

DEPARTMENT OF COMMERCE

National Oceanic and Atmospheric Administration

RIN 0648-XA018

60-Day Finding for a Petition To Conduct a Status Review of the Eastern North Pacific

Population of Gray Whale Under the Marine Mammal Protection Act

AGENCY: National Marine Fisheries Service (NMFS).

ACTION: Notification of a 60-day petition finding.

SUMMARY: NMFS received a petition to conduct a status review under the Marine Mammal Protection Act (MMPA) for the purpose of designating the Eastern North Pacific stock of gray whales (Eschrichtius robustus) as depleted. NMFS finds that the petition does not present substantial information indicating that a status review may be warranted.

DATES: This petition finding was made on December 20, 2010.

ADDRESSES: A copy of the petition and a complete list of references cited in this notice will be available on the Internet at the following address: <http://www.nmfs.noaa.gov/pr/>.

FOR FURTHER INFORMATION CONTACT: Dr. Shannon Bettridge or Dr. Thomas C. Eagle, Office of Protected Resources, Silver Spring, MD (301) 713-2322.

SUPPLEMENTARY INFORMATION:

Background

Statutory Guidance

Section 3(1)(A) of the Marine Mammal Protection Act (MMPA) (16 U.S.C. 1362(1)(A)) defines the term, “depletion” or “depleted”, to include any case in which “...the Secretary, after

consultation with the Marine Mammal Commission and the Committee of Scientific Advisors on Marine Mammals...determines that a species or a population stock is below its optimum sustainable population.” Section 3(9) of the MMPA (16 U.S.C. 1362(9)) defines “optimum sustainable population [(OSP)]...with respect to any population stock, [as] the number of animals which will result in the maximum productivity of the population or the species, keeping in mind the carrying capacity [(K)] of the habitat and the health of the ecosystem of which they form a constituent element.” NMFS’ regulations at 50 CFR 216.3 clarify the definition of OSP as “a population size which falls within a range from the population level of a given species or stock which is the largest supportable within the ecosystem [i.e., K] to the population level that results in maximum net productivity.” Maximum net productivity level (MNPL) is the population abundance that results in the greatest net annual increment in population numbers resulting from additions to the population from reproduction, less losses due to natural mortality.

The MMPA provides for interested parties to submit a petition to designate a population stock (hereafter “stock”) of marine mammals as depleted. Section 115(a)(3) of the MMPA (16 U.S.C. 1383b(a)(3)) requires NMFS to publish a notice in the Federal Register that such a petition has been received and is available for public review. Section 115(a)(3)(B) (16 U.S.C. 1383b(a)(3)(B)) of the MMPA requires NMFS to publish a notice in the Federal Register as to whether the petition presents substantial information indicating that the petitioned action may be warranted within 60 days of receiving a petition. NMFS and the U.S. Fish and Wildlife Service define “substantial information” under the petition procedural regulations of the Endangered Species Act as the amount of information that would lead a reasonable person to believe that the measure proposed in the petition may be warranted (see 50 CFR 424.14(b)). Given that the identical term is used in the MMPA with reference to petitioned actions, NMFS interprets

“substantial information” under MMPA using the same parameters as those used under the ESA.

Status of Gray Whales Under the Law

Gray whales were listed among several genera of baleen whales as endangered under the Endangered Species Conservation Act in June 1970, the precursor to the Endangered Species Act (ESA) (35 FR 8491, June 2, 1970). The species was subsequently listed as endangered on the List of Endangered and Threatened Wildlife and Plants (the List) under the ESA in 1973. All marine mammal species listed under the ESA are defined as “depleted” under the MMPA. NMFS completed its first status review of gray whales in 1984 and concluded that the Eastern North Pacific (ENP) stock was not in danger of extinction. That review recommended changing the status of the ENP stock of gray whales from endangered to threatened, however, no further action was taken at that time (49 FR 44774, November 9, 1984).

NMFS began a subsequent status review of gray whales and other listed species in 1990, and completed a formal report of the review and made it available to the public on June 27, 1991 (56 FR 29471). NMFS published a proposed rule to delist the ENP stock of gray whales on November 22, 1991 (56 FR 58869). On January 7, 1993, NMFS announced its final determination that the stock was no longer in danger of extinction and was not likely to become endangered in the foreseeable future, and concluded that the stock was 60 to 90 percent of K (within the accepted range of abundances for the stock’s OSP) and should be removed from the List (58 FR 3121). The U.S. Fish and Wildlife Service removed the ENP stock of gray whales from the List on June 16, 1994 (59 FR 31094). As required by the ESA, NMFS conducted a status review five years after the delisting, and convened a workshop on March 16-17, 1999, in Seattle, WA. The workshop participants concluded that there was no reason to reverse the decision to remove the stock from the List. This determination was based on the continued

growth of the population (at that time, increasing at 2.5 percent annually and with abundance estimates well above 20,000) and the absence of evidence of any imminent threats to the stock. As recommended by the workshop participants, NMFS has continued to conduct assessments of the stock.

On March 28, 2001, NMFS received a petition to list the ENP stock of gray whales as threatened or endangered under the ESA to protect the stock from substantial threats. NMFS found that the petition presented no substantial information to warrant the listing, and published its 90-day finding on June 14, 2001 (66 FR 32305).

