

May 28, 2013

Via Regulations.gov Portal

National Marine Fisheries Service
Office of Protected Resources
1315 East-West Highway
Silver Spring, Maryland 20910

Re: Comments of the American Petroleum Institute, the Independent Petroleum Association of America, the International Association of Geophysical Contractors, and the National Ocean Industries Association on the National Marine Fisheries Service's 90-Day Finding on a Petition to List Sperm Whales in the Gulf of Mexico as a Distinct Population Segment under the Endangered Species Act, RIN 0648-XA983

Dear Sir/Madam:

This letter provides the public comments of the American Petroleum Institute ("API"), the Independent Petroleum Association of America ("IPAA"), the International Association of Geophysical Contractors ("IAGC"), and the National Ocean Industries Association ("NOIA") (collectively, "the Associations") in response to the National Marine Fisheries Service's ("NMFS" or the "Service") request for information and public comment on the WildEarth Guardians' ("WEG") petition to list sperm whales in the Gulf of Mexico ("GoM") as a Distinct Population Segment ("DPS") under the Endangered Species Act ("ESA").¹ Specifically, NMFS has issued a 90-day finding that the WEG petition presented substantial scientific or commercial information and is seeking data to inform its more rigorous 12-month review, under which it will make a determination whether the petitioned designation of the DPS is warranted. As explained in more detail below, we believe that there is no basis in law or science that would support designating sperm whales in the GoM as a DPS. At a more fundamental level, the ESA does not

¹ See 78 Fed. Reg. 19176 (March 29, 2013).

provide for use of a petition such as this merely to change the taxonomic level at which an animal is listed.

In addition to requesting designation of sperm whales in the GoM as a DPS, the WEG petition also called on NMFS to separately list the sperm whale in the GoM as an endangered DPS, and to designate critical habitat. The Associations believe those aspects of the petition are likewise unauthorized by the ESA, which vests the decision as to whether such designation is “reasonable and prudent” solely in NMFS. Nonetheless, in response to NMFS’s request, the Associations herein provide general comment on critical habitat. Should NMFS decide to designate the GoM whales as a DPS and later propose critical habitat, the Associations will provide more substantive and responsive comments in that rulemaking.

The Associations appreciate the opportunity to provide this information and analysis. We hope and expect that the Service will give close consideration of the comments set forth below.

I. INTRODUCTION

A. The Associations

API is a national trade association representing over 540 member companies involved in all aspects of the oil and natural gas industry. API’s members include explorers, producers, refiners, suppliers, pipeline operators, and marine transporters, as well as service and supply companies that support all segments of the industry and provide most of the nation’s energy. API and its members are dedicated to meeting environmental requirements, while economically developing and supplying energy resources to meet consumer demands. API members may be impacted by designation of the GoM sperm whales as a DPS because a number of them maintain significant offshore and shore-side operations in the GoM.

IPAA represents thousands of independent oil and natural gas explorers and producers, as well as the service and supply industries that support their efforts, which would be significantly affected by federal action. Independent producers develop 95 percent of American oil and natural gas wells, produce 54 percent of American oil and produce 85 percent of American natural gas. The average independent has been in business for 26 years and employs 12 full-time and three part-time employees. IPAA members may be impacted by designation of the GoM sperm whales as a DPS because a number of them maintain significant offshore and shore-side operations in the GoM.

IAGC is the international trade association representing the industry that provides geophysical services (geophysical data acquisition, processing and interpretation, geophysical information ownership and licensing, associated services and product providers) to the oil and natural gas industry. IAGC member companies play an integral role in the successful exploration and development of offshore hydrocarbon resources through the acquisition and processing of geophysical data. IAGC members may be impacted by designation of the GoM sperm whales as a DPS because a number of them conduct significant offshore operations in the GoM.

NOIA is the only national trade association representing all segments of the offshore industry with an interest in the exploration and production of both traditional and renewable

energy resources on the nation's outer continental shelf. The NOIA membership comprises more than 275 companies engaged in business activities ranging from producing to drilling, engineering to marine and air transport, offshore construction to equipment manufacture and supply, telecommunications to finance and insurance, and renewable energy. NOIA members may be impacted by designation of the GoM sperm whales as a DPS because a number of them maintain significant offshore and shore-side operations in the GoM.

Together, the members represented by these Associations provide a tremendous economic benefit to the region. In 2011, oil and gas development in the GoM resulted in nearly a quarter million jobs.² Those employment numbers are projected to have increased significantly in the ensuing years.³ From an investment perspective, the Bureau of Offshore Energy Management ("BOEM") has determined that over a 40-year period, the new 5-year drilling plan will result in "[b]etween \$1,050 million and \$2,180 million in income."⁴

B. Summary of Comments

As set forth in detail in Section II of this letter, WEG's petition is not cognizable because it is not among the four actions for which the ESA authorizes petitioning; *i.e.*, to list, delist, or reclassify a species, or to seek modification of critical habitat. The sperm whale is currently listed as endangered globally, which is the same listing classification sought by WEG for sperm whale in the GoM. As such, the petition's sole aim is to change the sperm whale's taxonomic classification – an objective the law does not allow to be accomplished through a Section 4 petition.

Even if the law allowed a party to petition for a change in a taxonomic classification without a corresponding change in its listing status, sperm whales in the GoM do not constitute a DPS. Both Congress and the listing agencies have established a high bar for determining when a portion of a species' population is properly considered a DPS. WEG's petition falls far short of meeting any of those requirements. Sperm whales in the GoM are not markedly separate from species in the Atlantic, Caribbean, or elsewhere. WEG's petition offers no credible genetic, biological, physiological, behavioral, ecological, or regulatory evidence to demonstrate separation – much less marked separation. To the contrary, the evidence cited here demonstrate the existence of a single undivided genetic population of sperm whales from the GoM to northern Europe, if not beyond.

WEG's petition further failed to show any actual or perceived differences in sperm whales in the GoM that are significant to the taxon to the whole. The GoM is not a unique ecological setting for the sperm whale, and the unlikely and hypothetical loss of the sperm whale in the GoM is unlikely to result in a significant gap in the range of the taxon. Sperm whales in the GoM are no different (markedly or otherwise) from sperm whales in other regions, nor are

² Quest Offshore Resources, Inc., *The State of the Offshore U.S. Oil and Gas Industry An in-depth study of the outlook of the industry investment flows offshore*, (Table 26) (Dec. 2011), available at http://www.api.org/~media/Files/Policy/Exploration/Quest_2011_December_29_Final.pdf

³ *Id.*

⁴ OGLP PEIS at 4-488.

sperm whales in the GoM the sole surviving natural occurrence of the taxon. Sperm whales inhabit every ocean, gulf, and accessible sea between 60° N and 60° S in great – and growing – numbers. Stated simply, nothing about the GoM, or the whales present therein, could be considered significant.

In the absence of evidence to support a DPS, WEG’s petition focuses instead on alleged threats from the oil and gas industry and requests designation of critical habitat in the GoM to better constrain oil and gas operations, as well as other industries. Neither of these issues are appropriate for, or relevant to, a DPS petition.

The threat allegations are unsupported and, in fact, undermined by NMFS’ own findings. The request for critical habitat was not only premature, it was impermissible. However, as the WEG petition devoted so much effort to these issues, we discuss them briefly herein. If necessary and appropriate, the Associations will supplement these responses at a later time.

II. DETAILED COMMENTS

A. Conservation of the Sperm Whale

1. Status of the Sperm Whale – The Sperm Whale is relatively abundant and adequately protected

The WEG petition is premised, in large part, on WEG’s surmise that sperm whales are in significant peril due to inadequate protections and inadequate regulatory safeguards globally – but particularly in the GoM. WEG’s premise, however, is false. As documented below, sperm whales throughout the world are not on the brink of extinction, and there is credible evidence that populations are increasing. Although annual GoM survey effort may not be consistent and statistically rigorous, they, like the global data, do not show any decline or threat to the species. The reason for the sperm whale’s recovery in the GoM and throughout the world is clear: the species has been appropriately protected through regulations and treaties throughout its range, and those protections have worked and continue to provide for the survival and recovery of sperm whale populations.

i. Global: Discussion of abundance, trends, and uncertainty

The global population of sperm whales has been listed as “endangered” under U.S. law (initially the Endangered Species Conservation Act, subsequently the Endangered Species Act) since 1970, when there was still active, industrial-scale whaling for the species – a threat that ended in 1988, when a moratorium introduced by the International Whaling Commission (“IWC”) came into force. The Convention on International Trade in Endangered Species of Wild Fauna and Flora (“CITES”) lists the sperm whale in its Appendix I, the category for species threatened with extinction, meaning that the Convention prohibits commercial trade in sperm whale products.⁵ Other international agencies have maintained, however, a more optimistic impression of the species’ status. In its *Red List of Threatened Species*, the International Union for Conservation of Nature and Natural Resources (“IUCN”) considers the sperm whale as

⁵ <http://www.cites.org/eng/app/appendices.php>

“vulnerable,” the middle of five categories, though it could alternatively have been listed in the lesser “near threatened” category.⁶ The IWC has yet to address sperm whales under its “comprehensive assessment” process (initiated in 1982), but summarizes the status of the species as “[h]as been heavily exploited in past [...] but reasonably abundant in most areas.”⁷

There have been two very different estimates of global sperm whale abundance and status. In the early 1980s, scientists working with the IWC used whaling data to generate numbers as high as 2,000,000, though they later discarded both their methods and the results.⁸ Later, Whitehead (2002) developed an alternative, survey-based estimate of 360,000 individuals that has been more frequently cited by the Service.⁹ That estimation required an extrapolation of the results of various regional ship-board and aerial surveys across unsurveyed areas.

Such an extrapolation process, particularly one which itself relies on imperfect data, is inherently speculative, hence Whitehead’s (2002) rather large confidence limits.¹⁰ One of the major uncertainties in surveying sperm whales, and therefore extrapolating data from sperm whale surveys, is how to account for submerged whales, which cannot be seen or counted. Sperm whales are the deepest diving mammal and spend most of their time underwater. Average dives last for 35 minutes, though some dives last for 90 minutes or more.¹¹ Between these prolonged dives, sperm whales only surface for around eight minutes.¹² Given the large amount of time spent submerged (and unobservable) versus on the surface (and observable depending on sea state, glare, and general behavior among others), spotting sperm whales for survey purposes or otherwise is largely fortuitous, especially when the observation point is itself moving.

Surveyors know this behavior and utilize correction factors to account for the proportion of whales that were underwater when the survey vessel or aircraft passed. Whitehead (2002) used a correction factor, but assigned it a value of 1.15 – very much at the low end of what may be considered a plausible factor for a species that spends most of its time submerged and unobservable. In contrast and as outlined below, some suggest the “submerged factor” should be

⁶ Taylor, B.L., Baird, R., Barlow, J., Dawson, S.M., Ford, J., Mead, J.G., Notarbartolo di Sciara, G., Wade, P. & Pitman, R.L. 2008. *Physeter macrocephalus*. In: *IUCN 2012. IUCN Red List of Threatened Species. Version 2012.2*. <www.iucnredlist.org>. Downloaded on 12 May 2013.

⁷ <http://iwc.int/lives#sperm2>

⁸ Whitehead, H. (2002) Estimates of the current global population size and historical trajectory for sperm whales. *Marine Ecology Progress Series* vol. 242, pp. 295-304.

⁹ National Marine Fisheries Service. 2009. Sperm whale (*Physeter macrocephalus*) 5-Year Review: Summary and Evaluation (“5-Year Review”). National Marine Fisheries Service, Silver Spring, MD. 42pp, at 7.

¹⁰ Whitehead’s (2002) estimate has often been reported as “300,000 to 450,000.” See, e.g., 5-Year Review at 7. In reality, he used three different approaches to global extrapolation which generated best estimates of 304,500, 361,400 and 452,000. Whitehead (2002) considered the middle value, which weighted the extrapolation by the primary productivity of different ocean basins, to be the most reliable. Using his estimate of the coefficient of variation, his result should be reported as 360,000±130,000 or as confidence limits of 230,000 to 490,000. It is unclear whether those are 95% or one standard deviation (68%) limits.

¹¹ Whitehead, H. (2002) Sperm whale *Physeter macrocephalus*. In Perrin, W., Wursig B. and Thewissen, J. *Encyclopedia of Marine Mammals*. Academic Press pp. 1165-1172.

¹² *Id.*

as high as eight.¹³ Given the discrepancy, the apparent difference between survey- and whaling-based estimates may prove illusory. Global sperm whale abundance remains highly uncertain, but almost certainly no less than a few hundred thousand and perhaps well over one million – the range cited by NMFS itself.¹⁴

Of equal importance, Whitehead (2002) combined his global estimates with a simple model of the effects of whaling on population size, which was developed by the IWC in 1982, producing trajectories of sperm whale abundance since the advent of the whaling industry in 1712. Those calculations suggested a pre-whaling population of approximately one million individuals, meaning that even Whitehead's (2002) conservative estimate places sperm whales currently at about one third their historic abundance. Significantly, if larger correction factors were utilized in this surveys, as many have suggested they should,¹⁵ global sperm whale population numbers may well show movement toward pre-whaling levels. Such a result would not be inconsistent with modeling based on highly-questionable catch data suggesting that the population in the 1980s, immediately following the cessation of commercial-scale whaling, was at or above two-thirds its pre-whaling abundance.¹⁶ Nor would such population growth between 1980 and the present be inconsistent with recovery rates utilized by NMFS.

Recovery following the end of the commercial hunt has been slow. Sperm whales are long-lived, with a life expectancy similar to that of humans. They also have a low reproductive rate, the females bearing one calf approximately every fourth year of a reproductive life that extends between ages of about 9 to 40 years.¹⁷ The resulting recovery rate, if all anthropogenic losses could be halted, is unknown, though values of 1%¹⁸ and 4%¹⁹ per year have been suggested as approximations for management purposes. Thus, in the quarter-century since the near-complete termination of whaling, the global abundance of the species should have increased by perhaps 25%.

As such, global sperm whale population estimates are imprecise. Such imprecision is expected when one attempts to quantify a species that is present in every ocean, gulf, and accessible sea. Such imprecision is certainly compounded when the widespread species spends most of its time below the surface. Nonetheless, a reasonable reading and extrapolation of the

¹³ Barlow, J. (1994) Recent information on the status of large whales in California waters. *NOAA Technical Memorandum NMFS-SWFSC 203*, pp. ii+27, at 19.

¹⁴ National Marine Fisheries Service. 2010. Recovery plan for the sperm whale (*Physeter macrocephalus*) ("2010 Recovery Plan"). National Marine Fisheries Service, Silver Spring, MD. 165pp, at I-1.

¹⁵ Barlow, J. (1994) Recent information on the status of large whales in California waters. *NOAA Technical Memorandum NMFS-SWFSC 203*, pp. ii+27, at 19; Mullin, K.D. & G.L. Fulling (2004) Abundance of cetaceans in the oceanic northern Gulf of Mexico. *Marine Mammal Science* 20: 787-807.

¹⁶ Derived from Whitehead (2002).

