HONORABLE GEORGE J. JORDAN
ADMINISTRATIVE LAW JUDGE

UNITED STATES OF AMERICA
DEPARTMENT OF COMMERCE
NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION

In re:	)	
	)	Docket No. 19-NMFS-0001
Proposed Waiver and Regulations Governing	)	
the Taking of Eastern North Pacific Gray	)	RIN: 0648-BI58 and
Whales by the Makah Indian Tribe	)	RIN: 0648-XG584
	)	

THIRD DECLARATION OF DR. DAVID WELLER

I, Dr. David Weller, declare as follows:

1. I am a wildlife research biologist with the Marine Mammal and Turtle Division of the National Marine Fisheries Service (NMFS) Southwest Fisheries Science Center (SWFSC), within the National Oceanic and Atmospheric Administration (NOAA). This is the third declaration I have submitted in this matter. I incorporate by reference paragraphs 1–5 of my first declaration, dated April 1, 2019, which explain my qualifications and expertise to testify in this matter.

2. I have reviewed the direct testimony filed by the parties to this proceeding regarding the unusual mortality event (UME), including the Declaration of John Brandon, July 30, 2019, filed by the Makah Indian Tribe, and the Declaration of DJ Schubert, dated August 6, 2019, filed by the Animal Welfare Institute. I submit this declaration to rebut certain assertions made by Mr. Schubert in his August 6, 2019 UME declaration.

3. Mr. Schubert argues that, for several reasons, "far more whale whales die during any UME (or even if a UME hasn't been declared) than is ever known or documented[,]" and

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that "[s]uch unreported 'natural' mortality is not considered in Stock Assessment Reports (SAR) prepared on gray whales." Schubert UME Decl. ¶ 7. However, as Mr. Schubert acknowledges in his next paragraph, NMFS does have an estimate of how many ENP gray whales died during the 1999/2000 UME. *See also* 80 Fed. Reg. 13,373 (2015); Draft Environmental Impact Statement on the Makah Tribe Request to Hunt Gray Whales, U.S. Dep't of Commerce, National Oceanic and Atmospheric Administration, National Marine Fisheries Service, West Coast Region (Feb. 2015) (hereafter, 2015 DEIS), Subsection 5.1.3.8, Natural Mortality, "Population numbers declined perhaps as much as 25 percent between the 1997/1998 count and the 2001/2002 count (Table 3-3)" and first Yates Decl. ¶12. In addition, and contrary to Mr. Schubert's allegation, the deaths, regardless of their cause, are reflected in the NMFS estimates of abundance, and, to a degree, calf production. Long-term data on ENP stock abundance, including during the period of the 1999/2000 UME, is reported as a time series in the ENP gray whale SAR and specifically noted in the text of the 2018 SAR. NMFS Ex. 2-12 at 4, Fig. 2. Abundance data will be collected by NMFS during the 2019/2020 and 2020/2021 gray whale southward migrations and, following analysis, will be reflected in future SARs.

4. Mr. Schubert cites estimates of gray whale abundance from Rugh et al. (2002), noting that "[t]hese population estimates are far below those reported by Laake et al. (2009, 2012), which have been relied on by NMFS in its gray whale Stock Assessment Reports." Schubert UME Decl. ¶ 8, NMFS Ex. 3-92. In fact, the opposite is true; the Rugh et al. (2002) abundance estimates for 1997/1998 and 2001/2002 cited by Mr. Schubert are higher than the corresponding estimates by Laake et al. (2012) (NMFS Ex. 1-23). The numbers used by Rugh et al. (2002) are no longer agreed to be correct. NMFS Ex. 1-23, Laake et al. 2012. The methods used to correct group size estimates differed over the time-series reported on by Rugh et al.

(2002), as did the analytical approach used to estimate abundance. These issues served as the impetus for Laake et al. (2012) to re-analyze the data time-series, resulting in updated estimates for the 1967/68 to 2006/07 period. Durban *et al*. (2015) and Durban *et al.* (2017) (NMFS Exs. 3-40 and 3-42, respectively) conducted the estimates of abundance for 2006/07 to 2015/16). The estimates provided by Laake et al. (2012) and Durban et al. (2015, 2017) are relied on by NMFS and reported in the SAR. Similarly, the International Whaling Commission (IWC) uses these as "best estimates" and depends on them in its scientific work (IWC 2019) (NMFS Ex. 3-93).

