

To Whom It May Concern

RE: Petition to Designate the Central North Pacific Stock of the Humpback Whale as a Distinct Population Segment and Remove the DPS from the List of Endangered and Threatened Species under the Endangered Species Act (NOAA-NMFS-2014-0051)

On February 26, 2014, the National Oceanic and Atmospheric Administration (NOAA) received a petition from the State of Alaska, seeking:

1. To classify the *Central* North Pacific population of humpback whale (*Megaptera novaeangliae*) as a Distinct Population Segment (DPS);
2. To remove the *Central* North Pacific Distinct Population Segment as endangered from the Endangered Species list.

The petition cites the Central North Pacific humpback whale population's geographical isolation from other humpback populations, as well as apparent increases in the Central North Pacific humpback whale (CNPBHW) stock size, as the major arguments in favor of delisting.

Pacific Whale Foundation acknowledges that the best available science indicates that the number of humpback whales has increased in the North Pacific. However, we urge the NOAA to assume the precautionary principle when addressing this issue, and do not believe that delisting is warranted at this time. It is likely that pre-exploitation levels of North Pacific humpbacks numbered around 100,000. To achieve the state recovery goal of 60% carry capacity would thus require the current population to number 60,000 individuals – three times the current population estimate.

As an organization dedicated to the protection of our oceans through science and advocacy, Pacific Whale Foundation supports the delisting of any and all marine species where peer-reviewed, scientific evaluation provides conclusive evidence that the species in question meets the requirements for delisting, as stipulated by both the Endangered Species Act and the species' Recovery Plan. Pacific Whale Foundation sees the potential merit in classifying the Central North Pacific Humpback Whale population as a Distinct Population Segment.

At this time, however, Pacific Whale Foundation does *not* believe that the best available scientific data indicate that delisting is currently warranted for *any* stock of North Pacific humpback whales. Lack of sufficient pre-exploitation population estimates, poor understanding regarding the relationship between humpback stocks within the North Pacific, as well as an inadequate evaluation of threats to humpback whales in relation to recovery plan criteria, instead imply that a decision to delist would be both premature and shortsighted. PWF therefore feels that delisting would prove premature and potentially disastrous for the species' sustained recovery.

While the population's increase over the past 50 years does merit celebration, estimates of the population's present and past abundance, as well as historical environmental carrying capacity, are uncertain, and in some instances unknown.

Regarding the delisting of the North Pacific Humpback Whale stocks, based on population size:

The leading reference with regards to pre-exploitation population sizes and commercial whaling impacts on humpback whales in the North Pacific is a report entitled *The humpback whale in the North Pacific: distribution, exploitation, and numbers* (Rice, 1978). While providing a basis for evaluating humpback whale status in the late 1970's, this report is at the point of being seriously outdated, and

has also confusingly led to differing conclusions regarding the “recovery” of humpback whales in the North Pacific.

Petitioners, for example, argue that the tenfold increase in the number of humpback whales in the North Pacific since the cessation of commercial whaling supports delisting. Prior to commercial whaling, the petition cites Rice (1978) and states that an estimated 15,000 humpback whales resided in the North Pacific.

Recent population studies of North Atlantic humpback whales, however, reveal the potential flaws that are associated with estimating population size based on catch data. Ruegg (2012), for example, estimates the long-term population size of North Atlantic humpback whales based on nuclear gene diversity. The paper states:

*While estimates of pre-exploitation abundance based upon catch data suggest the [North Atlantic] population might be approach pre-whaling numbers, **estimates based on mtDNA genetic diversity suggest they are still only a fraction of their past abundance levels.***
(Ruegg et al., 2012)

Using mtDNA genetic analysis, the paper estimates the long-term population size of the North Atlantic humpback at ~112,000 individuals. This value is 2-3 fold *higher* than estimates based upon catch data (Ruegg et al., 2012).

In light of this conclusion, the authors proceed to state:

*The remaining discrepancy between genetic and catch-record values, and the failure of population models, highlights **a need for continued evaluation of whale population growth and shifts over time, and continued caution about changing the conservation status of this population***
(Ruegg et al., 2012).

Pacific Whale Foundation would like to further point out, that the 2011 Fleming and Jackson report, funded by NOAA and NMFS, concluded that:

Though there is no comprehensive assessment of the impact of whaling and the number of individuals removed, it appears clear that in most regional feeding and breeding areas, numbers remain lower than pre-exploitation abundances (Fleming & Jackson, 2011).

In addition, some geographic areas where humpback whales used to be observed do not appear to have been recolonized (Gregg *et al.*, 2000).

It was also concluded that despite observed positive population trends over the past decade, the California-Oregon population likely remains well below pre-exploitation size (Fleming and Jackson, 2011). The petition also makes no reference to the fact that whaling ceased in the Ryukyu Islands in 1961 because of a shortage of whales, or offshore of Taiwan and Ogasawara in the 1940's due to depleted stocks (Darling and Mori, 1993). The extent to which these stocks have recovered is currently unknown. Furthermore, the recovery of these stocks, as linked to the Central North Pacific stock, is also unknown.

Notes on NMFS Recovery Plan and Recovery Goals

The NMFS Recovery Plan sets the long-term numerical goal to evaluate humpback whale recovery at 60% of the historical environmental carrying capacity. This goal, however, is essentially useless unless historic population numbers are confidently established. Current population studies (such as

those authored by Calambokidis) only indicate short-term trends in population size, and thus alone are not evidence enough that stipulated recovery criteria has been successfully met.