¹⁷ 2010 Recovery Plan at I-10.

¹⁸ *Id.* at I-12.

¹⁹ December 2012 Sperm whale (*Physeter macrocephalus*): Northern Gulf of Mexico stock ("2012 Stock Assessment"), in Waring, G.T. *et al.*, U.S. Atlantic and Gulf of Mexico Marine Mammal Stock Assessments, Volume 1, at 114 (March 2013).

available survey data suggest that sperm whales are abundant and populations are expanding – not that the species is threatened or endangered.

ii. *GoM: Discussion of abundance, trends, and uncertainty*

As it is globally, the abundance of sperm whales in the GoM is imprecisely estimated, and the uncertainties inherent in GoM sperm whale surveys are largely known, and, when not properly accounted for, can lead to significant underestimation of population size.

Systematic surveys of the U.S. portion of the GoM have been conducted in 12 different years; the earliest in 1991 and the latest in 2009. Each survey has used ship-based observations following transect lines out to the edge of the Exclusive Economic Zone (“EEZ”), but the 1991-94, 1996-01, 2003-04, and 2009 programs used different sampling designs.²⁰ The most recent assessment judged that the survey data should be pooled across the years of each program, yielding estimates²¹ of:

Years	Estimate	Confidence Limits ²²
1991–1994	530 ²³	366–694
1996–2001	1349	1079–1619
2003–2004	1665	1332–1998
2009	763	473–1053

Those estimates, however, are extrapolations of whales visible to observers on ships. Those extrapolations attempted to make allowances for whales being harder to detect if they were passed at some distance abeam, *versus* being directly in the path of the ship, *but not for them being present but undetectable* – a particular problem for a species that, as discussed above, can often spend over an hour underwater and less than eight minutes at the ocean surface. That estimate also made no allowance for whales potentially deliberately evading the ship before

²⁰ *Id.* at 113.

²¹ *Id.*

²² Confidence limits calculated from coefficients of variation tabulated by NOAA (2012). It is unclear whether these are 95% limits or one standard deviation (68%) limits. The Associations urge NMFS, as part of its 12-month review, to determine what form of limits these are, and to make that information public.

²³ The figure of 530 came from limited surveying of the entire deepwater portion of the U.S. EEZ in the GoM during spring and summer (Waring, G.T. *et al.* 1997. U.S. Atlantic and Gulf of Mexico marine mammal stock assessments – 1996. *NOAA Technical Memorandum* NMFS-NE-114, vii+251 p, at 156). Through the same years, the GulfCet program surveyed seasonally between the 100 and 2000 m bathymetric contours and between the longitudes of Galveston and the Florida/Alabama border. It found an annual average abundance within that limited area of 313 whales but a seasonal maximum of 880 in summer (Hansen, L.J., K.D. Mullin, T.A. Jefferson & G.P. Scott. 1996. Visual surveys aboard ships and aircraft. pp 55-132. *In*: R.W. Davis & G.S. Fargion (eds.). *Distribution and Abundance of Marine Mammals in the North-Central and Western Gulf of Mexico: Final Report. Volume II: Technical Report. OCS Study MMS 96-0027*. Prepared by the Texas Institute of Oceanography and the National Marine Fisheries Service. U.S. Dept. of the Interior, Minerals Management Service, Gulf of Mexico OCS Region, New Orleans, LA. 357pp.). The 880 figure for one portion of the U.S. EEZ suggests that the 530 for the whole area was a substantial under-estimate.

being sighted by the observers.²⁴

As discussed above, there is no general agreement on the correction factors that should be applied to the survey estimates. In developing his global estimates and following an unpublished approach developed within the IWC's processes, Whitehead (2002) proposed that whales located on the survey vessel's track would have a 87% chance of being sighted, despite sperm whales spending the majority of their time underwater. Other survey methods and correction factors, such as those used in Hansen *et al.* (1996), Mullin and Fulling (2004), suggest that true abundances were 2.5 times higher than the survey estimates.²⁵ Further, as discussed in Section II(A)(1)(i) above, correction factors of up to 8 times have similarly been suggested.²⁶

The corrections needed to properly account for submerged sperm whales are potentially compounded by further corrections necessary to allow for whales that may deliberately avoid the survey ships. Those "avoidance" correction factors are even less well understood. Nonetheless, if the number of "submersed" whales is allowed for by applying Mullin and Fulling's (2004) factor of 2.5²⁷ – a moderate value well within the range of published estimates – to the abundance estimates developed by NMFS (tabulated above), the number of sperm whales in the U.S. EEZ within the GoM appears to be in the thousands.²⁸

Significantly, while sperm whale populations in the U.S. EEZ are likely in the thousands, the U.S. EEZ constitutes only about 40% of the GoM.²⁹ The entire GoM clearly contains more sperm whales than its U.S. portion alone but, in the absence of systematic surveys of the Mexican and Cuban zones, it is impossible to say how many more animals may be present.

More data are also needed, as NMFS has noted, to develop temporal trends in abundance. The drop in survey estimates between 2003–04 and 2009, while worthy of investigation, could be attributable to changes in survey design, movement of whales out of the U.S. zone, or a combination of those, rather than any decline in the abundance of whales in the GoM. As such, population uncertainty is prevalent for sperm whales in the GoM as it is for the species globally. When an appropriate range of correction factors is applied and non-U.S. EEZ whales are

²⁴ Mullin, K.D. & G.L. Fulling (2004) Abundance of cetaceans in the oceanic northern Gulf of Mexico. *Marine Mammal Science* 20: 787-807.

²⁵ Some questionable support for that order of correction factor may be found in average observed group sizes in the GoM surveys, which are about two individuals (Mullin & Fulling 2004), in contrast to the average size of a sperm whale social unit in the northern GoM, which is about a half-dozen (Whitehead, H., R. Antunes, S. Gero, S.N.P. Wong, D. Engelhaupt & L. Rendell (2012) Multilevel societies of female sperm whales (*Physeter macrocephalus*) in the Atlantic and Pacific: Why are they so different? *International Journal of Primatology* vol. 33, pp. 1142-1164). There are reasons other than diving for observed group numbers to be smaller than the sizes of social units but the data are at least consistent with approximately 60% of the whales going uncounted.

²⁶ Barlow, J. (1994) Recent information on the status of large whales in California waters. *NOAA Technical Memorandum NMFS-SWFSC* 203, pp. ii+27, at 19.

²⁷ Mullin, K.D. & G.L. Fulling (2004) Abundance of cetaceans in the oceanic northern Gulf of Mexico. *Marine Mammal Science* 20: 787-807.

²⁸ Applying alternate correction factors to the estimate in the December 2012 Stock Assessment.

²⁹ 2012 Stock Assessment at 112.

considered, there is evidence that sperm whale populations in the GoM may number in the several thousands.

The decline that was estimated in 2009 requires further examination, but is likely the result of survey variability – not the result of mortality because (as discussed below), there have only been 10 known mortalities in the GoM in the past 20 years.³⁰ At the same time, there has been considerable variability in sperm whale survey results. Consider the 1991-1994 estimate alone. There, NMFS estimated a mean population of 530 sperm whales. That mean estimate was based on observations of:

143 whales in 1991;
931 whales in 1992;
229 whales in 1993; and,
771 whales in 1994.

Far from being an example of massive annual mortality/emigration and repopulation, such considerable swings can only really be attributed to survey variability. Indeed, it is such variability, inherent in a largely unobservable deep-diving species, that likely led to the 2009 estimate.

iii. Threats to Sperm Whale in the GoM

Despite having minimal relevance to the determination of a DPS under the ESA or the DPS Policy thereunder, WEG's petition devotes a significant number of pages alleging GoM-specific threats to the sperm whale, and a significant portion of that "threat analysis" to oil and gas industry operations. Specifically, WEG alleges that oil and gas operations in the GoM destroy or threaten habitat; are a factor affecting the sperm whale's continued existence in the GoM; and that existing regulatory mechanisms are insufficient to protect the species.³¹ As the regulatory mechanisms that have resulted in the current abundance estimates of the sperm whale in the GoM are noted above, we herein briefly focus on the alleged threats.³²

The WEG Petition surmises, without relevant support, that oil spills, such as the Deepwater Horizon spill, threaten the existence of sperm whales in the GoM.³³ As noted by NMFS, exposures to petroleum compounds and dispersants may have negative impacts on marine mammals, but those impacts are highly dependent on a number of factors, such as frequency and duration of exposure, the type and mixtures of the chemicals/compounds, the route of exposure, and the species known avoidance of oily water.³⁴ While the Associations do not dispute that oil spills can potentially have impacts on marine ecosystems, it is noteworthy

³⁰ The decline may also be the result of emigration, a fact that would remove any question that sperm whale in the GoM are not a DPS.

³¹ WEG Petition at 15.

³² The Associations may provide a more substantive critique of WEG's threat analysis at a later date.

³³ WEG Petition at 16.

³⁴ 2012 Stock Assessment at 116.

that, to date, there are no documented sperm whale mortalities as a result of the Deepwater Horizon spill.³⁵

The WEG further alleges, with inadequate support, that seismic operations are contributing to the decline of sperm whale habitat.³⁶ NMFS, however, stated that seismic vessels in the GoM operate with a number of measures, including observers, start-up clearances, ramp-up procedures, and shut down requirements (among others), to reduce or eliminate harm to marine mammals, and that “[t]here have been no reported seismic-related or industry ship-related mortalities or injuries to sperm whales.”³⁷

Finally, WEG alleges threats to sperm whales from anthropogenic noise and ship strikes.³⁸ But NMFS itself states that “[t]here have been no reported seismic-related or industry ship-related mortalities or injuries to sperm whales.”³⁹ Even if noise and ship strikes were shown to cause harm to sperm whales, they are not threats specific to the GoM or the oil and gas industry. Indeed, as the Sperm Whale Seismic Study Synthesis Report (“SWSS Report”) noted, sperm whales have been living in close proximity to the offshore oil and gas industry for decades⁴⁰, and, as discussed in Section II(A)(1)(ii) above, there is scant evidence that sperm whale populations in the GoM are declining, and no evidence that they are being harmed.

Anthropogenic losses of sperm whales are exceptionally low in the GoM. There was one probable ship-strike mortality in 1990, one whale died in 2008 when it became entangled in a fishing boat’s sea anchor, plus eight known strandings since 2006, and one other whale found floating dead. None of the latter nine were shown to have died of anthropogenic causes.⁴¹ However, even if the true total were ten times the confirmed kill, it would still only amount to 10 over 20 years in all of the Northern GoM population, or 0.5 per year.

For the purposes of management under the Marine Mammal Protection Act (“MMPA”) and some aspects of the ESA, the agency considers only that portion of the whales that are in the U.S. zone at any particular time. For them, the agency determines a Potential Biological Removal (“PBR”) as a basis for setting limits on acceptable anthropogenic deaths. The PBR value was 2.8 in 2010,⁴² but has since been reduced to 1.1, based on the 2009 survey estimate.⁴³

In its Petition, WEG grossly misrepresents the meaning of the PBR, at its former value of

³⁵ *Id.* at 115. It noted one dead sperm whale 77 miles from the incident, but it did not die in oily waters, nor was it itself oily, and its death could not be attributed to the incident.

³⁶ WEG Petition at 15.

³⁷ 2012 Stock Assessment at 116 (citing JOINT NTL 2012-G02).

³⁸ WEG Petition at 25-29.

³⁹ 2012 Stock Assessment at 116.

⁴⁰ SWSS 2008 at 271.

⁴¹ 2012 Stock Assessment at 116.

⁴² *Id.* at 200.

⁴³ *Id.* at 114.

2.8, claiming that “the long-term survival of the Gulf population is at risk if three or more whales are killed by human causes in addition to natural mortality.”⁴⁴ It is more accurate to say that successful achievement of the Service’s intended recovery rate for the sperm whales would be less certain than the Service wishes if the long-term average annual losses due to anthropogenic causes exceeded the PBR.⁴⁵

The calculations leading to the 2.8 and 1.1 PBR figures reserved 95% of the assumed productivity rate of the whales for a combination of recovery and a buffer against uncertainty. NMFS also used a conservative value for abundance. Before the recent re-calculation, that value stood at 1409 – 85% of the survey estimate (NOAA 2009) – meaning that 95.75% of estimated production was reserved and only the remainder, 2.8 individuals per year, allowed as anthropogenic deaths.⁴⁶ The actual anthropogenic kill that would pose a material risk of eliminating the sperm whales in the GoM cannot be estimated with useful accuracy since it would depend on unknown processes that would only act if abundance was driven to extremely low levels unlikely to ever be observed. To the extent that the PBR calculations gave any indication of that number, however, that number suggested that the sperm whale population could withstand anthropogenic losses of 66 individuals per year (now revised to 30 per year) without a decline in abundance, let alone being at risk of elimination. Those figures, however, ignore the biases inherent to the survey estimates, correction for which might considerably be more than double the potential mortality values.

In summary, WEG has: (1) failed to show that sperm whales are in peril in the GoM or globally; (2) failed to show that sperm whales are inadequately protected by existing regulatory mechanisms; (3) failed to adequately demonstrate that offshore oil and gas operations are in any way impacting sperm whale survival in the GoM; and, (4) failed to show that there is *any* significant anthropogenic sperm whale mortality in the GoM. These failures, independently and collectively, absolutely undermine WEG’s assertion that sperm whales are particularly in danger of extinction in the GoM.

B. WEG’s Petition to Change the Taxonomic Classification of the Sperm Whale is Not Permitted Under the ESA or Its Implementing Regulations

Section 4 of the ESA allows petitions for rulemakings for only two purposes: (1) “to add a species to, or to remove a species from, either [the threatened or endangered] lists published under subsection (c);” and (2) “to *revise* a critical habitat designation.”⁴⁷ WEG’s petition, by contrast, asks NMFS to undertake two actions, neither of which is authorized by the ESA. One,

⁴⁴ WEG Petition at 14, 16, 25, 30.

⁴⁵ See 2012 Stock Assessment at 114 (discussing the uncertainties and conservative assumptions inherent in calculating this stock’s PBR).

⁴⁶ The current PBR value of 1.1 is based on a conservative value of 560 whales, compared to the low 2009 survey estimate of 763. *Id.* It reserves 96.3% of estimated production for recovery and the uncertainty buffer. *Id.*

⁴⁷ 16 U.S.C. § 1533(b)(3)(A), (D)(i) (emphasis added). NMFS and the U.S. Fish and Wildlife Service (“FWS”) have interpreted this statutory language as also encompassing petitions to “reclassify” a species from one listing status to another. See 50 C.F.R. § 424.14(a).

as explained below, is to *designate* critical habitat.⁴⁸ The other is to change the taxonomic classification of sperm whales in the GoM. As neither of these actions is permitted by the ESA or its implementing regulations, the petition should be rejected out of hand.