The Current Petition

On October 21, 2010, NMFS received a petition from the California Gray Whale Coalition (Petitioners) to designate the ENP gray whales as a depleted stock under the MMPA. Pursuant to Section 115(a)(3)(A) of the MMPA, NMFS published a notice in the Federal Register that the petition had been received and was available for public review for a 15-day comment period (75 FR 68756). NMFS subsequently received requests by the Petitioners and others to extend the public comment period to provide interested parties additional time to review the petition, compile additional materials, and prepare comments for submission to the agency. NMFS extended the public comment period until December 8, 2010 (75 FR 70903).

Petitioners request a status review of the ENP stock of gray whales and assert "...that the [ENP] gray whale population is in decline sufficient to classify the stock as depleted, as defined in the MMPA, thereby requiring the preparation of a conservation plan to restore the stock to its optimum [sustainable] population."

In support of this assertion, the Petitioners cite scientific literature to present estimates of historical abundance derived from a number of approaches and suggest that current abundance is

below MNPL, which is the lower bound of OSP. The Petitioners also suggest several factors that may contribute to the alleged decline that caused the stock to be possibly depleted, provide comments on information available for assessing the status of the stock and reported in marine mammal stock assessment reports (SARs), and provide an alternative model to assess the status of the stock. There were also comments in the petition on previous SARs (e.g., 2008 SAR) and on agency actions other than reviewing the status of the gray whale stock (e.g., incidental take authorization for an open water marine seismic survey, 75 FR 49710, August 13, 2010). The comments on these documents, on previous SARs or on documents not related to the status of ENP gray whales and responses to these comments are not included in this document because the comments are not related to the petitioned action. In this determination notice, NMFS discusses the concept of "depleted" as defined by the MMPA, evaluates the information included in the petition supporting the assertion that the ENP gray whale stock is depleted, addresses other assertions in the petition, and concludes that the petition does not present substantial information indicating that a status review of ENP gray whales may be warranted.

Status of the ENP Gray Whale Stock

The petition presents three assertions that the stock is below its OSP and, therefore, that a status review may be required. The assertions are as follows:

(1) K for ENP gray whales is higher than previously reported, and the current abundance is below 60 percent of the alternative estimate of K ;

(2) A non-parametric model suggests the population increased from the late 1960s until the mid-1980s and has been decreasing since then; and

(3) Abundance estimates reported in Laake et al. (2009) show that abundance estimates since 2000 are below the abundance estimate from 1994 when ENP gray whales were removed from the list of endangered species.

Below, NMFS addresses each of the Petitioners' assertions suggesting a status review may be required.

Carrying capacity higher than reported: In support of their first assertion, the Petitioners attribute a quote to a document by NMFS scientists (Barlow et al., 1995) that pre-exploitation (historical) abundance is generally used as the most readily available proxy for K. The citation was not included in the reference section of the petition. However, a similar statement (but not a direct quote) was contained in a petition to the U.S. Fish and Wildlife Service in 2001 by the Center for Biological Diversity to designate Alaska sea otters as depleted (see <http://alaska.fws.gov/media/sotter/Pet2.pdf>). In the 2001 petition, Barlow et al. (1995) was identified as a NMFS publication containing guidelines for preparation and other information related to SARs. Barlow et al. (1995) does not include the quoted statement; however, NMFS agrees that comparing current to pre-exploitation abundance has, indeed, been used most often in assessing the status of marine mammal stocks relative to their OSP.

Historical population levels may be the best scientific information available in the cases where it has been used to evaluate the status of marine mammal populations with respect to a stock's current OSP. The following actions used historical abundance as a proxy for K: authorizing the taking of dolphin populations in the Eastern Tropical Pacific Ocean (ETP); depletion determinations for bowhead whales, Cook Inlet beluga whales, Southern Resident and AT1 killer whales, and two stocks of dolphins in the ETP; northern fur seals; and status reviews of northern fur seals and ENP gray whales. In each of these cases historical abundance was the

best available information allowing NMFS to estimate K; therefore, it was used. Use of historical abundance does not indicate that historical abundance is the only approach to estimate K.

NMFS submitted a legislative proposal to Congress in 1992, which, among other things, stated NMFS' intention to use current rather than historical K in its OSP analyses. Drafts of this proposal were made available for public review and comment. Some comments indicated that the use of current K would not provide adequate protection for marine mammal populations because human alteration of marine ecosystems could result in reduced K for the affected stocks of marine mammals, and other comments supported use of current K. In the 1992 legislative proposal, NMFS stated, "Public comments were divided over whether historic [K] (before interference by human activities) or current [K] should be used to determine K under the proposal. NMFS has determined that re-creating historical [K] is not possible in most cases and would rely on current [K], absent human exploitation, to determine OSP. NMFS is sensitive to concerns that current [K] could shrink due to a number of circumstances and lead to tolerance of ever lower numbers of marine mammals within OSP. Consequently, NMFS is proposing to factor habitat degradation into the determination of OSP. Where human-caused, correctable degradation of the marine environment has occurred, OSP levels would reflect K modified (increased) by habitat restoration efforts. If data are available, NMFS would determine K based on the long-term equilibrium population that can be supported under reasonable and proper use of the marine environment and living marine resources." NMFS reiterated this policy in 2008 and 2009 in responses to comments on the 2007 and 2008 SARs (73 FR 21111, April 18, 2008, see response to comment 32; 74 FR 19530, April 29, 2009, see response to comment 21).

