole may not qualify for delisting, perhaps some DPSs would. Similarly, one or more DPSs might merit listing as endangered, even though the species as a whole might not. By including in the CMP the possibility that different DPSs might be treated independently for listing purposes, the FWS could provide a greater incentive to those who live within the ranges of those DPSs to take actions to conserve polar bears if listing decisions that affected them took account of their conservation efforts rather than what might be happening in areas occupied by other DPSs and factors beyond their control.

MMPA Conservation Criteria

The draft CMP includes two fundamental conservation criteria related to the MMPA. First, each subpopulation must be above its maximum net productivity level relative to carrying capacity. Second, the health and stability of the marine ecosystem, as evidenced by its ability to support polar

bears, is maintained, and each subpopulation of polar bears is maintained as a significant functioning element of that ecosystem. The draft Plan also includes associated demographic criteria tied to the rate of human-caused removals from each subpopulation and the intrinsic growth rate of each subpopulation. The FWS notes that the second criterion, which would be an indicator of the health and stability of the marine ecosystem, will be “further developed.”

As indicated in the background section of the draft CMP, section 115(b)(2) of the MMPA specifies that each conservation plan developed under the Act “shall have the purpose of conserving the species or stock to its optimum sustainable population [OSP].” However, the draft Plan is rather unclear on how the FWS will assess the status of polar bear populations relative to OSP and how it will determine whether the conservation goals of the MMPA have been met. This is a key omission.

The glossary in the draft CMP includes several definitions relevant to this issue. These include definitions of the terms optimum sustainable population, maximum net productivity level, health of the marine ecosystem, stability of the marine ecosystem, and significant functioning element of the ecosystem.

The definition of OSP in the glossary largely restates the statutory and regulatory definitions of the term, but does not directly address the central issue, which is whether OSP will be evaluated against historical (or current) carrying capacity or against the carrying capacity of the ecosystem at any given point in the future. This point is a crucial one for polar bears because the predicted declines in most polar bear populations over the coming decades will be driven largely by anthropogenic factors expected to continue reducing carrying capacity through the loss of sea ice habitat and associated prey. If the status of polar bear populations is assessed relative to declining carrying capacity, they could remain within their OSP even as they decline to the point of endangerment or quasi-extinction simply because those numbers are all that the altered habitat can support. The Commission believes that such an interpretation is both antithetical to the purposes and policies of the MMPA and inconsistent with its legislative history. The Commission therefore recommends that the FWS adopt as the Plan’s conservation goal a clear definition of OSP that is based on historical or current carrying capacity³ and not the reduced carrying capacity of some degraded, future ecosystem.

The defined lower bound of the OSP range is set at a population’s maximum net productivity level (MNPL). Thus, the key question in assessing a stock’s status relative to OSP is whether it is at or above its MNPL. The definition of maximum net productivity level (MNPL) in the glossary sheds some light on the FWS’s thinking, but does not resolve the main issue. That definition explains that the term MNPL, as a theoretical, scientific concept, is applied to be “proportional to the carrying capacity at each point in time.” That is, MNPL would decline as

³ For many subpopulations historical abundance and carrying capacity are unknown. However, for most subpopulations, abundance estimates as of the time of listing are available. Unless there is reason to believe that carrying capacity had already been reduced significantly at the time of listing or that a subpopulation had been reduced below carrying capacity in the past (e.g., by overhunting) and had yet to recover, abundance estimates as of the time of listing may be the best available and acceptable proxies for historical carrying capacity. Similarly, “current” carrying capacity (as of the time that the CMP is being developed) may serve as an appropriate proxy for some subpopulations, and may be all that can be obtained. Thus, we are using the term “current carrying capacity” to refer to carrying capacity as of the time of listing or, if that information is not available, as of the time that this plan is finalized. The thrust of this comment is to ensure that, as a worst case scenario, the conservation goal of the Plan is measured against current conditions (those existing in 2015), not against some future carrying capacity that is expected to be significantly reduced.

carrying capacity declines irrespective of the causes for such declines. The definition notes, however, that “the statutory definition of maximum net productivity level (as related to OSP) may or may not differ from the scientific concept.” In assessing the conservation mandates of the MMPA, it is the statutory definition that is relevant, not some, perhaps inconsistent, scientific construct. Thus, further elucidation of the statutory usage and meaning of the term would be helpful.