As applied in the DPS context, Section 4 allows a petitioner to seek recognition of a DPS of an unlisted species, and have it designated as either threatened or endangered. Such a situation falls under Section 4's authorization to petition "to add a species" to the endangered or threatened lists.⁴⁹ Similarly, the listing agencies' regulations interpreting Section 4 allow petitioners to seek recognition of a DPS, and reclassify the listing status of that DPS from "endangered to threatened," "threatened to endangered," "endangered to unlisted," *etc.* There is no provision under the ESA or its implementing regulations, however, that permits petitioning for a DPS that does not, in some way, seek to change the listing status of the species. Yet, that is precisely what WEG petitions to do here.

Sperm whales have been listed as endangered globally since 1970. WEG's petition does not seek to change this designation. Instead, it seeks to change the taxonomic classification of the previously-listed species. In other words, WEG's petition asks NMFS to designate an endangered GoM DPS out of the global population of the sperm whale that is already listed as endangered under the ESA. As such, WEG does not seek to "add a species to, or remove a species" from a list, or even seek to reclassify a species from "threatened" to "endangered" or *vice versa*. At base, the petition requests the agency revisit the manner in which it defined the sperm whale in 1970.⁵⁰ That, however, is not one of the specifically delineated issues for which Congress allowed NMFS to be petitioned – and for good reason. The Section 4 petition process provides citizens an opportunity to petition listing agencies for those actions that facilitate the protection of species. It is not an unchecked opportunity to second guess all listing agencies' scientific determinations. If that were the case, it is difficult to imagine what Section 4 would not allow petitioners to challenge.

The Associations urge NMFS to be mindful of the impacts on agency decision-making and resources if WEG's expansive rewriting of Section 4 were allowed. WEG's petition to create a new taxonomic classification for the sperm whale without any change in the listing status is unpermitted under the ESA and its implementing regulations, and should be denied.

C. The GoM Stock Does Not Meet the Elements of a DPS Under the DPS Policy

1. DPS Designation Must be Used Sparingly and Only When Stringent Criteria Are Met

⁴⁸ See *infra* at Part D.

⁴⁹ See, e.g., 2010 Recovery Plan at IV-7 (This [Policy Regarding the Recognition of Distinct Vertebrate Population Segments] interpreted the term "DPS" *for the purposes of listing and delisting and reclassifying vertebrates* under the ESA.) (emphasis added).

⁵⁰ The ESA defines a species as "includ[ing] any subspecies of fish or wildlife or plants, and any distinct population segment of vertebrate fish or wildlife which interbreeds when mature." 16 U.S.C. § 1532(16). In effect, granting the petition would create at least two new "species," the GoM DPS and all other sperm whales, but affect no change in the listing status of any of the members of either species.

The ESA applies to distinct taxonomic species, “any subspecies of fish or wildlife or plants, and any distinct population segment of any species of vertebrate fish or wildlife that interbreeds when mature.”⁵¹ The aspects of this definition that relate to DPS were intensely scrutinized during congressional debate for fear that, through recognition of DPS, the ESA could be manipulated to disaggregate a species to such an extent that even healthy and abundant species could be found to be endangered.

The 1978 addition of the phrase “DPS” was, in fact, designed to constrain language in the ESA of 1973 which extended the statute to “any other group of fish or wildlife of the same species or smaller taxa in common special arrangement that interbreed when mature.” Still, the U.S. General Accounting Office (“GAO”) at the time warned that use of a DPS could lead to unnecessary subdivision that did little more than lead to the listing of segments of healthy and abundant species.⁵² In response to such concerns, Congress carefully included within the Conference Report on the ESA Reauthorization recognition that it “is aware of the great potential for abuse of this authority,” and an admonition that the listing agencies use its DPS authority “sparingly and only when then biological evidence indicates that such action is warranted.”⁵³

In the ensuing decades, the listing agencies have generally respected the high bar that Congress demanded be used to designate a DPS. In 1991, NMFS established a policy outlining criteria for designating Pacific salmon by DPS.⁵⁴ Under the policy, DPS status was restricted to “evolutionarily significant units” (“ESU”) that are substantially reproductively isolated and which represent an important component of the evolutionary legacy of the species.⁵⁵ In 1996, NMFS and FWS established a new, more encompassing DPS policy that, like the ESU policy and consistent with congressional intent, maintained a high bar to designate a DPS.⁵⁶ For a population segment to be considered a DPS under the 1996 Policy, the segment must meet two criteria: (1) it must be discrete; and, (2) it must be significant.⁵⁷ Discreteness requires conspicuous separation from the remainder of the species, but separation alone is not enough to be a DPS.⁵⁸ Even if the species is markedly discrete, the listing agencies, at Congress’s direction, instruct that the discrete segment be significant in some unique biological manner or that the segment provide some significant role in the species as a whole.⁵⁹ The “significance” element of the DPS Policy is critical to the evaluation of population segments for DPS status.

⁵¹ 16 U.S.C. § 1532(16).

⁵² See U.S. General Accounting Office, *Endangered Species: A Controversial Issue Needing Resolution* (1979).

⁵³ S. Rep. No. 95-151, at 7 (1979), reprinted in *ESA Legislative History*, *supra* note 144, at 1397.

⁵⁴ 56 Fed. Reg. 58612 (Nov. 20, 1991).

⁵⁵ *Id.* at 58518.

⁵⁶ 61 Fed. Reg. 4722 (Feb. 7, 1996).

⁵⁷ *Id.* at 4725. If the species is both discrete and significant, it is considered a DPS, but that DPS is not then protected under the ESA unless and until the listing agency determines that the DPS is either threatened or endangered under the ESA.

⁵⁸ *Id.*

⁵⁹ *Id.*

Indeed, the listing agencies have found several populations to be distinct, but declined to extend DPS status because the discrete segment was not significant.⁶⁰

The DPS Policy provides a high hurdle – appropriately so. Unlike ESA listing decisions wherein a listing agency is acting to avoid extinction of a species and therefore employs a precautionary approach, DPS designation involves the structuring of a species’ population. If listing services employed for DPS analysis all the favorable evidentiary inferences that may be appropriate for a listing decision, it would lead to a widespread deconstruction of taxonomic units, an enormous drain on agency resources, and little or no conservation benefit to the species.

NMFS has recognized the propriety of the DPS Policy’s high hurdle in the past and, as recently as December 2010, NMFS, consistent with the DPS Policy, found that there was insufficient evidence that sperm whale populations could be properly dissected into DPS.⁶¹ Judging by the studies cited by WEG in its petition, the ensuing 2.5 years have provided scant additional support for a GoM DPS, and, as explained further in the detailed analysis of the DPS Policy elements below, considerable evidence exists that the whales in the GoM do not meet the standards for a DPS.

2. The Sperm Whales in the GoM are Not a Discrete Population

According to the DPS Policy, a population segment of a species may be considered discrete if it is markedly separate from other population segments of the same taxon or it is delimited by international governmental boundaries with different conservation levels and measures.⁶² As explained below, sperm whales in the GoM do not meet either element. While the GoM segment may have some modest biological or behavioral variations from other population segments, such variations (where they can be demonstrated at all) do not qualify as marked distinctions. Similarly, sperm whales in the GoM are not subject to differences in conservation status or measures between and among the GoM nations, all of which prohibit the gravest threat to the sperm whale, and all of which have in place numerous other protective measures. These criteria are discussed further below.

i. Stocks Are Not DPS

WEG seems to suggest that the GoM population is “discrete” because NMFS classifies the population as a “stock” of the global sperm whale population for the purposes of the MMPA.⁶³ In that, WEG greatly misunderstands the meaning and importance of NMFS’s stock classification. Although the Service has stated a working definition of “stock” in terms of demographic isolation⁶⁴, its application under the MMPA follows the practices of fisheries

⁶⁰ See, e.g., 67 Fed. Reg. 44133 (Jul. 1, 2002); 68 Fed. Reg. 11574 (Mar. 11, 2003); 68 Fed. Reg. 34628 (Jun 10, 2003); 77 Fed. Reg. 25792 (May 1, 2012).

⁶¹ 2010 Recovery Plan at IV-7.

⁶² 61 Fed. Reg. at 4725.

⁶³ WEG petition at 6–7.

⁶⁴ 2010 Recovery Plan at I-3.

management, in which stocks are partially arbitrary units, meeting the needs of management while reflecting the biology of species to the extent practicable. In the case of sperm whales, the five recognized stocks are delimited by the extent of U.S. jurisdiction, which is not a biological boundary, those in the Pacific being divided from one another by foreign or international waters. The division between the GoM and North Atlantic stocks remains to be considered below, but its placement off the southern tip of Florida was not informed by biological data indicating that a line should be drawn there rather than somewhere else. As NMFS itself has stated with regard to that arbitrary line: “any current designation of stocks or management units must be regarded as preliminary.”⁶⁵

MMPA stocks can also be finer subdivisions of a species than ESA DPSs. The killer whales of the North Pacific, for example, are managed as seven stocks. Only one of those, the “Eastern North Pacific Southern Resident” group, has been considered for DPS status – a status first rejected by the Service,⁶⁶ then approved after further review,⁶⁷ and now subject to reconsideration.⁶⁸ Whatever the outcome of that process, it is clear that an MMPA stock is not synonymous with a DPS designation under the ESA; delineation of the former involves none of the elements required by the DPS Policy. Hence, the status of the GoM sperm whales as a stock cannot be grounds for listing them as a DPS.

ii. Gulf of Mexico Sperm Whales are Not Markedly Separated from Other Populations

While “marked separation” does not require absolute isolation of a population segment, it does require some analysis of its discreteness. In other analogous DPS analyses, the listing agencies looked first at geography and topography to evaluate separation. FWS found the Sonoran Desert Population of the bald eagle to be discrete, in part, because it was surrounded by unsuitable habitat that extended far beyond the typical range of the species.⁶⁹ Similarly, the Service found a population of grey squirrel to be discrete because it was separated from other populations by the Columbia River⁷⁰ and found a freshwater fish to be distinct from populations disconnected by rapids and waterfalls.⁷¹ There is no such separation here.

The GoM is connected to the North Atlantic Ocean, via the Straits of Florida, and to the Caribbean Sea, via the Yucatan Channel. Sperm whales are physically capable of swimming through either. Indeed, one male tagged offshore of the Mississippi delta has been observed to exit the GoM, spend some time offshore South Carolina and then return via the Straits and the

⁶⁵ *Id.* at I-7.

⁶⁶ 67 Fed. Reg. at 44133.

⁶⁷ 70 Fed. Reg. at 69903.

⁶⁸ 77 Fed. Reg. at 70733.

⁶⁹ 77 Fed. Reg. at 22804.

⁷⁰ 68 Fed. Reg. at 34635.

⁷¹ 68 Fed. Reg. at 11577.

north coast of Cuba.⁷² Thus, any suggestion that the sperm whales in the GoM are separated from others of their species requires evidence that the whales in that area do not mix with those elsewhere, despite their being capable of doing so. Most likely, that would require evidence that the whales in the GoM are different from those outside.

In their petition, WEG advanced several lines of argument for such differences between the sperm whales of the GoM and the rest of their species, but those arguments were based on misinterpretation of research studies and a failure to comprehend the implications of the unique social structure of sperm whales. Each of these critical misapprehensions led to WEG's erroneous conclusion.

Sperm whales live largely separate lives based on gender. In every sperm whale population throughout the world, juvenile males live with their mothers but, as adolescents, they leave and join loose groups of "bachelors." As they grow and age, they gradually become more mobile and more solitary. In each of the great ocean basins, the full-grown, older male "bulls" migrate to high latitudes to feed, returning to warmer waters at intervals to mate.⁷³

In contrast to the great mobility of large, lone, male sperm whales, the adult females live with their juvenile offspring within "social units," often of about a dozen individuals – though perhaps only half as many in the GoM and around the Caribbean island of Dominica.⁷⁴ The temporal persistence of units is poorly understood but appears to extend for at least the full lifetimes of some adult members. Juvenile females typically recruit to their maternal unit, but individuals occasionally transfer between units, while unit fusion and fission occur.⁷⁵ Thus, the structure of each unit is primarily matrilineal, though some units contain maternal descendants of more than a single founding female.⁷⁶

Large males have rarely, if ever, been recorded in the GoM,⁷⁷ but the females in the GoM evidently mate with males from the Atlantic as recent genetic research has found no difference in

⁷² Mate, B.R. & J.G. Ortega-Ortiz (2008) Home range and seasonal movements. pp. 100-142, in Jochens, A., D. Biggs, K. Benoit-Bird, D. Engelhaupt, J. Gordon, C. Hu, N. Jaquet, M. Johnson, R. Leben, B. Mate, P. Miller, J. Ortega-Ortiz, A. Thode, P. Tyack & B. Würsig. *Sperm Whale Seismic Study in the Gulf of Mexico: Synthesis Report*. U.S. Dept. of the Interior, Minerals Management Service, Gulf of Mexico OCS Region, New Orleans, LA. OCS Study MMS 2008-006. 341 pp.

⁷³ 2010 Recovery Plan at I-10.

⁷⁴ Whitehead, H., R. Antunes, S. Gero, S.N.P. Wong, D. Engelhaupt & L. Rendell (2012) Multilevel societies of female sperm whales (*Physeter macrocephalus*) in the Atlantic and Pacific: Why are they so different? *International Journal of Primatology* vol. 33, pp. 1142-1164.

⁷⁵ Whitehead *et al.* 2012.

⁷⁶ See e.g. Mesnick, S.L. (2001) Genetic relatedness in sperm whales: evidence and cultural implications. *Behavioral and Brain Sciences* vol. 24, pp. 346-347; and Engelhaupt, D. & A.R. Hoelzel (2008) Gulf of Mexico sperm whales – a genetic perspective. pp. 73-99 *In*: Jochens, A., D. Biggs, K. Benoit-Bird, D. Engelhaupt, J. Gordon, C. Hu, N. Jaquet, M. Johnson, R. Leben, B. Mate, P. Miller, J. Ortega-Ortiz, A. Thode, P. Tyack & B. Würsig. *Sperm Whale Seismic Study in the Gulf of Mexico: Synthesis Report*. U.S. Dept. of the Interior, Minerals Management Service, Gulf of Mexico OCS Region, New Orleans, LA. OCS Study MMS 2008-006. 341 pp. (Figure 4.2.10).