5. Mr. Schubert discusses "evidence of emaciated whales observed in 2019," summarizing data from Ronzón-Contreras et al. (2019) regarding percentages of whales with "good," "fair," and "poor" body condition, and suggests that "[w]hile not conclusive, the emaciation seen in several of the whales examined to date suggests starvation may again be a common factor." Schubert UME Decl. ¶ 11; NMFS Ex. 3-85. There is a clear distinction, however, between "emaciated" whales versus whales in "fair" or "poor" body condition. The former are generally close to death while the latter are capable of recovering to good condition. *See* Bradford et al. 2012 (Makah Tribe Ex. M-0032). In addition, there are other potential explanations, known or even unknown at this time, for emaciation. A contagious neurological disease (Chronic Wasting Disease) affecting deer, elk, and moose, for example, causes a degeneration of the brain resulting in emaciation, abnormal behavior, loss of bodily functions and death. We do not yet know if a parallel example of disease-related emaciation may be involved in the present or past gray whale UMEs, so, as I explained in my previous declaration, it is overly simplistic to assume that food limitation is the most plausible explanation. Second Weller Decl. ¶ 6.

6. Mr. Schubert argues that the current UME could be due to the stock exceeding carrying capacity, or could be potentially linked to the direct and indirect effects of climate change on gray whales and their habitat, which may cause the UME to differ in terms of severity and duration compared to the 1999/2000 UME. Schubert UME Decl. ¶ 11. Mr. Schubert discusses many of the concepts (*e.g.*, starvation, carrying capacity, climate change) as though they are different things. In fact, they are nested concepts and can all be at play at once (or not at all). Starvation stems from nutritional stress, which can stem from not enough food resources or other causes, such as disease. If insufficient food resources are at issue, this can be the result of environmental change (fewer resources) and/or more animals (same amount of resources but not enough resources per animal). Environmental change can be the result of a stochastic event (normal environmental fluctuation), or a long-term trend in environmental degradation (for example, due to climate change). In the situation at hand, we can only speculate on whether any reduction (if such is happening) in gray whale food resources is a random event or the beginning of a new normal. That being said, there was no apparent increase in strandings and observations of whales in poor body condition or decrease in the trends in abundance and calf counts in the years immediately prior to this UME, suggesting that feeding conditions were favorable. Short-term patterns may or may not be a bellwether of long-term change. In sum, it is premature to speculate on the severity, duration, or causes of the current gray whale UME.

7. Mr. Schubert states that Gulland *et al.* (2005) do not discuss impacts of the 1999/2000 UME on the Pacific Coast Feeding Group (PCFG) and/or western North Pacific (WNP) gray whales, and states that this could have been intentional or an oversight. Schubert UME Decl. ¶ 12; NMFS Ex. 1-21. At the time of the 1999/2000 UME in the ENP, there was no

evidence that WNP gray whales occurred in the ENP range, so Gulland et al. (2005) understandably did not discuss any potential impacts on WNP gray whales.

8. With respect to the PCFG, these whales had not been identified by NMFS as a feeding aggregation in 2005, so there was no basis to consider them in context of the 1999/2000 UME. The 2003 SAR for the ENP gray whale stock noted: "There has been some speculation that discrete stocks of gray whales occur in coastal areas, such as Puget Sound. Although some localized, seasonal site fidelity has been confirmed, animals in Puget Sound have also been seen using coastal areas from northern California to Southeast Alaska in spring and fall (Calambokidis and Quan 1999, Gosho et al. 1999) [NMFS Exs. 3-94 and 3-95, respectively]. At this time, available information indicates that the Eastern North Pacific stock of gray whales should be managed as a single stock (Swartz et al. 2000) [NMFS Ex. 3-64]." NMFS Ex. 3-96 at 138, Angliss and Lodge 2004. The first mention of the PCFG as a feeding aggregation was in the 2005 SAR, which published after the Gulland *et al.* report. The 2005 SAR stated: "The so-called 'Pacific coast feeding aggregation' defines one of the areas where feeding groups occur. While some animals in this group demonstrate some site-fidelity, available information from sighting records (Calambokidis and Quan 1999, Quan 2000) [NMFS Exs. 3-94 and 3-97, respectively] and genetics (Ramakrishnan et al. 2001, Steeves 1998) [NMFS Exs. 3-98 and 3-99, respectively] indicates that this group is a component of the eastern North Pacific population and is not an isolated population unit." NMFS Ex. 3-100 at 152, Angliss and Outlaw 2005. As such, Gulland et al. (2005) appropriately analyzed the 1999/2000 UME impacts only to the ENP stock. However, it is worth noting that based on available estimates, abundance of the group we now identify as the PCFG increased between 1998–2004. The most recent SAR states that "Abundance estimates of PCFG whales increased from 1998 through 2004, remained stable for