Although the Commission believes strongly that the statutory definition of MNPL should not be linked to declining carrying capacity when such declines are driven by human causes, it also is concerned about the prospect of inconsistent application of so central a term as MNPL under the MMPA. First, inconsistent usage likely will lead to confusion. Second, the statutory definition should be based on the underlying science. As we read the draft Plan, the FWS uses the concept of MNPL primarily to evaluate and manage allowable direct removals from the population. The Commission believes there are other related concepts and terms that should be used for this purpose that would avoid confusion and satisfy FWS’s management objectives, but avoid suggesting that OSP determinations are linked to changing carrying capacity regardless of the causes of those changes. Among the possible terms are “maximum sustainable yield,” which is used by the International Whaling Commission to manage subsistence hunting of large whales, or “optimal equilibrium population size,” used by Runge and Johnson (2002) as a harvest management concept. The Commission therefore recommends that the FWS revise the CMP to refrain from using the term “maximum net productivity level” or “MNPL” to refer to anything other than its statutory usage as the lower bound of OSP, and that some other terminology be used to describe its removal management strategy.

The Commission believes that, if the first MMPA conservation criterion in the draft CMP (maintaining each subpopulation above its maximum net productivity level) were tied to current or historical carrying capacity, there would be no need for the second criterion (maintaining the health and stability of the marine ecosystem and maintaining each subpopulation as a significant functioning element of that ecosystem). That is, maintaining polar bear subpopulations within their OSP levels relative to past abundance will require the persistence of a healthy, stable ecosystem. Similarly, not allowing marine mammal populations to decline below their OSP levels relative to historical carrying capacity generally would be a sign that those populations continue to be significant functioning elements of their ecosystems. It is only because the draft CMP leaves open the possibility that the MNPL used to make OSP determinations will be based on declining carrying capacity that the FWS needs to add the second criterion.

As the Commission interprets the CMP’s ESA recovery criteria and the first MMPA conservation criterion, the FWS seems to be saying that (1) the number of polar bears could be reduced by up to 85 percent, yet the species still could be considered “recovered” and (2) if that decline were driven by anthropogenic destruction or modification of habitat that reduced carrying capacity, the populations also would not be considered depleted under the MMPA. Faced with such a prospect, which runs counter to the intent and spirit of the MMPA, it is easy to see why the FWS saw a need to add the second MMPA criterion. However, as currently structured, the second MMPA criterion is not adequate to cure the problem created by the FWS’s problematic and unnecessarily complex interpretation of the relationship between MNPL and reduced carrying capacity from anthropogenic causes.

In addition, more details are needed with respect to how MMPA conservation criterion 2 and the associated demographic criterion would be implemented. The health and stability of the

marine ecosystem will be judged by the ecosystem's capacity to support polar bears. However, the draft Plan does not address what measure of carrying capacity or population growth rates would be considered adequate to indicate a healthy, stable ecosystem. In the overall context of the MMPA, it appears that an ecosystem that has been degraded to the point where it no longer is capable of maintaining marine mammal populations at or near historical levels (or within OSP relative to historical carrying capacity), should not be considered to be healthy or stable. The draft CMP does not provide much elucidation of proposed demographic criterion 2; it states that two parameters (intrinsic population growth rate and carry capacity) of each subpopulation would need to be above, and expected to remain above, some unspecified levels that indicate that the health and stability of the ecosystem has not been substantially impaired. The definitions of "health of the marine ecosystem" and "stability of the marine ecosystem" provided in the glossary provide no further guidance. The former explains that the measure of the health of the marine ecosystem is the intrinsic growth rate of a polar bear subpopulation but does not quantify what that rate should be. The latter notes that the stability of the marine ecosystem is reflected in its ability to support marine mammals and that the carrying capacity of a polar bear subpopulation will be its measure. However, it is unclear how this standard would be applied, which is a substantial omission. Reviewers can only judge the adequacy of this criterion if they know how far the carrying capacity of a polar bear population could drop before the ecosystem no longer would be considered healthy and stable.

Specific Comments

Page 16, Table 1 – ESA demographic criterion 1, as described in this table, differs from the description on page 25 of the Plan. The table omits any mention of the alternative standard tied to 15 percent of the population size in each recovery unit as of the time of listing. This is an important element of the criterion and should be included in the table. Also, although explained later in the text, it may not be clear to someone looking at the table why the standards under ESA demographic criteria 1 and 2 are expressed as ranges when they refer to minimal demographic rates that must be attained. Inserting a footnote to the table explaining this would be helpful.

Pages 20-21, MMPA Demographic Criterion 1 – The discussion of this criterion notes that

For polar bears, h_{MNPL} is likely 79–84% of the intrinsic population growth rate (Regehr et al. 2015). The theoretical maximum population growth rate for the species is approximately 6–14% (Taylor et al. 2009, Regehr et al. 2010) but may be less if habitat loss or other factors affect subpopulations negatively through density-independent effects.