⁷⁷ Würsig, B. & J. Gordon (2008) Introduction to the sperm whale. pp. 31-37 *In*: Jochens, A., D. Biggs, K. Benoit-Bird, D. Engelhaupt, J. Gordon, C. Hu, N. Jaquet, M. Johnson, R. Leben, B. Mate, P. Miller, J. Ortega-Ortiz,

bi-parentally-inherited nuclear DNA between GoM and North Atlantic sperm whales – in contrast to those in the Mediterranean Sea, which appear isolated by a lack of movement through the Strait of Gibraltar.⁷⁸

In terms of their movements, female social units in the GoM are no different than those observed elsewhere in the sperm whale population of the Atlantic and its marginal seas. No exchanges of females have been observed between the northern GoM and waters outside the GoM, but neither has any exchange been seen between study sites off Dominica and in the Sargasso Sea (a distance of 1800 km).⁷⁹ In the Mediterranean Sea, female sperm whales appear to remain within either the western or eastern basin, and only the males pass the narrow straits and relatively shallow water either side of Sicily.⁸⁰ More detailed information is available only for the northern GoM, where tagged females (and hence the social units of which they are members) spend the majority of their time within 200 km of their tagging point – as female sperm whales and their respective social units likely do in every other part of the Atlantic basin.⁸¹

Understanding the migratory patterns of male sperm whale and persistence behaviors of female juvenile sperm whale throughout the world is critical to understanding how GoM whale populations are tethered to, and entwined with, the worldwide population structure. Sperm whale populations all over the world have localized maternal units. All these units are tied together by highly-migratory breeding males. That these localized units are not completely homogeneous does not make them distinct – much less markedly so. Indeed, any observed differences in localized maternal units amount to nothing more than natural variability of a world-wide species.

a. Genetic Differences are Minor and Limited to Maternal DNA

The most tangible evidence of discreteness or continuity of sperm whale populations is based on genetics. WEG claims that two unpublished student theses “found significant genetic subdivision between isolated ocean basins (the Gulf of Mexico and the Mediterranean Sea) and the North Atlantic” and they quoted another source as concluding that “[t]he northern Gulf population structure supports the delineation of the northern Gulf into a female-dominated stock

A. Thode, P. Tyack & B. Würsig. *Sperm Whale Seismic Study in the Gulf of Mexico: Synthesis Report*. U.S. Dept. of the Interior, Minerals Management Service, Gulf of Mexico OCS Region, New Orleans, LA. OCS Study MMS 2008-006. 341 pp, at 36.

⁷⁸ Engelhaupt, D., A.R. Hoelzel, C. Nicholson, A. Frantzis, S. Mesnick, S. Gero, H. Whitehead, L. Rendell, P. Miller, R. de Stefanis, A. Cañadas, S. Airoidi & A.A. Mignucci-Giannoni (2009) Female philopatry in coastal basins and male dispersion across the North Atlantic in a highly mobile marine species, the sperm whale (*Physeter macrocephalus*). *Molecular Ecology* vol. 18, pp. 4193-4205.

⁷⁹ Whitehead *et al.* 2012.

⁸⁰ Frantzis, A., S. Airoidi, C. Johnson & S. Mazzariol (2011) Inter-basin movements of Mediterranean sperm whales provide insight into their population structure and conservation. *Deep-Sea Research* vol. 158, pp. 454-459.

⁸¹ Interestingly, NMFS understands this lack of female migration to be shared by the species globally – not just in the Atlantic. “[I]n tropical and temperate areas, there appears to be no seasonal migration.” <http://www.nmfs.noaa.gov/pr/species/mammals/cetaceans/spermwhale.htm>.

that is genetically distinct from those in other regions.”⁸² WEG, however, cited only secondary references to the research. The key portions of the original work were formally published by Engelhaupt *et al.* in 2009, while additional information was provided by Engelhaupt and Hoelzel (2008). Contrary to WEG’s claims, the available data show no significant differences between the sperm whales sampled in the northern GoM, those in the North Atlantic, and those in the North Sea, in nuclear DNA – the form of DNA inherited bi-parentally (meaning from both parents) and the form of DNA which determines almost all inherited characteristics.⁸³ To be clear, the studies on which WEG relied demonstrated that a single, undivided genetic population of sperm whales is found from the GoM to northern Europe, if not beyond.⁸⁴

While useful for demonstrating the nuclear DNA homogeneity of sperm whales in the Atlantic and GoM, the work reported by Engelhaupt *et al.* (2009) was primarily a study of the internal structure of sperm whale populations. Its design was not suited to mapping the extent of either the major North Atlantic population, or its sub-components. Hence, the primary conclusion of Engelhaupt *et al.* (2009) was that female sperm whales show “philopatry,” a tendency to remain in one locality, while the migratory males provide gene flow among localities by mating with females away from the places where they were themselves born. Many previous studies had suggested such a social structure in sperm whales, as it is common in other mammal species, and has an obvious evolutionary advantage in helping to increase reproduction in low-fecundity live-bearing animals, and to ensure gene flow among populations. Thus, Engelhaupt *et al.* (2009) provided valuable confirmation of prior expectations, along with important additional detail, but did not radically change existing understanding of sperm whales.

In examining the philopatry of female sperm whales, Engelhaupt *et al.* (2009) focused on mitochondrial DNA (“mtDNA”), which is inherited only from mothers.⁸⁵ The particular portion of mtDNA that they studied does not code for any characteristics of the animal, and thus provides a marker of maternal descent, unaffected by local adaptations. mtDNA can reveal aspects of the internal structure of populations, but misrepresents the overall extent of populations in which gene flow occurs through movements of males, as is the case with sperm whales. Indeed, given the known social structure in the species, with females largely remaining within their natal social units, it is to be expected that each unit will show only one, or at most a

⁸² WEG Petition at 7.

⁸³ Engelhaupt *et al.* 2009, Table 7.

⁸⁴ In contrast, Engelhaupt *et al.* (2009) did find significant differences between northern European sperm whales and ones sampled in the Mediterranean Sea, indicating that the Strait of Gibraltar is at least a partial barrier to the whales.

⁸⁵ Because of its maternal inheritance, mtDNA passes down the generations quite differently than nuclear DNA. Differences between sub-populations in nuclear DNA imply some degree of barrier to gene flow but there can never be any flow of mtDNA genes – each adult female is the founder of a maternal lineage entirely separate from all others, save those which she inherits from her mother and bequeaths to her daughters. For nuclear DNA, in each generation, the recombination of parental genetic contributions and mating with males allows genes to spread across the population, preventing divergence of sub-groups. Discrete maternal lineages, in contrast, can co-exist through time, each gradually accumulating rare mutations and hence slowly diverging in their mtDNA. Where differences in mtDNA gene frequency are observed, such as those that Engelhaupt *et al.* (2009) found between sperm whales in the GoM and in the Atlantic, they show that individuals do not freely and randomly mingle between the two areas, but they do not show an absence of more restricted exchanges.

few, variants (“haplotypes”) of mtDNA, since the individuals within each unit tend to be maternally related. Units that include individuals of different maternal descent are likely to have varied mixtures of haplotypes. That has indeed been observed in northern GoM social units.⁸⁶ It, in fact, is evidence of genetic diversity across small spatial scales – not a marked separation between large population segments, such as between the northern GoM and the open Atlantic.

WEG’s entire basis for alleging a marked genetic distinction between the sperm whales in the GoM and the Atlantic population rests on Table 4 of Engelhaupt *et al.* (2009), which showed a difference in mtDNA between samples of the social groups in the GoM and those from the North Atlantic Ocean. Again, however, WEG wrongly interpreted that difference as evidence of a discrete GoM population segment.

First, Engelhaupt, *et al.* (2009) did not properly delineate between those populations. Indeed, Engelhaupt *et al.* (2009) did not examine their data in any way which might have revealed the boundaries of any supposed population segment resident in the GoM.

More specifically, Engelhaupt, *et al.* (2009) assigned twelve (12) samples collected from offshore Florida to the GoM, lumping them with a further 141 samples, mostly from the northwestern GoM or else offshore the Mississippi delta,⁸⁷ but those assignments were a rather arbitrary geographic delineation, and not based on biological grouping or differentiation. Likewise, 15 samples from the Caribbean Sea (likely taken from the easternmost edge of that Sea, where three of Engelhaupt’s co-authors have maintained a research program around the island of Dominica since 2005,⁸⁸) were assigned to the North Atlantic Ocean, lumping them with 69 from the Bahamas and further north.⁸⁹ No attempt was made to examine whether either the female whales offshore southernmost Florida or those in the Caribbean were more closely related to sperm whales in the Atlantic or to the ones in the GoM. The very limited amount of data available to Engelhaupt *et al.* (2009) would probably have prevented such analyses, which were not germane to the research question that those authors sought to answer. The lack of such analyses and data does, however, preclude the use of the research results in drawing boundaries around sperm whale population segments, as WEG implicitly sought to do. The currently available information is fully consistent with sperm whales west of the Bahamas being members of a single GoM and Caribbean population female segment, extending as far as waters offshore South America.

Even more important, while Engelhaupt, *et al.* (2009) correctly concluded that the sperm whales in the northern GoM and those from the Bahamas and beyond are not part of one, freely mixing female population, it was an error to suppose that they were therefore members of two discrete but internally mixed populations. The observed differences in mtDNA were not “fixed,” meaning that there was not one set of mtDNA haplotypes found in GoM females and a different set in those sampled in the North Atlantic. Rather, four of the five haplotypes found in the GoM were observed in Atlantic samples, while four of six found in the Atlantic were also recorded

⁸⁶ Engelhaupt & Hoelzel 2008, Figure 4.2.10.

⁸⁷ Engelhaupt *et al.* 2009, Figure 1; Engelhaupt & Hoelzel 2008, Figures 4.2.1 to 4.2.8

⁸⁸ <http://www.thespermwhaleproject.org>

⁸⁹ Engelhaupt *et al.* 2009, Figure 1.

from the GoM.⁹⁰ Each “missing” haplotype was so rare where it was found that its absence from the other region can be ascribed to the random chances inevitable in sampling. Thus, the maternally-inherited genetic difference between GoM and Atlantic samples was merely one of the relative frequencies of haplotypes. There are many potential explanations for such variability, the existence of two distinct groups of females being among the least likely.⁹¹

Far from such a two-group model being realistic, as has been explained above, female sperm whales are arranged in a mosaic of social units, each tending to carry either a single mtDNA haplotype or a unique frequency of haplotypes. Meanwhile, it is clear from tagging data that most, perhaps all, social units choose to remain within home ranges that are much smaller than the GoM itself. It follows that the whales that are in the GoM at any one point in time will be different individuals to those that, at that time, are elsewhere. As each unit, as a consequence of the social behavior of sperm whales, carries mtDNA haplotypes that are non-random selections of the haplotypes in the overall, interbreeding Mexico-to-Europe population, it was only to be expected that the haplotype frequencies observed in the GoM would differ from those in the open Atlantic – as Engelhaupt *et al.* (2009) found. Establishing that the female whales are separated in any more meaningful sense than the temporary location of individuals, would, however, require information on the rates of movements of social units into and out of the northern GoM. Engelhaupt, *et al.* (2009) did not attempt any such estimations – correctly so, as it is most unlikely that they could be done with the data currently available.

In the absence of such estimates, however, the work on mtDNA reported by Engelhaupt, *et al.* (2009) can confirm what was never in doubt, that the female sperm whales currently in the GoM are not the same individuals as those elsewhere, but it cannot demonstrate that there is any lasting restriction on movements either within the Gulf (between the U.S., Mexican, and Cuban zones) or through the Straits of Florida and the Yucatan Channel. The parallel work on nuclear DNA, in contrast, has shown that the whales in the northern GoM are part of a single genetic population that reaches as far as Europe. As such, the available genetic data do not demonstrate that the sperm whales in the GoM are markedly separate from sperm whales in the Atlantic or elsewhere. Indeed, they show the reverse.

b. Migratory/Residency Patterns in GoM Are the Same as Other Sperm Whales

WEG claims that “[s]perm whales in the Gulf of Mexico differ from other populations in that they do not migrate.”⁹² That is simply false. The lack of any distinction in nuclear DNA between whales in the GoM and those in the Atlantic shows inter-breeding. The lack of observations of large, adult males in the GoM, combined with the evident production of young in those waters, makes it highly likely that “bull” whales enter the GoM to mate and then return to their high-latitude feeding grounds. There is no reason to doubt that both the male sperm whales

⁹⁰ Engelhaupt *et al.* 2009, Table 2.

⁹¹ The haplotype frequencies in Table 2 of Engelhaupt *et al.* (2009) are, for example, consistent with the whales in the Gulf being a combination of a resident sub-population, amounting to 94% of the females present, with 6% migrants from the Atlantic. That is, however, almost as improbable a hypothesis as the two-populations model.

⁹² WEG Petition at 8.

born in the GoM, after they reach maturity, and those which mate there as adults follow the same migratory pattern as other adult males of their species that inhabit open oceans. Indeed, young-adult males in the Gulf have been observed taking what appears to be the first steps towards that pattern.⁹³

The only known exception to this universal pattern is in the Mediterranean Sea. Instead of north-south migrations between high-latitude feeding grounds and mating in the low-latitude habitats of the females, the Mediterranean males are largely or entirely confined within their sea and undertake east–west migrations.⁹⁴

For female sperm whales in the GoM, WEG noted their “site fidelity,” lack of “discernible seasonal migrations,” and “site-centric behavior,” citing summaries presented in the SWSS Report.⁹⁵ WEG did not cite the detailed information on the movements of the whales that is available in the works of Mate and Ortega-Ortiz (2008) and Gordon *et al.* (2008).

Studies based on old whaling records long since concluded that female sperm whales, or rather the social units within which they live, typically remain within one whaling ground for years at a time – the grounds of the former industry being some 1000 to 1500 km across (about the size of the GoM).⁹⁶ Significantly, NMFS has reached the same conclusion:

Most females will form lasting bonds with other females of their family, and on average 12 females and their young will form a family unit. While females generally stay with the same unit all their lives in and around tropical waters, young males will leave when they are between 4 and 21 years old and can be found in "bachelor schools", comprising of other males that are about the same age and size. As males get older and larger, they begin to migrate to higher latitudes (toward the poles) and slowly bachelor schools become smaller, until the largest males end up alone. Large, sexually mature males that are in their late 20s or older, will occasionally return to the tropical breeding areas to mate.⁹⁷

Thus, residence within the GoM of female and juvenile sperm whales is in no way an unusual characteristic for the species – nor is it inconsistent with occasional incursions from outside the area, plus routine movements through the Yucatan Channel and Straits of Florida by those social units whose fidelity is to sites near either nominal boundary. To the contrary, those migratory and persistence behaviors of GoM whales precisely mirror those of all other sperm

⁹³ Mate & Ortega-Ortiz 2008.

⁹⁴ Engelhaupt *et al.* 2009; Frantzis *et al.* 2011.

⁹⁵ WEG Petition at 8, *citing* Jochens, A., D. Biggs, K. Benoit-Bird, D. Engelhaupt, J. Gordon, C. Hu, N. Jaquet, M. Johnson, R. Leben, B. Mate, P. Miller, J. Ortega-Ortiz, A. Thode, P. Tyack & B. Würsig. *Sperm Whale Seismic Study in the Gulf of Mexico: Synthesis Report*. U.S. Dept. of the Interior, Minerals Management Service, Gulf of Mexico OCS Region, New Orleans, LA. OCS Study MMS 2008-006. 341 pp.

⁹⁶ Mate & Ortega-Ortiz 2008.