More recently, Wade (2002) reported that there was sufficient information in the

abundance and mortality estimates of ENP gray whales as described below to estimate the current K and MNPL of this stock using well-documented population models to estimate key parameters in the status of the ENP gray whale stock. Wade (2002) analyzed abundance estimates from 1967/68 through 1995/96 and catch records from 1966 through 1995 to determine that the stock was within its OSP. Wade and Perryman (2002) used similar methods to Wade (2002) to update the status assessment of ENP gray whales by including abundance surveys through 2001/02 and reported catch through 2002. These updated analyses confirmed that ENP gray whales were within OSP levels. These analyses were incorporated into the marine mammal stock assessment reports when the reports were updated in 2007 (Angliss and Outlaw, 2008).

Subsequently, Laake et al. (2009) reanalyzed all previous abundance data using methods consistent with Wade (2002) and Wade and Perryman (2002) and incorporated abundance surveys through 2006/07 to provide a new time series of abundance estimates. Punt and Wade (2010) used methods similar to those described by Wade (2002) to analyze these updated and revised abundance estimates and incorporated catch records from 1846 through 2008 to conclude that ENP gray whales remained within their OSP. Because Punt and Wade (2010) estimated K over the time period of the abundance estimates, MNPL, and current abundance directly from the data, NMFS uses Punt and Wade (2010) as the best information available on the status of the stock and on the key parameters (K, MNPL, and current abundance of ENP gray whales). The estimate of K in Punt and Wade (2010) is consistent with NMFS' practice of using current K, corrected for human-caused degradation of the environment, in evaluating a stock relative to its OSP. Where a more direct estimate of current K is not available, the agency has used historical abundance as a proxy for K.

Even if historical abundance had been the best information available to estimate K, the

petition did not present substantial information suggesting a status review is warranted. The Petitioners included two approaches to estimate historical abundance in their assertion that current abundance was below MNPL. First, the Petitioners cited Alter et al. (2007) to suggest that K for ENP gray whales was 96,000 gray whales and the current abundance is less than 60 percent of this estimate of K. The Petitioners did not note that the analysis in Alter et al. (2007) resulted in an estimate of total historical abundance which likely represents both ENP and Western North Pacific gray whale stocks. Furthermore, as NMFS has reported previously (73 FR 21111, April 18, 2008; 74 FR 19530, April 29, 2009) the methods in Alter et al. (2007) are subject to scientific debate and have not been accepted as supporting a depletion designation. This method relies on the use of several parameters, including mutation rates and the ratio of effective population size to census size, which are difficult to measure and which strongly influence the estimate of historic abundance. In addition, it is difficult to determine the temporal and spatial scale over which the historic abundance estimate is relevant. Alter et al. (2007) noted that an important question in evaluating the current status of ENP gray whales is whether K has declined over time due to changes in the environment and that, if K has declined, the stock may have reached K today. Due to these weaknesses in Alter et al. (2007), NMFS does not consider 96,000 as a reasonable estimate of K for ENP gray whales.

For its second approach to estimating historical abundance, the Petitioners stated that the upper 95 percent confidence limits for back calculations of historical abundance were as high as 60,000 to 70,000 whales. Because the current abundance was below 60 percent of these approximations for K, they concluded the stock was depleted. The Petitioners, however, failed to justify why using extreme tails of a probability distributions for estimates of historical abundance represented the best, or even a reasonable, proxy for examining depletion level or

status relative to K . These extremes are not reasonable estimates of K and are not a substantial indication that a status review is warranted. In addition, Punt and Wade (2010) considered 70,000 as the upper extreme in their starting point as an estimate of K (i.e., the upper limit of the prior distribution in their analysis); however, after using the data to inform the analysis, Punt and Wade (2010) estimated K as 25,808 (posterior mean).

Nonparametric model: The Petitioners' second major argument supporting their assertion that the ENP gray whale stock is depleted is illustrated by Figure 1 in the petition. This figure shows current and previous point estimates of abundance from Laake *et al.* (2009) with lines generated by a nonparametric smoothing function superimposed over the estimates. The petition states that this nonparametric approach uses the data to determine the underlying linear or nonlinear trend without having to assume any specific functional form and concludes that the figure shows the population increased from the 1960s until then mid 1980s and has been decreasing steadily ever since.

There are two major weaknesses with the Petitioners' analysis as evidence that the ENP gray whale stock is below its OSP. First, their model was fit to point estimates of abundance only, despite abundance estimates being subject to considerable uncertainty as a result of statistical inference from statistical analysis of observational data. Ignoring important uncertainties has the potential to bias results. Second, this nonparametric approach is an inappropriate test to evaluate the status of marine mammal populations because it ignores key concepts in population biology that are critical to understanding stock status under the MMPA, such as net productivity rate, MNPL, and K .

Even if the simple smoothing function included in the petition was an adequate method to evaluate the status of the ENP gray whale stock, the information included in their presentation of

this alternative model is insufficient to support the Petitioners' assertion that the ENP gray whale stock is depleted. The maximum population abundance illustrated in the Petitioners' line fitted to the current time series of abundance estimates appears to be about 23,000 gray whales in about 1985. The smoothing function shows the latest abundance (in about 2006) to be about 17,000 gray whales. If the maximum value actually represented K, the 2006 abundance would be about 73 percent of K, far above the usually-accepted criterion for OSP: 60 percent of K. Thus, using the petition's own model, the stock would be within its OSP.

