

VIA EMAIL (pr1.alaskaeis@noaa.gov)

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Re: Seismic Surveys in the Beaufort and Chukchi Seas, Alaska – Draft Programmatic Environmental Impact Statement (OCS EIS/EA MMS 2007/001)

Gentlemen:

This letter provides the comments of the Alaska Oil and Gas Association (AOGA), the American Petroleum Institute (API) and the International Association of Geophysical Contractors (IAGC) in response to the Draft Programmatic Environmental Impact Statement (DPEIS) prepared by the Minerals Management Service (MMS) and the National Marine Fisheries Service (NMFS) regarding Seismic Surveys in the Beaufort and Chukchi Seas, Alaska (OCS EIS/EA MMS 2007/001). We sincerely appreciate this opportunity to provide comments and your consideration of our detailed submission.

Our members are long-standing and active participants in oil and gas exploration and development activities in Alaska. Among other activities, our members conducted seismic exploration programs in the Chukchi Sea OCS in 2006 and intend to conduct further seismic exploration in federal waters in the Chukchi and Beaufort Seas OCS area in 2007. We are committed to oil and gas exploration and development in the Alaska OCS for the long-term. Consistent with our direct and significant interests in the Alaska OCS region, in the past twelve months alone we have commented to MMS and NMFS in regard to MMS's 2007-2012 oil and gas leasing program in the OCS, MMS's Lease Sale 193 DEIS (Chukchi Sea), MMS's Lease Sale 202 EIS (Beaufort Sea), MMS's and NMFS's 2006 Programmatic Environmental Assessment (2006 PEA) for seismic surveys in the Beaufort and Chukchi Seas, and NMFS's NOI in advance of the current DPEIS.

The effects of seismic exploration in the Beaufort and Chukchi Seas, particularly with respect to the Bering-Chukchi-Beaufort Seas (BCB) population of bowhead whales, have now been the subject of numerous recent detailed analyses by MMS and NMFS. Each successive analysis, performed under the auspices of the Outer Continental Shelf Lands Act (OCSLA), the National Environmental Policy Act (NEPA), the Endangered Species Act (ESA), and the Marine Mammal Protection Act (MMPA), has comprehensively reviewed the available information regarding seismic impacts and the status of BCB Seas population, regarding which there has been essentially no change over the time period involved. What has changed in these analyses over time are: (i) increasingly unrealistic assumptions about the extent of expected survey activity (referred to in the DPEIS as the "foreseeable level of activity"), (ii) increased significance

accorded to speculative impacts for which there is no supporting data, (iii) decreased significance accorded to the highly credible scientific data demonstrating the continued health and growth of the BCB stock and the insignificant effects of seismic activity, (iv) decreased significance accorded to feasibility and practicability, and (v) increased stringency of proposed restrictions on seismic survey activity. Coupled with misperceptions of the underlying statutory standards, these trends have culminated in a worst-case scenario impacts analysis presented in the DPEIS, which stacks unreasonable assumptions one on top of another in efforts to support scientifically unwarranted and impracticable restrictions designed to mitigate highly improbable impacts. If MMS and NMFS proceed with regulatory actions premised upon the statutory misperceptions and speculative worst-case scenario effects analysis contained in the DPEIS, its decisions will likely be contrary to law.

Section I of this comment letter provides a summary of our comments. Section II provides the legal framework for the DPEIS's analysis, identifies the legal standards applicable to the MMS and NMFS decisions that the DPEIS is intended to inform, and explains how the DPEIS misapplies these standards resulting in a flawed effects analysis, which, in its present form, could not be used to support regulatory decisions under OCSLA and the MMPA. Section III addresses the flawed assumptions underlying the DPEIS and the resultant unlawful "worst case scenario" effects analysis, including the unreasonably high level of seismic activity mischaracterized as the "foreseeable level of effort." Section IV addresses the best available scientific data regarding the status of the BCB Seas bowhead whale stock and seismic impacts to this stock, and Section V addresses the feasibility problems with the monitoring requirements contained in many of the alternatives. Finally, Section VI provides our recommendations for mitigation measures that are feasible, fully protective of both marine mammal stocks and subsistence activities, and compliant with applicable law. Appendix A lists the literature cited in this comment letter, and Appendix B provides additional technical comments regarding the DPEIS's use of the available data.