the period 2005–2010, and have steadily increased during the 2011–2015 time period (Calambokidis et al. 2017)[NMFS Ex. 3-33,]" NMFS Ex. 2-12 at 4-5, suggesting that the PCFG was not adversely impacted by the 1999/2000 UME. To date, none of the whales stranded as part of the current UME have been identified as belonging to the PCFG. Personal communication with Jessie Huggins at Cascadia Research Collective on September 10, 2019.

9. As for the WNP, it is also worth noting that there was no indication that the abundance of gray whales off Sakhalin declined in the 1999-2000 period and, overall, the WNP gray whale population has been increasing from 2005 through 2016 at an average rate between 2-5% annually (Cooke 2017). NMFS Ex. 2-13. In relation to the current UME in the ENP, it is important to understand that WNP and ENP feeding areas are geographically distant and in different ecosystems, and unlike the ENP, we do not expect the WNP to be near carrying capacity. To date, no WNP gray whales have been reported as part of the ENP UME.

10. Mr. Schubert alleges that in analyzing the impact of the Makah tribal hunt, NMFS may have underestimated the mortality risk to PCFG and WNP whales because NMFS allegedly failed to consider the impacts of a potential UME. Schubert UME Decl. ¶ 15. This assertion is incorrect. NMFS's analysis supporting the proposed waiver and regulations did take into account the 1999/2000 UME and recognized such an event could recur, particularly given the possibility that the ENP is near carrying capacity. *See, e.g.*, 2015 DEIS at 5.1.3.8. As described in the testimony of Dr. Brandon, the IWC Scientific Committee's 2018 assessment of our hunt management proposal included consideration of "catastrophic events" as one of several main factors considered. NMFS Ex. 3-43 at 18. Also, subsection 4.4.2 of the 5th IWC Rangewide Workshop notes that "trials 22A/B have been added to examine the future consequences of a catastrophic events in the [northern feeding group of ENP gray whales]—these events occur

randomly once in the first 50 years and randomly once in the second 50 years, with a magnitude equivalent to that of the mortality event in 1999/2000." NMFS Ex. 3-39 at 11.

11. As part of the current UME investigation, when feasible photos and genetic samples are being collected. NMFS Ex. 2-19 at 9. These data, dependent in large part on photo quality and the condition of the whale, should make it possible on a case by case basis to identify whether a stranded individual was known to be a PCFG or WNP whale. Mr. Schubert argues that NMFS should "assign" stranded, unidentifiable whales to the WNP stock and the PCFG based on some "proportion." Schubert UME Decl. ¶ 14. While it may be possible to undertake such an exercise, it is not advisable because the data are lacking on which to inform the underlying assumptions used in this type of calculation. While NMFS is proposing a proportionate approach to account for mortalities of unidentifiable whales in the proposed waiver and regulations, this approach is based on the best available data regarding the expected number of whales from each group that may be within the hunt area during the times hunting would be permitted. There are no similar data or rationale that would allow us to assume that a certain number of stranded, unidentifiable whales belonged to the WNP stock or to the PCFG. In any event, both the WNP stock and PCFG are routinely monitored through photo-identification studies, and NMFS will continue to collect WNP and PCFG abundance data. If either population increases or decreases in response to a UME, that data will be available within a year or two and will be used to evaluate WNP and PCFG risk accordingly.