Because the alternative model included in the petition did not show that the ENP gray whale stock had declined below MNPL and due to the two weaknesses described above, this alternative model is not reasonable evidence that the abundance of the stock may be below OSP.

In contrast, Punt and Wade (2010) used an age- and sex-structured population dynamics model, which estimated key parameters in the status of ENP gray whales and incorporated uncertainty from input parameters and data. A catastrophic mortality event in Punt's and Wade's (2010) analysis incorporated an analysis of the impact of the elevated strandings observed in 1999 and 2000 and was, therefore, an improvement over more standard population assessment models.

Abundance below 1994 levels: The final argument supporting the petition's assertion that the ENP gray whale stock is depleted includes a statement that abundance estimates since 2000 are lower than in 1994 when the stock was removed from the list of endangered species (calculated by Laake et al. (2009) as 19,126 and 20,103 respectively). The petition notes that the mean abundance level over the interval 1967 through 2006 in Laake et al. (2009) is below the 1994 level and also below 60 percent of K when K is 60,000 to 70,000.

These statements are unrelated to assessing the status of ENP gray whales under the MMPA. In the MMPA the definition of "depleted" includes that the abundance is below the MNPL. The definition does not refer to the abundance when the stock was removed from the list of endangered species. That is, the MMPA requires only an evaluation whether a stock is above or below its MNPL in a status review. Accordingly, this final argument in the petition adds no credible support to the petition's assertion that the ENP gray whale stock is depleted. The best available scientific information (Punt and Wade, 2010) shows that the ENP gray whale stock is above its MNPL.

Additional Points in the Petition

Causes of Decline

The Petitioners present a model illustrating that this stock has been declining since 1985, and assert that the causes of decline include "PBR has resulted in over-harvesting", collapse of cow/calf numbers, predation by transient killer whales, and changes or reductions in prey availability. Although these causes of decline may have relevance to a status review under the MMPA if the abundance of the stock were below the MNPL, the current abundance of the ENP gray whale stock is above the MNPL. However, each of these causes of decline is addressed below.

Inflated PBR: The Petitioners suggest that PBR for the stock (set at 417 per year in the 2008 SAR) is too high, and the established quota has resulted in over-hunting, presumably from the aboriginal subsistence hunt that represents the only catches of gray whales since the PBR approach was implemented. The petition's evidence for this assertion is that the 2002 SAR did not contain revised abundance estimates reported in Laake et al. (2009), and that a PBR

calculated with a recovery factor of 0.1 would have resulted in a lower PBR than the one reported in 2002, which used a recovery factor of 1.0.

The assertion that PBR caused the stock to be in decline cannot be substantiated by the petition because the petition contained no credible evidence that the stock had declined or was below OSP. PBR is one of many methods to estimate a sustainable level of removals of individuals from a marine mammal stock and is required by the MMPA. The calculation could not cause a decline even if a decline had occurred. Furthermore, the 2002 SAR could not be expected to include an analysis that became available in 2009. Finally, the PBR is not used to establish the aboriginal catch limit for ENP gray whales and, therefore, could not result in a subsistence quota for ENP gray whales. This catch limit is established by the International Whaling Commission (IWC) and is based on a recommendation by the IWC's Scientific Committee following analysis using the Strike Limit Algorithm (SLA), a model that is more sophisticated than the model used as the basis for PBR. The SLA and the data analyzed in establishing the aboriginal subsistence quote were scrutinized by the Scientific Committee and fully evaluated before their recommendation to the IWC. IWC procedures include periodic review of the dynamics of the affected large whale stocks to ensure that catch levels are sustainable; the next such review for the ENP gray whale stock is scheduled for June 2011. As a result, the Petitioners' assertion that PBR has led to over-harvesting is incorrect.

Collapse of cow/calf numbers: The petition asserts that counts of calves in the lagoons of Baja California, Mexico, demonstrate a major collapse of the stock. These counts are informative about use of the lagoon systems. However, counts within these specific lagoons (part of the breeding and calving range of ENP gray whales) do not estimate annual calf

production for the stock because some unknown and variable numbers of cows with calves do not enter the lagoons, and effort for the counts reported in the petition is not systematic in all lagoons throughout the season. The best estimate of calf production for this stock is based on counts of northbound calves passing the Piedras Blancas Light Station (located near San Simeon, CA) because virtually the entire stock's calves pass within sight of land at this location.

Accordingly, analyses of Piedras Blancas data indicate that the number of northbound calves is highly variable between years (Perryman et al., 2010). In addition, NMFS has found that the majority of the variability in estimates can be explained by the timing of the melt of seasonal ice in the Northern Bering Sea (Perryman et al., 2002a, 2002b). Although the petition correctly states that the calf counts throughout the calving range, including the north-bound migration, of ENP gray whales have been low the last four years (2007-2010), Perryman et al. (2010) note that the 17-year time series of estimates of northbound calves from Piedras Blancas does not support the assertion of a negative trend or “collapse” in reproduction as described by the Petitioners.