These values seem quite high and suggest that nearly all of the production of a population could be removed, yet still achieve MNPL at "equilibrium." In practice, however, marine mammal populations, especially those listed under the ESA, often do not exhibit the theoretical dynamics reflected in this assessment. The Commission believes that a more precautionary approach for managing removals should be considered. For comparison, it would be helpful if the FWS included a similar assessment using the potential biological removal (PBR) approach used under the MMPA to manage removals in other contexts.

We are specifically concerned about the last sentence on page 20, which suggests that it would be acceptable to allow harvest rates to remain constant despite population declines due to reduced carrying capacity. The Commission believes that a more precautionary approach should be adopted,

such that the allowable rate of removals, and not just the absolute numbers, would decline as the population declines, eventually reaching zero at some specified floor.

Page 25, ESA demographic criterion 4 – This criterion requires total “human-caused removals” in each recovery unit not to exceed a specified rate. Presumably, the FWS intended this to mean direct removals from the population, e.g., from subsistence hunting or defense-of-life takes. However, polar bear deaths that occur due to starvation or cannibalism because of lack of sea ice to support prey or to provide hunting platforms, or that result from drowning due to the absence of sea ice, also are largely attributable to human causes. Therefore, the FWS should clarify which human-caused removals will be considered in making assessments under this criterion and, if it opts to exclude some subset of human-caused deaths (e.g., indirect deaths due to degradation of habitat), that it provide an explanation of why they should not be counted if they are the result of human activities.

Page 30, Disease and parasites threats-based criterion – Disease and parasites will not be considered a threat to polar bear populations unless one of two criteria are met. One of these specifies that, for each recovery unit, “infection is not persisting endemically, as measured by an assessment of trend in indicators of exposure (e.g., prevalence, incidence) to disease agents (bacteria, viruses, and parasites)...” For virtually all marine mammals some types of infections, especially the presence of parasites, are endemic. However, that does not necessarily mean that the population is compromised. The Commission believes that this criterion should be revised to reflect that disease and parasites are considered a threat only if they significantly compromise the health and survival of the recovery unit or of a significant proportion of the individuals that comprise that unit.

Page 32, Quasi-extinction floor – This is identified as a key term in the table on page 32, but is defined only in a fairly vague way. It would be helpful if the FWS were to explain the relationship between the quasi-extinction floor and the term “persistence,” defined on page 24 of the CMP. Whereas persistence is defined quite precisely, the term quasi-extinction floor is not. However, from the use of the term quasi-extinction floor elsewhere in the CMP, it appears that the two terms could be considered synonymous.

Pages 36-37, Uncertainty – Section III.F. of the Plan, which addresses uncertainty, assumptions, and the need for adaptive feedback and management is well-written and particularly important in a plan such as this, given our currently incomplete understanding of future rates on greenhouse gas emissions, the extent and rates of sea ice loss, and the impacts on polar bear populations. However, the recognition of the limits of our knowledge and ability to predict future conditions seems somewhat at odds with the precision reflected in the Plan’s demographic criteria. This incongruity should be rectified or explained.

The Commission looks forward to continuing to work with the FWS and other stakeholders to promote the recovery and conservation of polar bears. We appreciate that achieving the goals of the ESA and the MMPA in these respects will be difficult given current projections concerning greenhouse gas emissions, sea ice loss, and the reliance of polar bears on sea ice habitat. While we think that the CMP is a good first step in mapping out the conservation strategy, the Commission remains concerned that it does not do enough to address the root cause of the primary threat to polar bears. As such, the Commission believes that FWS (and the Department of the Interior) needs to think more expansively about how to use its authorities to address climate change. Also, these comments reflect the Commission’s belief that the conservation mandates of the MMPA require

that action be taken to counter and reverse human-caused habitat loss or degradation, not merely that adjustments be made to management benchmarks to accommodate declining carrying capacity. As such, we are particularly concerned about the metric that is used to assess OSP under the MMPA in situations where population declines are being driven by anthropogenic habitat loss. The Commission looks forward to further discussion of this broader issue with the FWS outside of the confines of the polar bear CMP. It is a fundamental one under the MMPA and one that, unfortunately, we may face with other species in the future.

The Commission acknowledges that it is submitting these comments after the close of the public comment period. We appreciate the FWS's patience and willingness to consider them nonetheless. Please let me know if you or your staff have questions or would like to discuss any of the points we have raised.

Sincerely,



Rebecca J. Lent, Ph.D.
Executive Director

cc: Gary Frazer, Assistant Director, Ecological Services, FWS
Eileen Sobeck, Assistant Administrator for Fisheries, NMFS

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