12. Finally, Mr. Schubert states that if the stranding rate does not return to normal in the next year or two, it would suggest that a significant and long-lasting (possibly permanent) shift in the gray whale's habitat or prey base is occurring. Schubert UME Decl. ¶ 16. Mr. Schubert provides no scientific evidence to support this speculation, and I disagree. It is not

unusual for a UMEs to last more than one year (as was true for the 1999/2000 UME) from a population dynamics perspective but also because changes in the marine environment can, and often do, persist.[1] Two to three years of high stranding rates do not necessarily indicate that something long-lasting or permanent has occurred. For example, the ENP population has had at least two periods since the 1960s where point estimates for the ENP stock abundance fell for two consecutive years, yet after each decline, the population rebounded. NMFS Ex. 2-12 at 4. It is also important to note that UMEs may be time lagged, reflecting environmental conditions, perhaps over a few years, prior to the onset of increased strandings. Thus, there are no data to suggest that even if the current UME lasts beyond this year, that it is the result of a permanent change in habitat or prey of gray whales.

I declare, under penalty of perjury under the laws of the United States, that the foregoing is true and correct to the best of my knowledge, information, and belief.

David Weller

Digitally signed by David Weller
Date: 2019.09.11 14:38:03 -07'00'

Dr. David Weller

Dated: 9/11/2019

[1] *See* https://www.fisheries.noaa.gov/national/marine-life-distress/active-and-closed-unusual-mortality-events, last visited Aug. 29, 2019.

THIRD DECLARATION OF DR. DAVID WELLER
EXHIBIT LIST

3-92	Rugh et al. 2002	Rugh, D., Breiwick, J., Hobbs,R. and Lerczak, J. 2002. A preliminary estimate of abundance of the eastern North Pacific stock of gray whales in 2001 and 2002. SC/54/BRG6.
3-93	IWC 2019a	IWC. 2019a. Report of the Scientific Committee. Journal of Cetacean Research and Management. Volume 20 Supplement.
3-94	Calambokidis and Quan 1999	Calambokidis, J., and J. Quan. 1999. Photographic identification research on seasonal resident whales in Washington State. Abstract in: Rugh, D.J., M.M. Muto, S.E. Moore, and D.P. DeMaster. 1999. Status review of the eastern North Pacific stock of gray whales. U.S. Dep. Commer., NOAA Tech. Memo. NMFS-AFSC-103, 96 PP.
3-95	Gosho et al. 1999	Gosho, M.E., P.J. Gearin, J. Calambokidis, K.M. Hughes, L. Cooke, and V.E. Cooke. 1999. Gray whales in the waters of northwest Washington in 1996 and 1997. Unpublished report presented to the International Whaling Commission Scientific Committee SC/51/AS9.
3-96	Angliss and Lodge 2004	Angliss, R.P. and Lodge, K.L. 2004. Alaska Marine Mammal Stock Assessments, 2003. NOAA Technical Memorandum NMFS-AFSC-144.
3-97	Quan 2000	Quan, J. 2000. Summer resident gray whales of Washington State: Policy, biological and management implications of Makah whaling. M.S. Thesis, School of Marine Affairs, University of Washington, Seattle, WA.
3-98	Ramakrishnan et al. 2001	Ramakrishnan, U., R. LeDuc, J. Darling, B.L. Taylor, P. Gearin, M. Gosho, J. Calambokidis, R.L. Brownell, Jr., J. Hyde, and T.E. Steeves. 2001. Are the southern feeding group of eastern Pacific gray whales a maternal genetic isolate? Unpublished report presented to the International Whaling Commmission SC/53/SD8.

3-99	Steeves 1998	Steeves, T.E. 1998. Genetic population structure of gray whales (Eschrictius robustus) that summer in Clayoquot Sound, British Columbia. MSc Thesis, American University, Washington, DC. 48 pp.
3-100	Angliss and Outlaw 2005	Angliss, R.P. and Outlaw, R.B. 2005. Alaska Marine Mammal Stock Assessments, 2005. NOAA Technical Memorandum NMFS-AFSC-161.