Predation by transient killer whales: The petition states that mortalities caused by predation by transient killer whales are not included in calculation of PBR, in population assessments, or in SARs. Further, the Petitioners present the results of a model that indicate the potential for killer whale predation to drive the population to extinction at 35 percent predation of annual calf production.

Calculation of PBR incorporates natural mortality, including predation by killer whales, even though PBR only includes the number of removals from human-caused mortality. Natural sources of mortality are not identified separately in SARs because the MMPA directs that the SARs account for human-caused mortality and serious injury. Because killer whale predation is a natural mortality factor, such mortality would be incorporated into the net productivity rate,

which is the per capita rate of increase in a stock resulting from additions due to reproduction, less losses due to mortality (MMPA section 3(26)).

Also, because killer whales are a natural part of the marine ecosystem, the extent of predation is one factor affecting the K of the environment for gray whales. The petition's model output (Figure 1 in the petition) shows that gray whale abundance increased between the late 1800s and the mid-1900s but does not explain how killer whale predation was addressed during these periods of population increase. Through MNPL and K, which are used in the scientific basis for calculating PBR (the logistics model), killer whale predation is, in fact, incorporated into the PBR.

Changes or reductions in prey availability: The Petitioners cite a series of statements and documents that present observations and hypotheses regarding the potential impacts of climate change on the ENP stock of gray whales. Concentrations of feeding gray whales are now seen farther north than reported in the 1980s, and there has likely been a shift in distribution of their primary prey. Gray whales are opportunistic feeders, and it is unclear how the changes in the Arctic environment are going to affect this stock. A loss of sea ice could help gray whales (for example, by allowing earlier access to foraging habitat) or hurt gray whales (for example, through a reduction in benthic production from differing ice-dynamics), so the effect of climate change on gray whales cannot be predicted at this time. NMFS agrees with the Petitioners' suggestions that the relationship between the changing Arctic ecosystem and the overall condition of ENP gray whales is an area that would benefit from careful study. If a future decline of gray whales is linked to climate change, a determination would need to be made about whether the causal mechanisms were natural or human-caused. However, the best available

scientific information as reported by Punt and Wade (2010) shows that the ENP gray whale stock remains with its OSP.

Draft 2010 Stock Assessment Report

The petition contains comments about the draft 2010 marine mammal SAR. It states: “NMFS fails to indicate the 2006/07 survey was not an abundance estimate as required under s. 117 of the MMPA. There are no provisions in the MMPA which support using the results of Field Studies to legitimise (sic) SARs.”

These statements are incorrect, and neither statement is relevant to the status of the ENP gray whale stock. The 2006/2007 survey was a full abundance estimation survey. Field and analysis methods, and raw count data, are detailed in a NOAA/AFSC Processed Report (Rugh *et al.*, 2008). Updated estimates and methodologies for this survey are presented in Laake *et al.* (2009). MMPA section 117 requires NMFS to use the best information available to prepare SARs. In the case of ENP gray whales, the best information available includes results of field studies.

The petition also states, “The results of the most recent abundance estimate, (as required under s[ection] 117 of the MMPA) undertaken in the 2009/2010 season, have not been published.” This statement is correct with respect to the abundance estimate from the 2009/10 survey not being included in the SAR. The statement is incorrect in stating that MMPA section 117 requires the 2009/2010 estimate to be included. Rather, MMPA section 117 requires that SARs be prepared using the best scientific information available. Estimates from the 2009/2010 survey were not available when the draft 2010 SAR was prepared. NMFS anticipates updating

the time series of abundance estimates so the more recent estimates are available in spring 2012 and would be included in the next update of the ENP gray whale SAR.

Population Collapse

The Petitioners point to the Unusual Mortality Event of 1999-2000 and assert that the agency ignored this decline in gray whale abundance. This assertion is inaccurate.

The most recent assessment of the ENP gray whale stock status (Punt and Wade, 2010) incorporated analyses that accounted explicitly for the decreased abundance caused by the 1999-2000 mortality event. Specifically, Punt and Wade showed that a model including the “catastrophic mortality event” in 1999-2000 fit the abundance data better than a “no-event” analysis. Punt and Wade (2010) estimated that 15.3 percent of the non-calf population died in each of the years in which a catastrophic mortality event occurred, compared to 2 percent in a normal year. Punt and Wade (2010) also estimated that the population fell from being about 99 percent of K in 1998 to about 83 percent in 1999 and 71 percent in 2000 and increased to about 92 percent of K in 2009. Estimates of the number of whales that died in 1999 and 2000 were approximately 3,303 (90 percent probability interval 1,235-7,988) and 2,835 (90 percent probability interval 1,162-6,389), respectively, for a total of 6,138 (2,398-14,377). Results of Punt and Wade (2010) were included in the draft 2010 SAR and are included in the current determination on the petition and status of the ENP gray whale stock.

With respect to fluctuations in population abundance, the draft 2010 SAR (Allen and Angliss, 2010) notes that ENP gray whale stock may rise and fall as the population adjusts to natural and human-caused factors affecting K of the environment and that increased susceptibility to environmental variability are likely. Allen and Angliss (2010) concluded that

such year-to-year fluctuations in abundance and increased susceptibility to environmental variability are consistent with a stock approaching its K.

Migration Route Disruption

The Petitioners claim that wave energy projects along the west coast could block the migratory pathway of gray whales and have the potential to expose newborn calves born outside of the Baja lagoons to higher level of predation. Such exposure, however, has not yet occurred and, therefore, has not affected the status of the gray whale stock.