I. SUMMARY OF COMMENTS

We share the interest of MMS and NMFS in ensuring the long-term survival and recovery of the BCB Seas bowhead whale population. We support monitoring and scientific data collection efforts that contribute to the ongoing successful recovery of the BCB stock. We also support voluntarily negotiated agreements with North Slope whalers to ensure that conflict between seismic activities and the subsistence hunt are avoided. We do not, however, support regulatory restrictions that would substantially burden or even preclude responsible development of OCS resources, particularly when such restrictions are not based on sound science and are without any demonstrable benefit to any species. Unfortunately, most of the proposed alternatives contained in the DPEIS contain just such restrictions – that is, measures which are burdensome yet unnecessary and scientifically unsupported, and based on an implausible "worst case scenario." It would be arbitrary and capricious to impose severe regulatory restrictions based on speculative impacts that are disproved by decades of data demonstrating that the BCB Seas population is healthy, growing, and resilient to current human disturbances.

- 1. The effects analysis performed in the DPEIS disregards regulatory standards applicable to MMS's and NMFS's proposed actions and is instead premised upon a***

compounding series of worst case assumptions resulting in conclusions that have no realistic link to the probable impacts of the proposed action or to OCSLA's and the MMPA's requirements.

The U.S. Supreme Court has expressly held that NEPA does not require a “worst case scenario” effects analysis. The MMPA, which provides the substantive authority for proposed action by NMFS, requires assessment of impacts that are “reasonably expected” and “reasonably likely” to adversely affect marine mammals at the population level. OCSLA, which provides the substantive authority for proposed action by MMS, establishes a clear mandate for expeditious exploration and development of the OCS, in which environmental impacts are balanced, but not treated equally with oil and gas discovery and in which human safety is paramount.

Despite these well-established legal principles, the DPEIS is comprised of an entirely unrealistic worst case analysis of theoretically possible yet improbable impacts. The level of seismic effort analyzed over the relevant time period is at least twice what is reasonable and expected. For 2007 alone, the DPEIS assumes there will be 12 concurrently operating seismic surveys, and yet it is known that there will be only one seismic survey conducted in each of the Chukchi and Beaufort Seas in 2007, and these surveys will not be concurrent. Moreover, the BCB Seas population of bowhead whales is assumed to be unrealistically low (the minimum estimate as of 2001, which has likely increased at an annual rate of at least 3.4% for six years), the amount of subsistence take is assumed to be the maximum legally allowed (more than twice the annual average, and 33 whales more than the maximum that has ever been taken), and the number of whales that might be removed from the population without adverse effects, after taking into account subsistence and commercial fishing impacts, is too small by a factor of 4 to 6. The effect of these unrealistic expectations is compounded by an analysis that gives weight to any “possible” adverse impact, however low the probability of such an impact actually occurring, on the ground that the agencies cannot dismiss the risk “with certainty.” *See, e.g.,* DPEIS at III-127 (“we have attempted to err on the side of overestimating potential effects”).

Ultimately, this flawed effects analysis forms the premise for scientifically unsupported and impracticable regulatory restrictions to mitigate impacts that “could” result from an inflated level of seismic effort on an unrealistically small population assumed to suffer an unrealistically high level of subsistence take. Use of this compounded worst-case scenario disregards decades of highly reliable data demonstrating that all human activity combined is having no detectable adverse impact on the BCB Seas population of bowhead whales. Accordingly, the DPEIS as currently written fails to satisfy NEPA, which requires an analysis of probable environmental impacts rather than of a hypothetical worst-case scenario. It also conflicts with the MMPA’s and OCSLA’s standards, as it does not assess the reasonably likely effects of seismic exploration on marine mammal populations.

2. Seismic surveys are not likely to have discernable adverse effects on the health, status, habitat, survival, or recovery of marine mammal stocks or on the use of such stocks for subsistence.