⁹⁷ <http://www.nmfs.noaa.gov/pr/species/mammals/cetaceans/spermwhale.htm>. Last visited on 5/9/2012.

whales in the Atlantic and its marginal seas, and, according to NMFS, all other populations, is powerful evidence that the GoM whales are not markedly separated from other populations.

c. Observed Sperm Whale Size Differences May Not Exist
And, Even If They Do, Such Differences Do Not Amount to
Marked Distinction

In an attempt to show that GoM whales are markedly distinct from the taxon as a whole, WEG notes that sperm whales observed in the GoM are, on average, smaller than those seen in the Gulf of California.⁹⁸ This comparison, however, lacks context and relevance because it did not provide any information that sperm whales in the GoM are smaller than those in the taxon as a whole. That whales observed in the Gulf of California appear larger than those that observed in the GoM could very well mean that Gulf of California whales are disproportionately larger than those in the taxon as a whole. Based on the information available, there is no way to conclude which population is the outlier from a size perspective.

Even if Gulf of California sperm whales are representative of taxon-wide size estimates, there is significant reason to question conclusions that sperm whale in the GoM are smaller than those in the taxon as a whole. Not only are such estimates unreliable, they are skewed by the demographics of the population. Firm evidence of a difference in size between various regions requires both reliable measurement and consistency in what is being measured.

WEG failed to consider several of the possible explanations for the size observation offered by the SWSS Report, and, instead, focused on the one explanation that it believed (albeit improperly) to support its own favored conclusion on distinctiveness.⁹⁹ In reality, it was an explanation which suggests that the observation is an artifact of survey design, not a feature of the biology of the whales.

Studies by Jaquet, *et al.* (2006)¹⁰⁰ and by Antunes, *et al.* (2006)¹⁰¹ provided the basis for the SWSS's observations on sperm whale size differences. The former estimated lengths from photographs of the flukes of diving whales, aided by laser range-finder measurements for scaling

⁹⁸ WEG Petition at 7.

⁹⁹ Jochens, A., D. Biggs, K. Benoit-Bird, D. Engelhaupt, J. Gordon, C. Hu, N. Jaquet, M. Johnson, R. Leben, B. Mate, P. Miller, J. Ortega-Ortiz, A. Thode, P. Tyack & B. Würsig. *Sperm Whale Seismic Study in the Gulf of Mexico: Synthesis Report*. U.S. Dept. of the Interior, Minerals Management Service, Gulf of Mexico OCS Region, New Orleans, LA. OCS Study MMS 2008-006. 341 pp.

¹⁰⁰ Jaquet, N., J. Gordon & B. Würsig (2006) Sperm whales in the northern Gulf of Mexico: Abundance, habitat use, and aspects of social organization. pp. 61-95 *In*: Jochens, A., D. Biggs, D. Engelhaupt, J. Gordon, N. Jaquet, M. Johnson, R. Leben, B. Mate, P. Miller, J. Ortega-Ortiz, A. Thode, P. Tyack, J. Wormuth & B. Würsig *Sperm Whale Seismic Study in the Gulf of Mexico; Summary Report, 2002-2004*. U.S. Dept. of the Interior, Minerals Management Service, Gulf of Mexico OCS Region, New Orleans, LA. OCS Study MMS 2006-034. 352 pp.

¹⁰¹ Antunes, R., J. Gordon, N. Jaquet & B. Würsig (2006) Acoustic length measurements from Gulf of Mexico sperm whales. pp. 105-111 *In*: Jochens, A., D. Biggs, D. Engelhaupt, J. Gordon, N. Jaquet, M. Johnson, R. Leben, B. Mate, P. Miller, J. Ortega-Ortiz, A. Thode, P. Tyack, J. Wormuth & B. Würsig *Sperm Whale Seismic Study in the Gulf of Mexico; Summary Report, 2002-2004*. U.S. Dept. of the Interior, Minerals Management Service, Gulf of Mexico OCS Region, New Orleans, LA. OCS Study MMS 2006-034. 352 pp.

the images. After ground-truthing and elimination of doubtful data, those authors had length estimates for 78 individuals, five being judged to be males that had left their maternal social units and the rest either adult females or juveniles. The collection of the latter 73 individuals had a modal length of about 8.5 m, compared to about 10 m for 154 female and juvenile whales similarly observed in the Gulf of California – though the data from each region showed indications of a secondary mode around the length of the other’s primary mode.¹⁰² In contrast, Antunes, *et al.* (2006) obtained sperm whale length estimates by measuring the intervals between pulses of sound that had echoed within the heads of the whales. The resulting data, which gave length estimates for 119 different individual whales, provided support for the estimates derived from photographs but did not alter conclusions based on that approach.

The photographic data on known males showed that those measured in the Gulf were substantially smaller than breeding males elsewhere but, as noted earlier, no mature males have been observed in the GoM. That younger male whales that have recently departed from their mothers are smaller than those at full maturity is not noteworthy. Older males, which apparently only pass through the GoM for breeding, are larger than the younger males that have not yet migrated to the poles. To establish any meaningful difference in the size of males inside and outside the GoM, one would have to normalize the results to account for age. That has never been done and, therefore, no apples-to-apples size difference has ever been shown for males.

The biological relevance of the smaller measured sizes of female and juvenile sperm whales in the GoM, when compared to those in the Gulf of California, remain uncertain. The genetic analyses of Engelhaupt, *et al.* (2009) found no detectable distinction in nuclear DNA, which controls inheritance of most characteristics, between the whales of the GoM and those in the North Atlantic. Hence, genetic adaptation to local conditions in the GoM is highly unlikely. In contrast, Jaquet, *et al.* (2006) suggested that those measured in the Gulf of California may be adapted to the necessity for long-distance swimming, required by the variable prey abundances which appear to require the whales to re-locate from The Galapagos to the Gulf and back again.¹⁰³ Thus, it is possible that the sperm whales of the eastern Pacific average larger than those of the Atlantic and GoM as a consequence of genetic adaptation, though no such hypothesis can yet be supported by the very limited data available. There is no evidence that female and juvenile size in the GoM differs from that of the taxon as a whole or is the result of any genetic adaptation.

According to Jochens, *et al.* (2008), female/adolescent size differences may be the result of nothing more than differences in prey.¹⁰⁴ Although not mentioned by the authors, it is equally plausible that in the years preceding the observations in the GoM, the females there had enjoyed greater reproductive success than those in the Gulf of California did in the years before they were measured, such that the ratio of juveniles to adult females was higher in the one area than the other, the average size being correspondingly lower.

WEG failed to even reference these plausible explanations and, instead, concentrated on a

¹⁰² Jaquet *et al.* 2006, Figure 4.1.20.

¹⁰³ Jaquet *et al.* (2006) at 92.

¹⁰⁴ Jochens *et al.* (2008) at 276.

different explanation. Mate and Ortega-Ortiz (2008) had noted that the whales to which they had applied satellite tags tended to move parallel to the contours of the continental slope, thus remaining in an approximately constant depth of water. The tagging data contained hints that, had the scientists worked further from land, they would have encountered different social units of whales that also move parallel to contours - but deeper ones. Hence, Jochens, *et al.* (2008), suggested that “it is possible that the population studied is smaller because smaller animals may prefer the shallower waters relative to their diving ability and/or availability of suitable prey.”¹⁰⁵

In short, had the scientists worked further from land, where the water was deeper, they would have observed different whales, and those might have been larger individuals, because the whales may assort themselves by water depths to match their body sizes. Jochens *et al.* (2008) noted that identifying the causes of the observed size difference required further study.¹⁰⁶ We agree. However, even if GoM whales are 1.5 to 2.0 m smaller on average than other populations of sperm whale, such a modest difference is not sufficient to demonstrate that the GoM population is “markedly separated” from other sperm whale populations.

d. Vocalization and Group Behavior Differences Are Not Marked Distinctions

WEG’s other claims for marked separation of a GoM sperm whale population segment have even less merit. They declare, with scant support, that “[t]he whales in the Gulf have a different repertoire of vocalizations than other sperm whales,” and that “acoustic recordings of coda vocalizations indicate that the mixed groups in the northern Gulf of Mexico belong to an acoustic clan that is rarely encountered in other areas and, from this, it is inferred that groups from other clans enter the northern Gulf of Mexico only infrequently.”¹⁰⁷ WEG further avers that, “there may be a different acoustic clan in the western Gulf and so far, none of the animals photo-identified in the core study area of the north central Gulf have been matched to photo-ID images from the northwest Gulf.”¹⁰⁸

Genetic research has shown, with much greater reliability, that social units from outside the GoM are unlikely to be found offshore the Mississippi delta, yet satellite tagging has shown that units with home ranges there do swim west, while those usually found in the northwest GoM sometimes go east to the Mississippi area. In any case, sperm whale codas are known to vary spatially over distances of hundreds of kilometers.¹⁰⁹ Given the observed sizes of sperm whale home ranges in the GoM and elsewhere, the existence of multiple acoustic clans is fully consistent with expectations and adds no additional information. Sperm whale populations all over the world have nuanced local vocalization patterns. That the GoM population does so as well is evidence of marked similarity – not a marked separation from other populations.

¹⁰⁵ Jochens *et al.* (2008) at 276.

¹⁰⁶ Jochens *et al.* (2008) at 276.

¹⁰⁷ WEG Petition at 8.

¹⁰⁸ *Id.*

¹⁰⁹ Rendell & Whitehead (2005) Spatial and temporal variation in sperm whale coda vocalizations: stable usage and local dialects. *Animal Behavior* vol. 70, pp. 191-198.

WEG also suggests that the tendency for sperm whale “groups” (collections of associated social units) in the GoM to have fewer members than those in some other regions is evidence for marked separation.¹¹⁰ WEG actually draws a comparison with the behavior of whales in the eastern Pacific, but the population in that ocean is known to have quite different social behavior than its conspecifics in the Atlantic.¹¹¹ It is altogether unsurprising that there exists functional separation between the eastern Pacific and Atlantic/GoM whales – the landmass of the Americas lies between. It is known, however, that both unit size and group size in the northern GoM are similar to those offshore Dominica, but smaller than are seen in some other areas.¹¹² The reasons for that difference, including whether it is a result of behavioral preference or demographics, remain matters for speculation. For group size, Jochens *et al.* (2008) offered no suggested explanations, just a warning that the available data set is small, with an implication that the estimate of group size is itself uncertain.¹¹³ However, even if GoM whales are shown to travel in smaller groups than other populations of sperm whale – and not just the Pacific population – such a difference is not sufficient to demonstrate that the GoM population is “markedly separated” from other sperm whale populations.

e. Summary of Separation

There is no basis to suppose that the male sperm whales in the GoM are in any way separated from the males of the North Atlantic. To the contrary, there is strong genetic evidence that the males mix freely, breeding with females wherever they can be found. The results of the SWSS tagging studies also confirm that male sperm whales from the GoM travel into the Atlantic north of the Florida peninsula.

While there are modest genetic differences in mtDNA from sperm whales within the GoM and those without, they are not evidence of any separation in the female component of the population. Rather, the entire Atlantic range of female sperm whales, from Europe to Mexico, comprise a mosaic of social units and groups of social units, the members of each being subtly different (in mtDNA, in individual sizes, in coda vocalizations and more), but tied together through the genetic contributions of highly-migratory breeding males.

Whenever a population is arbitrarily divided for study, samples taken from either side of the dividing line are apt to show differences, but the mere existence of differences does not always indicate separation. The degree of distinction of the females in the GoM is a common one. Population structures showing limited mobility of individuals, living in restricted but partially overlapping home ranges, within very much larger, continuous ranges of the species in question are very common throughout the animal kingdom.

WEG has not provided any evidence that sperm whales in the GoM are markedly separate from any other sperm whale population. Indeed, the overwhelming body of data available to NMFS suggests that sperm whales in the GoM are genetically, physiologically,

¹¹⁰ WEG Petition at 8 & 9.

¹¹¹ Whitehead *et al.* 2012.

¹¹² Whitehead *et al.* 2012.

¹¹³ Jochens *et al.* (2008) at 276.

ecologically, and behaviorally linked to all of the other sperm whales in the worldwide population, save those in the Mediterranean Sea.

iii. *There are No Meaningful Differences in Conservation Status
In or Conservation Measures Among GoM Nations*

As discussed above, sperm whales in the GoM are not markedly separated from the Atlantic or other populations. As such, sperm whales in the GoM can only be “discrete” if there are differences in “control of exploitation, management of habitat, conservation status, or regulatory mechanisms” among GoM nations or in international waters of the GoM “that are significant in light of section 4(a)(1)(D) of the Act.”¹¹⁴ There are no such differences. Sperm whales move freely throughout the GoM and benefit from meaningful conservation measures and protections regardless of the jurisdiction in which they are present.

a. *There Are No Differences in Sperm Whale Conservation Status
Throughout the GoM*

The DPS Policy does not define the term “conservation status,” but that phrase has been subsequently interpreted by the listing agencies (and upheld in court) to mean “the number of individuals left in the population.”¹¹⁵ Therefore, for there to be a difference in the conservation status of sperm whale in the GoM, there would need to be some evidence that sperm whale abundance in the GoM differs by jurisdiction. As explained at length above, while the lack of systematic survey data in Mexican and Cuban waters prohibits an apples-to-apples comparison to abundance estimates for the U.S. EEZ, readily available information about the structure of the GoM and sperm whale behavior suggests that sperm whale abundance in the GoM is fairly uniform.

The GoM is connected to the North Atlantic Ocean, via the Straits of Florida, and to Caribbean Sea, via the Yucatan Channel. Within the GoM, however, there are no barriers to sperm whale movement. While the U.S., Cuba, and Mexico each have shallow, near-coastal waters that are not suitable for sperm whales, each jurisdiction also contains continental shelf and deep water habitats that are well suited for sperm whales.¹¹⁶ Not only are Mexican and Cuban waters similarly suited for sperm whales, they are actually known to contain sperm whales.¹¹⁷ Indeed, as NMFS acknowledges, “sperm whales almost certainly occur throughout

¹¹⁴ 61 Fed. Reg. at 4725.

¹¹⁵ *National Ass’n of Home Builders v. Norton*, 340 F.3d 835, 843 (9th Cir. 2003).

¹¹⁶ Fulling, G.L., K.D. Mullin and C.W. Hubard 2003. Abundance and distribution of cetaceans in outer continental shelf waters of the U.S. Gulf of Mexico. *Fish. Bull.* 101: 923-932; Mullin, K.D. and G.L. Fulling 2004. Abundance of cetaceans in the oceanic northern Gulf of Mexico. *Mar. Mamm. Sci.* 20(4): 787-807.

¹¹⁷ See e.g., Jefferson, T. A. and A. J. Schiro. 1997. Distribution of cetaceans in the offshore Gulf of Mexico. *Mammal Rev.* 27(1): 27-50; Ortega Ortiz, J.G. 2002. Multiscale analysis of cetacean distribution in the Gulf of Mexico. Ph.D. thesis. Texas A&M University. 170 pp.

the oceanic Gulf of Mexico ... which is also composed of waters belonging to Mexico and Cuba
...¹¹⁸
....