In 2007, NOAA/NMFS facilitated a workshop to assess the effects of wave energy development in the Pacific Northwest on marine habitats. An expert panel (Boehlert et al. 2008) considered potential risks to marine mammals, including gray whales, and concluded that mooring cable design (slack vs. taut, horizontal vs. vertical, diameter, density) is the agent or stressor most likely to affect the magnitude of cetacean entanglement incidents for large whales. The panel noted that cable design is even more critical for slack “attendant” lines attached to adjacent buoy lines, which may be used (picked up) by service vessels to secure the wave energy buoy. Similar, but smaller, “double” buoys on commercial crab pots used in waters off Oregon are the greatest present risk to gray whales from commercial fisheries, which cause mortalities and serious injuries at insignificant levels approaching a zero mortality and serious injury rate. Presently, there is a relatively high level of uncertainty and low level of scientific agreement concerning the number of energy projects, various project designs, and the potential impacts of wave energy generating devices on gray whales (and cetaceans in general). That said, offshore wave energy projects may or may not pose significant risks to gray whales. However, without

more case specific technical details (e.g. offshore site location, buoy configuration, cable design, mooring systems), it is not possible to properly gage their potential impacts.

If the development occurs, project construction and operation will be subject to the prohibition on taking marine mammals and the exception on taking small numbers of marine mammals incidental to activities other than commercial fishing in MMPA section 101(a)(5). Before NOAA/NMFS could authorize incidental takes of these projects, the agency would have to make a finding that the action would have no more than a negligible impact on affected stocks of marine mammals.

Comments and Responses

NMFS received more than 1,400 comments on the petition. Most of these comments expressed general support for the petition or for whale conservation and did not contain substantive information; therefore, those comments are not summarized here. Several organizations, including the Marine Mammal Commission, the Makah Tribe, the Animal Welfare Institute (AWI), the Center for Biological Diversity (CBD) and the Natural Resources Defense Council (NRDC) made substantive comments and supported the petitioned request for a status review or recommended that the petition did not contain substantial information indicating that a status review may be warranted. Summaries of key points in these substantive comments and responses to these comments are included below.

Comment 1: AWI and CBD suggested that the standard of review for the 60-day determination is whether or not the petitioned action (requesting a status review) may be warranted. The petition does not have to contain substantial information to indicate that a depleted designation is warranted.

Response: NMFS followed the requirements of MMPA section 115 to evaluate the petition. NMFS considers Punt and Wade (2010), which was based in part upon the updated analyses of Laake et al. (2009), as the best scientific information available regarding the status of ENP gray whales with respect to the stock's OSP. The petition did not contain any evidence to suggest that any other scientific information was a better evaluation of the status of ENP gray whales than the evaluation presented in Punt and Wade (2010). As NMFS noted above, and as recommended by the Commission (see comment 8), NMFS does not find a status review is warranted.

Comment 2: CBD and AWI noted that there are many estimates for historical abundance, and some of these estimates are higher than those considered by NMFS. It is unknown whether the "one-size-fits-all" approach of 60 percent of K is an accurate estimate for MNPL. Alter et al. (2007) estimate a current K for gray whales as about 90,000 based upon a simple estimate of the amount of food available for gray whales in the Bering and Chukchi Seas. AWI concluded that until a status review of ENP gray whales is completed, NMFS cannot and should not settle on an estimate of the actual K of ENP gray whale habitat.

Response: As noted in the discussion of the petition, NMFS finds that there is no need to use the highest possible extremes as reasonable estimates for historical abundance as a proxy for K. Furthermore, NMFS notes that its assessment of the status of ENP gray whale stock is not based upon a comparison of current abundance to a fixed portion (60 percent) of historical abundance as an estimate of MNPL. Rather, NMFS uses Punt and Wade (2010) as the evidence supporting a determination that the ENP gray whale stock is within its OSP and, therefore, not depleted. Punt and Wade (2010) used all available abundance estimates and catch records to

estimate that MNPL for this stock is 0.656 (with a 90 percent confidence interval of 0.532 to 0.725) of K.

Although Alter et al. (2007) calculated that the potential food available for gray whales in the Bering and Chukchi Seas could support an estimated 90,000 whales, their estimate of food abundance is not a meaningful estimate of K for gray whales in the area. Although food abundance is one of the factors that could affect K for gray whales, many other factors affect the maximum population of gray whales supportable by their habitat. For example, gray whale abundance may be affected by access to these food resources to survive and reproduce. Perryman et al. (2002), which was cited in AWI's comments, showed a strong correlation between extent of sea ice and gray whale calf counts. Also, as noted in the petition and within AWI's comments, killer whales prey on gray whales and could kill a fairly high proportion of the annual calf production (the petition suggested up to 35 percent). Accordingly, the extent of killer whale predation on gray whale calves could have a substantial effect on the upper limit of ENP gray whales supportable in their environment. These are only two of many factors that must be included in a reasonable attempt to estimate of K for gray whale. Punt and Wade (2010) were able to use gray whale abundance estimates, correcting for the only substantial human-caused mortality factor, aboriginal subsistence catch, to conclude that the stock's status is within OSP.