Most recent population estimates indicate that the basin-wide NPHBW population now numbers around 21,000 individuals (Calambokidis *et al.*, 2008). If the conclusions of Ruegg (2012) are any indication, however, the North Pacific humpback whale pre-exploitation population could, on an ocean wide basin, number over 100,000 individuals. If pre-exploitation levels numbered around 100,000, achieving 60% recovery goal would thus require the current population to be 60,000 individuals, which is *at least three times the current population estimate*.

The Recovery Plan acknowledges that even its own goal of achieving a population size equal to at least 60% of the historical environmental carrying capacity is difficult to evaluate because of the lack of an accepted pre-whaling population baseline (National Marine Fisheries Service, 1991).

As an interim goal, NMFS recommended that humpback whale populations double in size over the next twenty years, a milestone that would be evidence of meaningful progress (National Marine Fisheries Service, 1991). Data indicates that, on an ocean-basin scale, this interim goal has been met (Darling and Morowitz, 1986; Calambokidis *et al.*, 2008)

It should be noted, however, that this interim goal was merely a *yardstick* by which NMFS chose to coarsely evaluate if the species was showing initial signs of recovery. This goal was not, contrary to some beliefs, specified criteria for delisting (National Marine Fisheries Service, 1991).

There is no doubt that since the cessation of commercial whaling in the North Pacific, humpback whale stocks have increased. However the extent to which these stocks have increased, as compared to pre-exploitation abundance numbers, is neither known nor agreed upon by scientists. In fact, most recent humpback whale population studies indicate that estimating pre-exploitation populations on catch data alone likely significantly underestimates the actual pre-exploitation population.

These issues have resulted in an inability to set specific long-term population recovery goals, and it is suggested that a careful analysis of pre-exploitation humpback abundance be undertaken before delisting is even remotely considered. We must be able to set specific recovery goals before determining if a species is recovered.

Threats

Pacific Whale Foundation furthermore maintains that threats to humpback whales, in all ocean basins, have only increased since the moratorium on commercial exploitation of humpback whales was passed in 1966. The impact of threats such as ship strikes, underwater noise pollution, sea level rise, ocean acidification, changes in prey population dynamics, habitat loss and destruction and entanglement in fishing gear on the recovery of humpback whale stocks in the North Pacific remain poorly understood. Delisting is also likely to open up critical habitat to increased oil and gas exploration, a situation that is further likely to negatively impact whale populations in the North Pacific.

As the current population of humpback whales in the North Pacific is not well understood as related to pre-exploitation numbers, it is also likely that the current population is not robust. A single five year El Nino event could, for example, severely depress humpback food supplies, which may significantly impact the ability of the population to recover.

Data also indicates that collisions of humpbacks and ships appear to be increasing in important breeding areas such as Hawaii (Lammers *et al.*, 2003). Available evidence also suggests that ship

strikes are increasing in Alaska (Gabriele *et al.*, 2007), and a recent assessment found that 78% of whales in northern Southeastern Alaska had been non-lethally entangled in fishing gear (Neilson *et al.*, 2009). Humpbacks off Southern California and Asia are known to have high levels of DDT, PCBs and other persistent organic pollutants (Elfes *et al.*, 2010). Even though Elfes (2010) suggests that POP levels found in humpbacks are unlikely to have a significant impact on their persistence as a population, it is relevant to note that the overall understanding of population-level effects of pollutants on marine mammals is not well understood.

Climate change is also expected to impact marine ecosystems. While scientists do not fully understand how the ocean ecosystems may react to changes in ocean chemistry and temperature, it should be noted that these changes could have a significant impact on humpback food distribution and availability.

Conclusions

The lack of understanding with regards to:

1. Historic humpback whale population levels in the North Pacific;
2. Genetic diversity within the North Pacific Humpback population); and
3. The impact of increasing threats to humpback whale recovery, indicate the obvious prematurity of delisting.

In 2009, NMFS initiated an ESA status review of the humpback whales. The status review has yet to be completed, but the findings are likely to shed new light onto the overall population status of North Pacific Humpback Whales.

Pacific Whale Foundation also feels that now, more than ever, the Hawaiian Islands Humpback Whale National Marine Sanctuary should assume a leadership role in drafting a comprehensive management plan for Sanctuary waters that will assist in ensuring the species' lasting survival. A comprehensive ESA status review, coupled with an updated and comprehensive Sanctuary management plan, should be completed prior to any discussion of species delisting.

In fact, most recent humpback whale population studies indicate that estimating pre-exploitation populations on catch data alone likely significantly underestimates the actual pre-exploitation population.

In light of these points, Pacific Whale Foundation therefore does not believe that the current scientific evidence supports the removal of *any* portion of the North Pacific Humpback Whale population from the Endangered Species list.

Pacific Whale Foundation furthermore urges NMFS to utilize the precautionary approach when considering the two petitions current before you, and also to consider "shifting baseline syndrome".

The best course of action would be to conduct additional population estimates (based on genetic analysis) and establish a more scientifically robust estimate of pre-exploitation levels of humpback whales in the North Pacific. Once this baseline is more firmly established, NMFS will be more informed with how to proceed in a manner that is in the best interest of the humpback whale.

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