As discussed above, while some maternal units could conceivably persist for their entire lives within the jurisdiction of a single GoM state, many more social units will straddle jurisdictions to avail themselves of the equally suitable habitat those jurisdictions provide. Large migratory males are just as likely to visit maternal units in U.S. waters as they are Cuban or Mexican waters. Additionally, while females typically exhibit site fidelity, the tagging data referenced above do show “a range of movement patterns within the Gulf, including movement into the southern Gulf in a few cases”¹¹⁹

As such, there is no evidence of differences in conservation status (abundance) between and among the GoM states. To the contrary, there are no barriers that could lead to such disproportionate abundance, no lack of suitable sperm whale habitat in each jurisdiction, ample evidence sperm whales exist in each jurisdiction, and, in fact, evidence that sperm whales straddle and move between and among the GoM states. Therefore, there is no information to suggest that conservations status among GoM states is, in any way different, much less significantly so.

b. There Are No Significant Differences in Regulatory Protections Among the GoM States

Discreteness can also be demonstrated by significant differences in regulatory protections between or among the states that delimit the supposed population. While differences in sovereign states’ regulations will almost always exist as a consequence of those countries’ different regulatory and legislative processes, forms of government, and separations of power, the DPS policy requires that those differences be significant.¹²⁰ In this case, that significance cannot be demonstrated. To the contrary, Cuba, Mexico, and the U.S. take similar approaches to the protections that matter most for the sperm whale.

Most importantly, the U.S., Mexico, and Cuba all prohibit the hunting and harvesting of sperm whales in accordance with the IWC ban. This prohibition is significant because commercial whaling was, far and away, the largest threat faced by sperm whale.

Additionally, the U.S., Mexico, and Cuba are all members of CITES, and none of these nations have exercised their right to enter a reservation as to sperm whales.¹²¹ As such, no sperm

¹¹⁸ 2012 Stock Assessment at 112 (citing Jefferson, T.A., M.A. Webber and R.L. Pitman. 2008. Marine mammals of the world. Academic Press, London. 573 pp.).

¹¹⁹ *Id.*

¹²⁰ In the “Three-State Murrelet DPS,” FWS noted differences between the ESA and Canada’s Species at Risk Act, but found that those differences were not significant because they both provided protections to the species. FWS, Status Review, *quoted in* Petition to Delist California/Oregon/Washington Distinct Population Segment of Marbled Murrelet (*Brachyramphus marmoratus*), 5 (May 2008), *available at* <http://www.fws.gov/pacific/ecoservices/pdf/murrelet/MM%20Delisting%20Petition%205-28-08.pdf>.

¹²¹ *See* <http://www.cites.org/eng/disc/parties/alphabet.php>; <http://www.cites.org/eng/app/reserve.php>.

whale present in GoM is subject to international trade by any of these nations. Further still, in addition to protecting sperm whale collectively through international agreement,¹²² each GoM state protects sperm whale under their own domestic law.

For instance, Mexico's strongest environmental laws are those protecting marine mammals and sea turtles.¹²³ Mexico has a comprehensive, federally-managed marine mammal protection and marine habitat conservation program (including authority, which it has exercised, to designate marine protected areas).¹²⁴ Like the U.S., Mexican authorities regulate the offshore oil and gas industry, including imposing restrictions on activities that impact marine mammals, and have a comprehensive oil spill prevention and response program.¹²⁵

At the trilateral level, in 2009, Mexico, the U.S., and Canada negotiated and enacted a Memorandum of Understanding ("MOU") on Cooperation for Wilderness Conservation. Even prior to this MOU, NMFS and its counterparts in Mexico's Ministry of the Environment and Natural Resources and National Commission of Aquaculture and Fisheries ("CONAPESCA") have long worked together under the United States-Mexico Fisheries Cooperation Program. "NMFS and CONAPESCA organize meetings for relevant agencies to discuss issues related to conservation, management, marine mammals and endangered species, information sharing and cooperative research, and other matters."¹²⁶

No similar agreements exist with Cuba, but NMFS does collaborate with Cuba on marine mammal protection issues in the GoM.¹²⁷ Cuba also partners with environmental non-governmental organizations ("ENGOS") to develop marine protected areas.¹²⁸ Most importantly, Cuba provides strong and well-recognized protections to marine mammals, the marine environment, and endangered species.

Cuba has demonstrated a serious commitment to the environment since the 1990s. In 1995, Cuba's National Assembly created the Ministry of Science,

¹²² These include, *inter alia*, the Convention for the Protection and Development of the Marine Environment in the Wider Caribbean Region, to which all three nations have acceded. Additionally, the U.S. and Cuba have both ratified the Protocol Concerning Specially Protected Areas and Wildlife in the Wider Caribbean Region ("SPAW") (Nov. 17, 2000) (Mexico has signed, but not yet ratified SPAW). See UNEP Caribbean Environment Programme, at <http://www.cep.unep.org/cartagena-convention>. Mexico and Cuba, but not the U.S., are parties to the Convention on Biological Diversity. See <http://www.cbd.int/convention/parties/list/>.

¹²³ See generally Environmental Law Institute & Centro Mexicano de Derecho Ambiental, *Gulf Of Mexico Habitat Conservation & Restoration: Comparing The Mexican & United States Legal & Institutional Frameworks (July 2011)*, (available at http://www.gulfmex.org/wp-content/uploads/2011/04/HCRT_comparing_mex_us_legal_frameworks.pdf).

¹²⁴ *Id.* at 35-36.

¹²⁵ *Id.* at 26-29.

¹²⁶ *Id.* at 19.

¹²⁷ NMFS, International Marine Mammal Action Plan 2012-2016, at 40 (Oct. 2012), available at <http://www.nmfs.noaa.gov/ia/reports/immmap.pdf>.

¹²⁸ See, e.g., EDF, The National System of Marine Protected Areas in Cuba, available at http://www.edf.org/sites/default/files/3692_mpasCubaIngles.pdf.

Technology and the Environment (CITMA). In 1997, the National Assembly adopted Law 81, a statutory framework for protecting the environment bottom trawling on its entire continental shelf. It has also vowed to protect 25 percent of their coastal waters as marine parks or reserves, and is on track to accomplish that objective.

According to one environmental leader, Cuba has built up an impressive array of environmental policies, some based on U.S. and Spanish law.¹²⁹

In accordance with its duties under SPAW, Cuba has adopted implementing legislation to protect endangered species generally, and marine mammals, in particular.¹³⁰ In fact, in 2011, the Ministry of Science, Technology, and Environment strengthened Cuba's endangered species regulations.¹³¹ Cuban Law 81 also provides for a thorough NEPA-like environmental planning and review process.¹³²

Finally, though far from least, Cuba is an active partner with ENGOS, such as EDF,¹³³ and a participant in multilateral groups addressing issues relating to protection of the marine environment and marine species. For instance, Cuba is a member of the Tri-National Initiative on Marine Sciences and Conservation in the Gulf of Mexico and Western Caribbean, an organization comprised primarily of scientists from the U.S., Mexico, and Cuba. The Tri-National Initiative's objective is to foster "ongoing joint scientific research and to develop a regional plan of action designed to preserve and protect our surrounding and shared waters and marine habitats."¹³⁴ At its 2010 annual meeting in which NOAA was a participant, one of the initiatives adopted was to provide Cuban and Mexican researchers needed "methods and protocols for marine mammal research and monitoring."¹³⁵ Cuba has earned praise from environmentalists for its environmental efforts.¹³⁶

¹²⁹ Center for Democracy in the Americas, *As Cuba plans to drill in the Gulf of Mexico, U.S. policy poses needless risks to our national interest*, 20-21 (2011), available at http://www.democracyinamericas.org/pdfs/Cuba_Drilling_and_US_Policy.pdf.

¹³⁰ See Cuban Law No. 81, Law of the Environment Arts. 85, 87(f), 116 (July 11, 1997); see also Law 33 § 5 (Feb. 12, 1981); Caribbean Environment Programme, 2008 Action Plan for the Conservation of Marine Mammals in the Wider Caribbean Region, available at <http://www.cep.unep.org/about-cep/spaw/>. Article 51 of Cuba's Decree Law 164, "Regulation of Fishing" (May 28, 1996), also provides penalties for taken of threatened and endangered marine animals.

¹³¹ Resolution No. 160/2011, "Rules for the protection and control of the Species of especial signification for the Biological Diversity in the country" 723 Gaceta Oficial No. 26 (Aug. 4, 2011).

¹³² Law 81, Chapt. IV.

¹³³ See EDF, *Bridging the Gulf: Finding Common Ground on Environmental and Safety Preparedness for Offshore Oil and Gas in Cuba* (2012), available at http://www.edf.org/sites/default/files/EDF-Bridging_the_Gulf-2012.pdf.

¹³⁴ <http://www.trinationalinitiative.org/en/about>.

¹³⁵ "Trinational Initiative Leads to New Plan of Action" (Sept. 30, 2010), available at <http://mote.org/index.php?src=news&refno=411&category=Newsroom>.

¹³⁶ Rachel Cernansky, "Why Cuba's Sustainability is Not an Accident," at <http://www.treehugger.com/environmental-policy/why-cuba-sustainability-not-accident.html>.

In summary, while differences in the GoM states' regulatory policies are necessarily different, they are not significantly different. Each country prohibits the gravest threat to the sperm whale, each is a member of CITES, and each takes steps under their own domestic law, and through bilateral agreements, to protect marine mammals like the sperm whale.

3. The GoM Stock is Not Significant

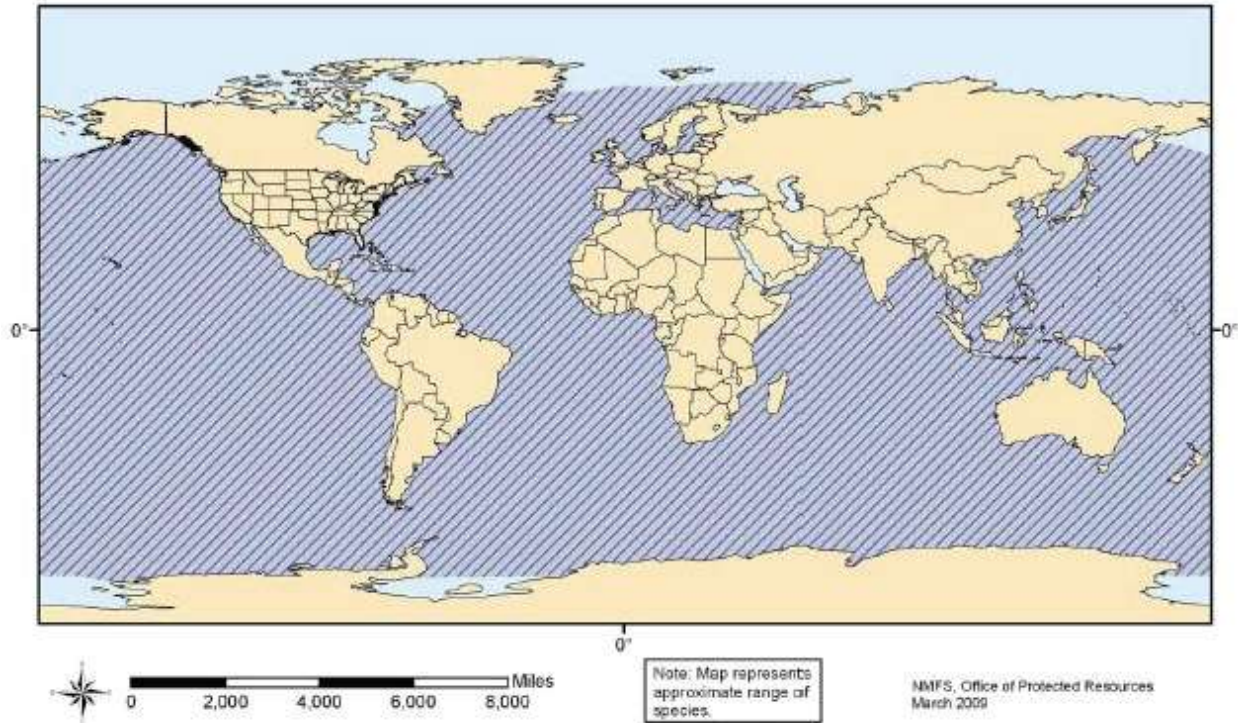
Because Congress admonished that DPS designation be used “sparingly,” even where a population could be considered distinct, it cannot be treated as a DPS unless the discrete population is important to the taxon as a whole.¹³⁷ This “significance” consideration is important as listing agencies applying the DPS policy have found several species to be distinct, but did not classify them as DPS because they were not important to the taxon as a whole.¹³⁸ While, as discussed above, the Associations believe there to be insufficient evidence that sperm whales in the GoM are distinct, there is even less evidence that the minor distinctions attributed to whales in the GoM, to the extent they exist at all, are in any way significant. Each of the DPS Policy’s indicia of “significance” is discussed in detail below.

i. The GoM is Not a Unique or Unusual Setting for Sperm Whales

Under the DPS Policy, a population segment may be considered to have a “significant distinction” if the population persists in “an ecological setting that is unusual or unique for the taxon.” But there is nothing unusual or unique about the ecology of the GoM. Sperm whales are highly adaptable, widely distributed, and often wide-ranging, animals. As NMFS’s distribution map makes apparent, sperm whales are present in every ocean, every gulf, and accessible deep-water sea between 60° N and 60° S, including the GoM.

¹³⁷ 61 Fed. Reg. 4725.

¹³⁸ See e.g., 67 Fed. Reg. 44133 (Jul. 1, 2002); 68 Fed. Reg. 11574 (Mar. 11, 2003); 68 Fed. Reg. 34628 (Jun 10, 2003); 77 Fed. Reg. 25792 (May 1, 2012).



Sperm whales are present in the GoM for the same reason they are present in every other ocean, gulf, and sea between the poles – the GoM provides the water temperature, water depth, subsurface topography and prey species that sperm whales prefer.

WEG’s petition struggled mightily, and failed, to find some unique aspect of the GoM on which to base its case for significance. Instead, the petition simply cited an introductory remark, drawn from the abstract of a published appendix, to the effect that the GoM has “a unique bathymetry, hydrography, and productivity.”¹³⁹ We agree. Every body of water is unique in some way. The proper inquiry under the DPS policy, however, is whether the “unique” ecology of the GoM is significant to the taxon as a whole.¹⁴⁰ WEG skirts that inquiry and, instead attempts to make a case that “[s]perm whales also contribute in important ways to the Gulf ecosystem.”¹⁴¹ Again, however, NMFS, rejected arguments of regional significance when it declined to designate the southern resident population of killer whale as a DPS.¹⁴²

¹³⁹ WEG petition at 10. WEG further suggested that the GoM is unusual in being a region where sperm whales occur close to shore. Were that true, it might make the Gulf special for humans wishing to watch the whales but the proximity of land to the water depths that suit the whales is almost certainly a secondary consideration for them. Those depths may be found over a mid-ocean seamount, the slopes close to the shore of an oceanic island (examples being Kaikoura, New Zealand, and Dominica), or along the continental slope some tens of kilometers seaward of the mainland – as is the case in the GoM. There is nothing unusual in their distance from shore in that latter area. It is closer than seen in some other places but much further than in many more. *Id.*

¹⁴⁰ 71 Fed. Reg. at 4723; *see also* 77 Fed. Reg. at 25806.

¹⁴¹ WEG Petition at 10.