Comment 3: AWI and CBD noted variability in the time series of ENP gray whale abundance estimates, including some years in which year-to-year increases were not biologically plausible. Without describing their methods, AWI's comments described patterns of relatively short-term population trends for the ENP gray whale stock and noted that results of the latest abundance surveys were not available. AWI suggested that because the latest abundance surveys had not produced available results yet, NMFS should issue a positive 60-day finding on the

petition, noting that without disclosing this information it would be premature for NMFS to make a "not warranted" finding.

Response: NMFS is aware of the variability in the abundance data and is aware that each abundance estimate may over- or under-estimate the number of whales actually in the stock due to variability observations and in whale migration behavior and how this variability may conflict with assumptions in the underlying models. Accordingly, NMFS does not depend on year-to-year comparisons of estimates. Rather, NMFS based its determination on the status of the ENP gray whale stock on the comprehensive analysis of the entire time series of abundance and mortality estimates as initially described in Wade (2002) and updated in Punt and Wade (2010). NMFS disagrees that the lack of available information should be a justification to make a positive finding. Rather, NMFS is following the explicit direction in MMPA section 115 to base its determination "...solely on the basis of the best scientific information available." Results of the latest surveys remain in preparation and evaluation and are, consequently, not available.

Comment 4: AWI recommended that NMFS not rely on a simple comparison of the abundance of the ENP gray whale stock relative to its MNPL. Rather, NMFS should show some flexibility in its status assessment by considering present and future threats to the population.

Response: NMFS notes that the MMPA is explicit in its definition of depleted. The ENP gray whale stock is not listed under the ESA, and management authority for the stock has not been transferred to any state. Accordingly, the evaluation of its status becomes question of whether or not NMFS finds the stock is within or below its OSP, the lower limit of which is MNPL. Although an evaluation of the extent to which various factors may affect the status and trend of the ENP gray whale stock may facilitate some conservation decisions, such an

evaluation is not necessary or even relevant to determine whether or not the stock is within its OSP.

Comment 5: The Petitioners provided comments on their own petition. In their submission they complained about the communication process and information flow with respect to the agency's receipt and public notification of the petition. They also discussed abundance estimates, threats, and potential threats to gray whales. Included with their comments was information to supplement the petition and a reiteration of some of the points contained in the petition.

Response: NMFS has fully complied with the process outlined in section 115 of the MMPA. The information provided by the Petitioners regarding abundance estimates and current and future threats is unrelated to the agency's determination of the stock's status as defined by the statute. Supplemental information provided by the Petitioners regarding 1980 and 1981 calf counts has already been incorporated into the record (Perryman et al., 2010) and does not constitute new information.

Comment 6: The NRDC pointed to differences between Alter et al. (2007) abundance estimates and those of NMFS scientists and argued that disagreement among scientists is reason for an in-depth review. The commenter cited ESA-related cases supporting this argument.

Response: NMFS maintains that Laake et al. (2009) provides the best available time series of abundance, and Punt and Wade (2010) is the best available information regarding status of the stock. Neither the petition itself nor comments on the petition provide information that supplants Punt and Wade (2010) as the best available science. No information has been provided to make the agency cast doubt on the Laake et al. (2009) abundance estimates and the Punt and Wade (2010) analysis and conclusion that the stock is within OSP. NMFS accepts Punt's and

Wade's (2010) analysis and conclusion as supported by the best available science. Therefore, a status review is not necessary at this time.

Comment 7: The Makah Tribe provided an evaluation of the strengths and weaknesses of the petition with respect to population abundance, K, and factors that may be affecting gray whale population dynamics. They concluded that information in the petition did not supersede Laake et al. (2009) and Punt and Wade (2010) as the best available information. Accordingly, the Makah Tribe concluded that the petition does not present significant information indicating that the stock should be designated as depleted.

Response: NMFS concurs with the Makah Tribe's conclusions.

The Commission, in consultation with its Committee of Scientific Advisors on Marine Mammals, reviewed the petition and recommended, among other things, that NMFS defer any status review until there is stronger scientific evidence indicating that the stock is below MNPL. The Commission's comments, summarized below and based on the MMPA definition of depleted as below OSP (section 3(1)(A) of the MMPA (16 U.S.C. 1362(1)(A)), and NMFS regulations (50 CFR 216.3), state that determination of whether a population is depleted is based solely on the population's abundance relative to MNPL.

Comment 8: The Commission reviewed the two main approaches used to evaluate the ENP gray whale abundance with respect to its MNPL, the methods employed by Alter et al. and by Punt and Wade (2010), and supported the Punt and Wade approach as being more robust. The Commission noted that the question of whether climate change has reduced K for the stock is not factored in to the Punt and Wade model, and that it is too soon to form conclusions about the long-term effects on climate change on the stock. The Commission, however, concluded that

a status review is not warranted at this time, and a status review would not be a good use of limited resources.

Response: NMFS agrees with the Commission's conclusions.

Comment 9: The Commission reviewed the Petitioners' claims that the agency used inappropriate abundance estimates and recovery factor to calculate PBR for the stock and that PBR has resulted in over-exploitation of gray whales. The Commission concluded that NMFS did, in fact, use proper population estimates and that a recovery factor of 1.0 was more appropriate than 0.1 as proposed by the Petitioners. Furthermore, the Commission made the important distinction that calculation of PBR does not have any effect on population; rather, actual takings affect the stock.

Response: NMFS agrees with the Commission's assessment, and a more detailed discussion of PBR is included in the discussion section above.

Comment 10: Regarding the Petitioners' assertion that recent declines in calf production indicate the stock is depleted, the Commission reiterates the requirements of the MMPA, stating that stock status be based solely on abundance relative to MNPL and reiterates that productivity is not a criterion for designation of depleted status. The Commission also notes, "When reviewing calf production and survival, it is important to look at relatively long-term patterns, as variation in these parameters over short periods (i.e., a few years) can be misleading."

Response: NMFS agrees.

Comment 11: The Commission noted while the petition's focus on killer whale predation on gray whales is reasonable, the level of predation is not a criterion for designating a stock as depleted and is only relevant if predation leads a stock to decline below MNPL which does not appear to be the case. Additionally, the Commission noted that the petition does not

adequately describe the predation model included therein; and, thus, it is not possible to determine the reliability of the model's results.

Response: NMFS agrees.

Comment 12: In addition to recommending that the agency not conduct a status review of ENP gray whales at this time, the Commission recommended that NMFS focus research and management efforts on continued monitoring and expanded study of the stock's natural history, and that the agency take advantage of opportunities to convene inter-agency groups to coordinate gray whale research.

Response: NMFS agrees that this approach to research would be helpful.

Comment 13: The Commission further recommended that the agency establish and fund a program to continue to monitor gray whale abundance and reproduction, and make efforts to understand the effect of climate change on the stock.

Response: Such a program would be important, and NMFS will pursue such monitoring to the extent that the budget allows.

Comment 14: In their letter to NMFS on this petition, the Commission noted that the MMPA and implementing regulations specify that a stock is to be designated as depleted only when its abundance is less than its OSP. The OSP is defined as a range, the lower limit of which is the stock's MNPL. Thus, the question to be addressed here is whether the petition presents substantial information to conclude that the ENP gray whale stock may be less than its MNPL and, therefore, warrants a status review.

Response: NMFS agrees.

Petition Finding

Earlier in this notice, NMFS states that the petition included three major assertions supporting their allegation that the ENP gray whale stock was below its MNPL. These assertions were as follows:

(1) K for ENP gray whales is higher than previously reported, and the current abundance is below 60 percent of these estimates of K;

(2) A non-parametric model suggests the population increased from the late 1960s until the mid-1980s and has been decreasing since then; and

(3) Abundance estimates reported in Laake et al. (2009) show that abundance estimates since 2000 are below the abundance estimate from 1994 when ENP gray whales were removed from the list of endangered species.

As discussed above (see Status of the ENP Gray Whale Stock), NMFS evaluated the evidence supporting these arguments and concludes that none provide substantial evidence that the ENP gray whale stock is below its MNPL. Accordingly, NMFS finds that the petition does not present substantial information indicating that the petitioned action is warranted.

In making this finding, NMFS thoroughly evaluated the information contained in the petition and other scientific information available on the status of the ENP gray whale stock. As noted in the Commission's statement above, the pertinent analysis for assessing the status of the ENP gray whale stock is whether or not, based upon the best available scientific information, the ENP gray whale stock is above or below its MNPL. Although NMFS is denying the current petition, the analysis supporting this denial involved an assessment of the status of the stock. In this evaluation, NMFS concluded that Punt and Wade (2010) analyzed and reported the best available information assessing the status of the ENP gray whale stock.

Punt and Wade (2010) used an accepted age- and sex-structured population dynamics

model and estimated key biological parameters from a long time series of data collected over a long period of time. Punt and Wade (2010) used all available information from abundance data collected since the mid-1960s to 2006 (and analyzed using consistent methods by Laake et al. (2009)), incorporated uncertainty from input parameters and data, and simulated key demographic parameters, thus capturing key biological processes. Punt and Wade (2010) included a catastrophic mortality event, which accommodated the elevated strandings of ENP gray whales observed in 1999 and 2000. As a result of this catastrophic mortality, which was declared and evaluated as an unusual mortality event pursuant to MMPA section 404 (16 U.S.C. 1421c), Punt and Wade (2010) estimated that the population was reduced by about 30 percent (about 15 percent annually for two years) due to the elevated mortality rates observed in 1999 and 2000. Punt and Wade (2010) also estimated that the ENP gray whale stock was currently 129 percent of the MNPL with a probability of 0.884 that the stock was within its OSP. Punt and Wade (2010) used the best and most recent information available and adequately incorporated uncertainties for model parameters. Punt and Wade (2010) may be characterized as follows: the approach and the information analyzed were subjected to internal NMFS and external peer review, and this analysis was consistent with NMFS' previously stated practice to use current K to make OSP determinations where possible. NMFS considers Punt and Wade (2010) to be the best scientific information available for evaluating the status of ENP gray whales relative to their OSP and has included the Punt and Wade (2010) analyses and conclusions in the draft 2010 marine mammal stock assessment reports in the most recently available abundance estimate in

reporting the status of the stock (Allen and Angliss, 2010). Accordingly, NMFS reaffirms that the ENP stock of gray whales is above its MNPL and, therefore, within its OSP.

Dated: December 20, 2010.

A handwritten signature in cursive script, reading "David Cottingham", written over a horizontal line.

David Cottingham,

Acting Director, Office of Protected Resources

National Marine Fisheries Service.