¹⁴² 67 Fed. Reg. 44133.

In order for a unique ecology to be of significance to the taxon as a whole, the DPS Policy and subsequent listing agency decisions interpreting it require an evaluation of: (1) whether the species is adapted to the unique ecology in a way that is significant to the taxon as a whole; (2) whether other populations of the species could persist in the ecological setting.¹⁴³

WEG offers as evidence of adaptation that sperm whales in the GoM may be smaller than other populations and that they feed (or at least were tagged) in shallower waters.¹⁴⁴ As discussed above, there is no reason to suppose that the smaller size of GoM sperm whales, even if it should prove to be real, is adaptive. Indeed, the lack of detectable differences in nuclear DNA between the whales in the GoM and those across the North Atlantic suggests an absence of genetic isolation, which would severely curtail, if not entirely prevent, local adaptations.

Even if such differences existed (which they do not), and even if they were properly considered “adaptations” (which they are not), they would still not be significant to the taxon as a whole because “the particular variations ... do not make the population more ecologically or biologically important than any other individual population.”¹⁴⁵ As listing agencies have found in other DPS determinations, the DPS Policy sets a high hurdle.

For instance, FWS found that the Sonoran Desert population of the bald eagle did not exist in a unique ecological setting despite the fact that bald eagles typically chose habitat near water and despite evidence of adaptation in: (1) bird size; (2) nest location; (3) egg structure; (4) migratory patterns; (5) breeding times; and (6) food sources.¹⁴⁶ FWS reasoned that the existence of variations alone (which are inherent in all widespread species) do not make any population more ecologically or biologically important than any other.¹⁴⁷

Variations in GoM whales (to the extent they exist at all) are far smaller and less numerous than those found insignificant in the Sonoran Desert bald eagle – likely because the GoM is highly ecologically similar to the Atlantic and all other sperm whale habitat. The GoM is so similar to other waters that other whales (without any known specific “adaptations”) can and do move freely to and from the GoM.

The GoM is not a distinguishable ecological setting for the sperm whale in any way, much less a significant way. Sperm whales in the GoM have not adapted to the GoM in any significant way, nor would such adaptations (to the extent they exist at all) make them the only population suited for the GoM. Therefore, the GoM is not an unusual or unique ecological setting for the sperm whale.

¹⁴³ 77 Fed. Reg. at 25806.

¹⁴⁴ WEG Petition at 10-11. Again, as discussed above, the SWSS Report indicates that there may be other groups of sperm whales in deeper waters. However, there have been no tagging efforts at these depths.

¹⁴⁵ 77 Fed. Reg. at 25808.

¹⁴⁶ *Id.* at 25806-25808.

¹⁴⁷ *Id.* at 25808.

ii. *Loss of GoM Stock Would Not Result in a Significant Gap in the Range of the Taxon*

Under the DPS Policy, a population segment may be considered to have a “significant distinction” if loss of the discrete segment would result in a significant gap in the range of the taxon. Again, “significance” is measured relative to the taxon as a whole. In consideration of such, listing agencies examine: (1) the size of the population segment relative to the taxon as a whole; (2) the size of the population segment’s range relative to the range of the taxon as a whole; (3) the likelihood that other populations would immigrate and repopulate the extirpated range; (4) distinctive traits or genetic variations of the population segment; and (5) the role of the population segment’s range relative to the taxon as a whole.¹⁴⁸ As “distinctiveness” (or the lack thereof) is discussed numerous times throughout these comments, we only discuss elements 1, 2, 3, and 5 below.

Significance of Abundance and Range Size of GoM Sperm Whales¹⁴⁹: The size and population levels of sperm whales in the GoM are not significant to the species as a whole. NMFS estimates that there are 763 sperm whales in the northern GoM¹⁵⁰ and between 200,000 and 1,500,000 worldwide.¹⁵¹ At the low end of that estimate, the GoM whales constitute 0.39% $((763/200,000)*100)$ of the global population. At the high end, they constitute 0.05% $((763/1,500,000)*100)$. Consistent with listing agency analyses for the Sonoran Desert population of the bald Eagle and the Lower Kootenai River population of the burbot, such a miniscule percentage of global population could not be considered significant to the taxon as a whole.¹⁵²

Assuming for argument’s sake that the estimated abundance of sperm whales in the northern GoM do limit their range to the whole GoM, the GoM population’s range would be 1.5 million square kilometers, as delineated by the World Atlas.¹⁵³ If the worldwide population were only limited to the Pacific, Atlantic, and Indian Oceans, even excluding portions of the Arctic Ocean, Southern Ocean, and the Mediterranean Sea where sperm whales are known to inhabit, global range would total 300,875,000 square kilometers.¹⁵⁴ Sperm whale “range” in the GoM based on those assumptions would constitute 0.49% $((1,500,000/300,875,000)*100)$ of total global range. Such a small percentage of range is far below the significance thresholds that were

¹⁴⁸ *Id.* at 25809.

¹⁴⁹ As noted above, the abundance of sperm whales is far from certain. However, for purposes of making some comparison, we herein utilize NMFS’s estimates from the 2010 Recovery Plan.

¹⁵⁰ 2010 Recovery Plan at 1-1.

¹⁵¹ <http://www.nmfs.noaa.gov/pr/species/mammals/cetaceans/spermwhale.htm>

¹⁵² 77 Fed. Reg. at 25809; 68 Fed. Reg. at 11579.

¹⁵³ <http://www.worldatlas.com/aatlas/infopage/gulfofmexico.htm>. Visited on May 10, 2013.

¹⁵⁴ <http://www.worldatlas.com/aatlas/infopage/oceans.htm>. Visited on May 10, 2013.

used by listing agencies for the Washington population of the grey squirrel, the Sonoran Desert population of the bald eagle, and the Lower Kootenai River population of the burbot.¹⁵⁵

Likelihood of Immigration and Repopulation: If the GoM population of sperm whales were hypothetically extirpated, it is likely that the GoM would be repopulated through immigration through the Straits of Florida or the Yucatan Channel, provided that the ecosystem supporting the whales remained productive. In the GoM, each portion of the continental slope appears to have its own “resident” female units which largely remain within their home ranges, at least for months at a time and maybe for much longer. Should the whales ever be eliminated from one area, however, and local feeding opportunities improve with the removal of predation pressure, neighboring units should relocate to take advantage of the increasingly abundant prey. As the supposedly “resident” units in the GoM have been observed to undertake apparently-exploratory excursions, in one case of nearly 700 km within the first two months after tags were applied,¹⁵⁶ that process of re-colonization might occur more swiftly than the “resident” label would suggest.

Such elimination and re-colonization of the entire GoM will not occur, but, hypothetically, if it did, the new GoM population would most likely carry a different frequency of mtDNA haplotypes to those currently in the GoM. However, the potential source population in the Atlantic appears to carry the same haplotypes as occur in the GoM now (albeit in different relative frequencies), so little, if any, genetic information would likely be lost. The haplotype differences are, in any case, non-adaptive and hence a change in frequencies, while scientifically interesting, would have no biological or conservation significance. It is likely that any such re-colonization would be by social groups with slightly different coda vocalizations from those of the current “residents,” so any such loss would not be biologically significant. Finally, if the supposed observed difference in sperm whale sizes between the GoM and other waters is anything more than an artifact, it would be restored if local factors limit whale growth or survival. Unless it could be shown that such a size difference is adaptive despite the evidence of gene flow between the GoM and European waters, replacement of the GoM females would not involve any lasting loss of fitness.

An analogous situation arose with the Eastern North Pacific Southern Resident stock of killer whales,¹⁵⁷ which is a resident population that shares its range with a “distinct” migratory population.¹⁵⁸ NMFS held that immigration by the migratory population provided sufficient likelihood of repopulation that the “significant gap” element was not met.¹⁵⁹ Even where the listing agency had strong evidence that the extirpated range would not be repopulated, they determined that the loss of that portion of range is not meaningful unless it can be shown to

¹⁵⁵ 68 Fed. Reg. at 34637; 77 Fed. Reg. at 25809; 68 Fed. Reg. at 11579.

¹⁵⁶ Mate & Ortega-Ortiz (2008).

¹⁵⁷ See 67 Fed. Reg. 44133.

¹⁵⁸ *Id.* at 44135.

¹⁵⁹ *Id.* at 44137.

have a significant role for the taxon as a whole.¹⁶⁰ As explained in the following subsection, the GoM does not play a significant role for the worldwide sperm whale population.

Significance of Role of the GoM to the Sperm Whale: As discussed above, the GoM does not constitute a significant portion of sperm whale range, nor does it contain a significant population of sperm whale. As the GoM is accessible to, and actively being accessed by, contiguous sperm whale populations, GoM whales do not have any significant genetic or evolutionary distinction from the taxon as a whole.

Still, despite the absence of such factors, a specific population can be significant to the taxon as a whole if extirpation there caused other populations to be isolated from each other.¹⁶¹ That is not the case in the GoM, however. The GoM rests on the periphery of the Atlantic and, being semi-enclosed, provides no linkage or bridge, between two or more different sperm whale populations. Nor does the GoM provide exclusive feeding or breeding grounds for the taxon.¹⁶² The GoM is a small, peripheral, and largely indistinguishable part of the sperm whale's worldwide range. Consistent with the DPS policy, listing agencies have found such populations do not play significant roles for their overall taxon¹⁶³ and NMFS should make a similar finding here as well.

A hypothetical loss of sperm whale in the GoM would not significantly reduce sperm whale population, range, physical, genetic, or behavioral diversity, or the health, abundance, or diversity of contiguous populations. Indeed, it is highly likely that the GoM would be repopulated by migratory populations that are known to visit the GoM. As such, loss of the GoM population would not lead to a significant gap in the range of the sperm whale taxon.

iii. The GoM Population is Not the Only Surviving Natural Occurrence of the Sperm Whale

Under the DPS Policy, a population can be shown to be significant to the taxon as a whole if there is evidence that the population represents the only surviving natural occurrence of the taxon that may be more abundant elsewhere as an introduced population outside its historic range. WEG presented no evidence on this element, presumably because sperm whales have never been introduced anywhere.

Naturally occurring populations of the species inhabit every ocean, gulf and accessible deep water sea between 60° N and 60° S. The global population is relatively abundant and occupies the entire historic range of the species.

¹⁶⁰ 77 Fed. Reg. at 25809; 68 Fed. Reg. at 34637; 68 Fed. Reg. at 11578.

¹⁶¹ 61 Fed. Reg. at 4724; *see also* 62 Fed. Reg. 10730 (Mar. 10, 1997).

¹⁶² 77 Fed. Reg. 25809.

¹⁶³ For example, in response to the petition to list the Washington population of the Western grey squirrel as a DPS, FWS found that even if all grey squirrel were extirpated from the entire state of Washington, such a gap would not be significant because they could not show that the Washington population had any biological or ecological significance to the overall taxon. 68 Fed. Reg. at 34637.

iv. *GOM Stock Does Not Differ Markedly from Other Populations*

The final grounds for deeming a distinct segment to be “significant,” among those suggested in the DPS Policy, is that it “differs markedly from other populations of the species in its genetic characteristics.” Importantly, this requirement presents an even higher hurdle than the “marked separation” standard in the DPS Policy’s “discreteness” analysis because here, the genetic differences not only have to be “markedly different,” but those marked differences have to be significant to the taxon as a whole.¹⁶⁴

As discussed above, “biparentally inherited nuclear DNA showed no significant difference between whales sampled in the Gulf and those from the other areas of the North Atlantic.”¹⁶⁵ In reality, the only known genetic difference between the whales in the GoM and those in the open Atlantic is a difference in the relative frequencies of mtDNA haplotypes. Those are non-adaptive and merely serve as markers of the different selection of matrilineal lines of descent in various areas. Far from differing “markedly,” the nuclear DNA of the whales in the GoM and the open Atlantic is essentially indistinguishable.

Even if the modest differences in the relative frequencies of mtDNA haplotypes were considered “markedly different,” those differences could not be considered significant to the taxon as a whole. In the DPS analysis for the Lower Kootenai River burbot (as in the present case), the sampled populations showed some differences in haplotype frequency; however, the listing agency found that such differences did “not indicate that genetic differentiation of this population segment is significant to the remainder of the population.”¹⁶⁶ Instead, the Service concluded that “the genetic difference that is presented in the studies is nothing more than what would be expected from such a wide-ranging species.”¹⁶⁷ Notably, the sperm whale is an even wider ranging species with even fewer genetic differences, strongly suggesting that any genetic differences exhibited by sperm whales in the GoM are not significant to the taxon as a whole. Further, in the DPS analysis for the Washington population of the grey squirrel, the listing service found that the genetic differences were not significant because the haplotypes in different segments show similarities.¹⁶⁸ For sperm whales, the haplotypes are not only similar, they are exactly the same save for one (haplotype y).¹⁶⁹ As such, NMFS cannot find GoM sperm whales’ modest differences in the relative frequencies of mtDNA haplotypes to be significant to the taxon as a whole.

D. Critical Habitat

1. WEG’s Petition For Designation of Critical Habitat is Impermissible

¹⁶⁴ 77 Fed. Reg. at 25809.

¹⁶⁵ WEG Petition at 13.

¹⁶⁶ 68 Fed. Reg. at 11578.

¹⁶⁷ *Id.* at 11578.

¹⁶⁸ *Id.* at 34639.

¹⁶⁹ Engelhaupt *et al.* 2009

Without citation to legal authority or any attempt to delimit or describe critical habitat for GoM sperm whales, WEG “request[s] designation of critical habitat concurrent with listing to help ensure survival of the population.”¹⁷⁰ This request is inappropriate and unauthorized by the ESA.

Section 4 of the ESA provides for only two types of petitions: Those seeking to list, reclassify, or delist species, and those to *revise* critical habitat.¹⁷¹ As the Services’ ESA Petition Management Guidance notes: “Although emergency listing or concurrent designation of critical habitat are frequently requested by petitioners, they are not subject to the ESA’s petition provisions.”¹⁷² Designation, or not, of critical habitat is fully committed to NMFS’s discretion, which is charged with deciding whether such a determination is “prudent and determinable.”¹⁷³

In the present case, this portion of the petition should be rejected out of hand for its inconsistency with the law and agency policy. Further, as shown below, the designation of critical habitat for sperm whales in the GoM is neither “determinable,” nor likely warranted under the ESA’s cost-benefit analysis for critical habitat designations.

2. Critical Habitat Is Not Determinable

Critical habitat is defined as “specific areas within the geographical area occupied by the species at the time of listing, if they contain physical or biological features essential to conservation, and those features may require special management considerations for protection” and “specific areas outside the geographical area occupied by the species if the agency determines that the area itself is essential for conservation.”¹⁷⁴ Critical habitat can only be designated to the extent it is “prudent and determinable.”¹⁷⁵ Indeed, courts have held that “the correct regulatory response when critical habitat is indeterminable due to lack of data is to refrain from designation.”¹⁷⁶

Under ESA regulations, a designation of critical habitat is “not determinable” when either “information sufficient to perform required analyses of the impacts of the designation is lacking, or [t]he biological needs of the species are not sufficiently well known to permit identification of an area as critical habitat.”¹⁷⁷ Both of these situations are relevant here, particularly with respect to sperm whales in the GoM.

¹⁷⁰ WEG Petition at 33.

¹⁷¹ 16 U.S.C. § 1533(b)(3)(A), (D)(i) (listing, delisting, and changes in listing status and modification, respectively).

¹⁷² NMFS/FWS, *Endangered Species Petition Management Guidance*, 3 (July 1996).

¹⁷³ 16 U.S.C. § 1533(a)(3)(A).

¹⁷⁴ 16 U.S.C. § 1533(5)(A)(i), (ii). NMFS is not required to designate critical habitat for species listed before 1978.¹⁷⁴ *Id.* § 1532(5)(B); *Conserv. of SW Florida v. US Fish & Wildlife Serv.*, 677 F. 3d 1073, 1079 (11th Cir. 2012).

¹⁷⁵ 16 U.S.C. § 1533(a)(3).

¹⁷⁶ *Cape Hatteras Access Pres. Alliance v. U.S. Dep’t of the Interior*, 344 F. Supp. 2d 108 (D.D.C. 2004) (citing 50 C.F.R. § 424.12(a)(2)(i)-(ii)).

¹⁷⁷ *Id.* § (a)(2).

Specifically, there is a lack of understanding on several critical components of “those physical and biological features that are essential to the conservation of” sperm whales, “and that may require special management considerations or protection.”¹⁷⁸ In fact, one of the actions identified in the 2010 recovery plan for sperm whales as “needed to achieve recovery of sperm whales” is to “[i]dentify, characterize, protect, and monitor habitat important to sperm whale populations in U.S. waters and elsewhere.”¹⁷⁹

The need for further study of the habitat needs of sperm whales, not only in the GoM but in all U.S. waters, was highlighted in the 2010 Recovery Plan:

Habitat characterization also involves, among other things, descriptions of prey types, densities, and abundances, and of associated oceanographic and hydrographic features. Inter-annual variability in habitat characteristics, and in sperm whale habitat use, is an important component of habitat characterization. Researchers in many different areas have begun to explore the correlations between sperm whale occurrence and habitat features (Waring *et al.* 1993; Jaquet and Whitehead 1996; Jaquet *et al.* 1996, 1998; Davis *et al.* 1998; Hooker *et al.* 1998), but more research is needed to define rigorously and specifically, the environmental features that make an area important to sperm whales.... Only with information on the ecological needs of the species will managers be able to provide necessary protections.¹⁸⁰

Right now, the best scientific and commercial data suggests that even for those females that display some relative site fidelity, such as to the Mississippi Canyon or De Soto Canyon regions, there are not fixed habitat features that strongly correlate with sperm whale occurrences. As the SWSS Report noted, “movements of the females and most males in the Gulf of Mexico population studied are not migrations—routine seasonal movements that are repeated annually—but rather are more variable and possibly related to changes in food availability.”¹⁸¹ As the authors of the SWSS report observed, “whales seem to go where the food is.”¹⁸² Those locations change year-to-year, and even within a year.¹⁸³ Further, this (potentially annual) change in habitat is further complicated by a lack of understanding of sperm whale populations beyond the 1000-m isobath area in which the SWSS study was focused.¹⁸⁴ Finally, despite its critical

¹⁷⁸ *Id.* § (b).

¹⁷⁹ 2010 Recovery Plan at vii.

¹⁸⁰ 2010 Recovery Plan at IV-12.

¹⁸¹ SWSS Report at 273.

¹⁸² *Id.* at 281. Parenthetically, few of the species thought to constitute prey for these animals, primarily medium-sized and large squids (including but not limited to the giant squid, *Architeuthis dux*) and fish living at depths of several hundred meters and more, are subject to fishing effort. That said, very little is known about prey for GoM sperm whales. *See id.* at 282.

¹⁸³ *Id.*

¹⁸⁴ *Id.*

importance to the life cycle of the sperm whale, there is absolutely no information on breeding areas in the GoM.¹⁸⁵

Given NMFS's acknowledged uncertainty about sperm whale habitat and the utter lack of information on key habitat constituents for important life cycle activities such as breeding, critical habitat for sperm whales in the GoM is not determinable. In accordance with the ESA and the case law interpreting the ESA, the correct regulatory response is for NMFS to refrain from designation.¹⁸⁶

3. Costs of Designating Critical Habitat Likely Outweigh Benefits

While the petition is not warranted, nor, as mentioned above, is critical habitat determinable or properly the subject of a petition, should NMFS decide to designate critical habitat for the GoM stock, significant evaluation of economic impacts of the type of restrictions WEG envisions will be required.

The ESA provides:

The Secretary shall designate critical habitat, and make revisions thereto, under subsection (a)(3) of this section on the basis of the best scientific data available and after taking into consideration the economic impact ... of specifying any particular area as critical habitat. The Secretary may exclude any area from critical habitat if he determines that the benefits of such exclusion outweigh the benefits of specifying such area as part of the critical habitat, unless he determines, based on the best scientific and commercial data available, that the failure to designate such area as critical habitat will result in the extinction of the species concerned.¹⁸⁷

The requirement to conduct an economic impact assessment of the effects of a critical habitat designation is not discretionary – it is mandatory.¹⁸⁸ The costs in the economic impact assessment are weighed against the benefits of the critical habitat designation. With respect to the sperm whale, those benefits are, at best, marginal, because the oil and gas industry already operates under a very conservative set of rules designed to minimize the impacts of the oil and gas operations on sperm whales and other ESA and MMPA listed species. These include

¹⁸⁵ See, e.g., *id.* at 273 (“Other very fundamental information about sperm whale seasonality in this area, including the timing of mating and calving, remains unknown.”).

¹⁸⁶ We additionally strongly caution NMFS against extrapolating experiences from other similar species to identify appropriate Primary Constituent Elements (“PCE”) of GoM sperm whale habitat. Any decision as to whether a fully discretionary designation of critical habitat for this species is prudent and determinable should await the development of further information of the type noted as essential in both the 2010 Recovery Plan and by the researchers involved in the SWSS study.

¹⁸⁷ 16 U.S.C. § 1533(b)(2).

¹⁸⁸ See *Bennett v. Spear*, 520 U.S. 154, 172 (1997) (“[T]he fact that the Secretary’s ultimate decision is reviewable only for abuse of discretion does not alter the categorical requirement that, in arriving at his decision, he ‘tak[e] into consideration the economic impact, and any other relevant impact,’ and use ‘the best scientific data available.’”) (quoting 16 U.S.C. § 1533(b)(2)) (second alteration in original).

carefully crafted rules to protect sperm whales during seismic exploration operations,¹⁸⁹ as well as requirements for observers, vessel speed limits, activity exclusion zones, and other measures enacted by BOEM as part of its duties under the ESA and MMPA.¹⁹⁰

These rules will not be considered “benefits” against which to weigh the costs of the critical habitat designation because they are “baseline” economic impacts that have resulted from the 1970 decision to list sperm whales as endangered. This lack of “benefit” must then be weighed against the economic impacts of the critical habitat designation, which, as discussed further below, could potentially be very large.

i. Economic Impact of Designation Could Be Substantial

The scope and magnitude of the economic activity in the northern GoM are huge and mostly, but not exclusively, attributable to energy exploration and development. Currently, the GoM accounts for over a quarter of all U.S. domestic oil production, and the new five-year drilling program is expected to expand the economic benefits the industry already provides. For example, BOEM has determined that over a 40-year period, this new drilling plan will result in an *annual* “addition of between 20,025 and 51,825 jobs” and that “[b]etween \$1,050 million and \$2,180 million in income would be produced.”¹⁹¹

The following table, reproduced from a report prepared in 2011 by Quest Offshore Resources, Inc. for API and NOIA,¹⁹² shows the vast economic importance of this industry, both regionally and nationally:

¹⁸⁹ See Epperson, D. and Roden, R., Sperm whales and seismic activities: marine mammal observer data from the Gulf of Mexico, 2003-2006 (undated), *available at* http://www.boem.gov/BOEM-Newsroom/Speeches/071211_sperm_whale_epperson-pdf.aspx.

¹⁹⁰ BOEM, 2012-2017 OCS Oil and Gas Leasing Program Final Programmatic EIS (“OGLP PEIS”), B-10 (July 2012).). As NMFS is aware, under the Magnuson-Stevens Fishery Conservation and Management Act, all federal agencies, including BOEM, must consult with NMFS on federal actions that may adversely affect essential fish habitat (“EFH”). 16 U.S.C. § 1855(b)(2). As whales spend most of their time at or near the surface, diving deep to only to feed, the EFH consultation will ensure that any potential adverse impacts on habitat essential to fish stocks on which sperm whales may prey are considered in the oil and gas permitting process.

¹⁹¹ OGLP PEIS at 4-488.

¹⁹² Quest Offshore Resources, Inc., *United States Gulf of Mexico Oil and Natural Gas Industry Economic Impact Analysis: The Economic Impacts of GOM Oil and Natural Gas Development on the U.S. Economy*, i (June 2011), *available at* <http://www.api.org/~media/Files/Policy/Jobs/QuestGoMEconomicAnalysis7-11-2011.pdf>.

Table 1: Estimated Historical and Projected Capital and Operational Spending, GDP Impacts, and Employment¹ Supported by the Offshore Gulf of Mexico Oil and Natural Gas Industry (2008-2013)*

(\$billions)	Historical			Projected		
	2008	2009	2010	2011	2012	2013
Operating Expenditures	\$16.7	\$17.2	\$17.7	\$21.6	\$25.0	\$25.7
Capital Expenditures	\$11.9	\$9.7	\$6.5	\$8.9	\$10.4	\$15.7
GDP Impacts	\$30.8	\$29.1	\$26.1	\$32.9	\$38.2	\$44.5
Total Employment	306,870	285,042	242,317	311,023	356,174	429,208

*Projected spending, GDP, and employment contingent on returning to pre-Macondo permitting rates.

Source: Quest Offshore Resources, Inc.

These impacts are the result, not just of activities occurring on the water, but of the myriad shore-based businesses that offshore energy exploration and development support. These include everything from refineries and pipeline operations, metal superstructure and pipe fabricators, analysts, parts and goods suppliers to small-scale “mom-and-pop” marine transport companies. All told, some 72 percent of oil and gas companies’ spending and capital investments in 2010, or about \$17.5 billion, occurred in Texas, Louisiana, Mississippi, and Alabama.¹⁹³

While improper designation of critical habitat for sperm whales in the GoM will not “zero out” all the economic benefits of the offshore oil and gas industry in the GoM, it will trigger the need for consultation on all federally-permitted activities, such as the leasing program or routine amendments to federal fishery management plans, under Section 7 of the ESA to determine if the activity will result in “adverse modification of critical habitat.”¹⁹⁴ These determinations are particularly susceptible to legal challenge by ENGOs like the petitioner in this instance.¹⁹⁵ Both consultation and litigation will undoubtedly result in delay in future oil and gas development – and more litigation and permitting costs – with little or no added conservation benefit to sperm whales.

ii. Impacts on Small Business Need to be Carefully Considered

In addition to the required economic analysis under the ESA, the Regulatory Flexibility Act (“RFA”) also requires assessment of such impacts that disproportionately impact small businesses for actions, like a critical habitat designation, that require notice and comment under the Administrative Procedure Act (“APA”).¹⁹⁶ Within the oil and gas industry, numerous

¹⁹³ *Id.* at 8.

¹⁹⁴ 16 U.S.C. § 1536(a)(2), (4).

¹⁹⁵ See, e.g., *WildEarth Guardians v. Salazar*, 880 F. Supp. 2d 77 (D.D.C. 2012) (challenging a coal leasing program on critical habitat grounds, among others).

¹⁹⁶ 5 U.S.C. Chapt. 6.

businesses meet the Small Business Administration's ("SBA") size standards as small entities in their respective fields. These include firms operating offshore supply vessels, geophysical engineering firms, exploratory companies, and many others. Beyond this industry, fishermen, marine transportation companies, and others likewise qualify as small entities under SBA guidelines.

Similarly, in his memorandum of January 18, 2011, on Regulatory Flexibility, Small Business and Job Creation, President Obama declared that his "Administration is firmly committed to eliminating excessive and unjustified burdens on small businesses, and to ensuring that regulations are designed with careful consideration of their effects, including their cumulative effects, on small businesses."¹⁹⁷ This memorandum emphasized the importance of regulatory flexibility and the need for careful analysis and clear justifications of need in the rulemaking context. These considerations echoed the provisions of Executive Order 13563, Improving Regulation and Regulatory Review, which was issued the same day.¹⁹⁸ Executive Order 13563 provides that the regulatory system must "promote predictability and reduce uncertainty ... and take into account benefits and costs, both quantitative and qualitative."¹⁹⁹

The ESA, RFA, and Administration policy all require that economic impacts of the critical habitat inquiry, particularly on small business, be carefully considered and justified. In the context of the GoM oil and gas industry, these entities will likely suffer the most from projects delayed or forgone. As such, the resource agencies must fully and thoroughly assess the universe of impacted small entities and the impacts a sperm whale critical habitat designation will have on their operations. Under any reasonable assessment, the marginal benefits such designation will have for sperm whales in the GoM will not outweigh those impacts.

As NMFS's 5-Year Review of the sperm whale rebuilding program notes: "The effects of oil and gas exploration and other industrial activities are unknown, but are believed to represent a relatively low level of threat at the current abundance of sperm whales."²⁰⁰ In light of this finding, the long history of coexistence between this species and the oil and gas industry, and the fact that this largely pelagic marine mammal is not critically dependent on particular habitat features, we request that NMFS refrain from designating sperm whale critical habitat.

III. CONCLUSION

WEG's petition is not permitted under the ESA or its implementing regulations. Even if it were allowable, it would still be improper. Sperm whales in the GoM are not markedly separate from sperm whales elsewhere. Neither the GoM, nor the sperm whales therein, are significant to the taxon as a whole. WEG's petition presents no credible evidence to the contrary. Consistent with Congress's admonition, the DPS Policy, and the numerous listing

¹⁹⁷ 76 Fed. Reg. 3827, 3827 (Jan. 21, 2011).

¹⁹⁸ 76 Fed. Reg. 3821 (Jan. 21, 2011)

¹⁹⁹ *Id.* at 3821.

²⁰⁰ 5-Year Review at 19.

agency DPS determinations made pursuant to that policy, NMFS must find that sperm whales in the GoM do not constitute a DPS.

WEG's allegations regarding alleged threats from the oil and gas industry are not supported, and, at any rate, are irreverent to the DPS analysis. WEG's request for designation of critical habitat is impermissible, misplaced, and premature.

The Associations appreciate the opportunity to provide comments on the proposed listing of the GoM sperm whales as a DPS. Should you have any questions on these comments, please contact Andy Radford, API, at radforda@api.org or by phone at 202.682.8584.

Sincerely,



Jeffery Vorberger, NOIA



Andy Radford, API



Dan Naatz, IPAA



Sarah Tsoflias, IAGC