There is no evidence in the scientific literature to support statements in the DPEIS that imply possible population-level impacts from seismic activity. MMS and NMFS have acknowledged

that there have been no documented mortalities, physical injuries, or physiological effects on marine mammals from seismic surveys. The BCB Seas bowhead whale population has steadily increased before, during, and after substantial seismic exploration activities in the Chukchi and Beaufort Seas. MMS and NMFS have also acknowledged that all oil and gas activity on the North Slope of Alaska and in the adjacent OCS has had no detectable adverse population-level effects on the health, current status, habitat, or recovery of marine mammal stocks. The DPEIS's statements suggesting that population-level effects may occur unless burdensome new mitigation is imposed are contrary to the best available scientific evidence. The unlikelihood of population-level adverse effects from the proposed actions should be plainly stated as the most reasonable conclusion based on the best available data.

3. *Imposition of “safety” zones for seismic surveys at the 120 dB and 160 dB isopleths as mitigation conflicts with OCSLA and the MMPA, is unsafe and impracticable, and is unsupported by the best available scientific evidence.*

All available information demonstrates to a high degree of certainty that the BCB Seas bowhead whale population is steadily growing in size, is resilient to the level of mortality and human activity that are currently occurring due to subsistence hunting and other causes, and has surpassed the lower limit of the stock's original size before intensive commercial whaling. Imposition of 120 dB and 160 dB exclusion zones as mitigation measures for the benefit of bowhead whales cannot be reconciled with decades of data regarding the sustained health of the stock, presents significant and unwarranted safety risks, and is impracticable. NMFS and MMS have confirmed that the BCB Seas stock is adequately protected through use of a 180 dB exclusion zone (“NMFS and MMS believes the potential for any injuries to cetaceans from the proposed activity and Alternatives 3 through 8 is very limited.”). Imposing biologically unnecessary, unsafe, and infeasible mitigation requirements ultimately defeats the purposes of OCSLA and conflicts with the MMPA's requirements. The scientific and legal flaws with the 120 dB and 160 dB restrictions threaten both the feasibility and the legal sustainability of MMS's and NMFS's decisions.

4. *Marine mammals will be adequately protected without unspecified time or area restrictions.*

Alternative 8 in the DPEIS contains a new proposal for undefined time and/or area closures for the protection of bowhead whales. This proposal should not be adopted for several reasons. First, the proposal is so vague as not to provide a reasonable opportunity for evaluation or comment, and appears to confer virtually unfettered discretion on NMFS and MMS to impose restrictions on an ad hoc basis. Second, there is no scientific evidence suggesting that closures are needed to prevent adverse impacts or would provide any benefit whatsoever to migrating whales. Third, the proposed blackout dates would so severely constrain the timeframe during which Beaufort Sea seismic activity could occur that there may be no available free water period, or the period may be so short that undertaking the necessary costs and risks relative to the questionable limited potential for benefit is economically impracticable. This very circumstance occurred in 2006. In practical terms, for the Beaufort Sea, Alternative 8 is virtually equivalent to Alternative 1 (no action).

5. ***The proposed action, with reasonable and feasible mitigation measures, will have no discernable adverse impact on the marine environment.***

AOGA, API, IAGC and their members support adoption of Alternative 6 as the preferred alternative. Under Alternative 6, seismic action would be conducted subject to 180/190 dB exclusion zones for the protection of cetaceans and pinnipeds, which has been standard practice for many years and is of proven effectiveness. These measures will be accompanied by many other mandatory mitigation and monitoring measures, including the use of trained observers, specified protocols for shutdown and ramp up when animals enter the exclusion zone, sound source verification, aircraft altitude restrictions, acoustic monitoring for marine mammals, on-board Inupiat communicators, and plans of cooperation including dispute resolution protocols to avoid the subsistence hunt and to quickly resolve any conflicts that may arise. This level of protection is conservative and, based upon decades of scientific study and data, has been and is sufficient to provide reasonable assurance that (i) no more than a negligible impact to the BCB Seas bowhead whales is likely and (ii) there will be no unmitigable impact on the availability of this stock for subsistence uses. Moreover, unlike all other alternatives analyzed in the DPEIS, under Alternative 6, seismic exploration will remain a technically feasible, safe, and economically practicable activity as mandated by OCSLA.

II. THE DPEIS FAILS TO APPLY THE PROPER REGULATORY STANDARDS

It is well-established that NEPA is a procedural statute which does not impose any substantive mandates on federal agencies. NEPA outlines the decision-making process that agencies must engage in, but neither requires nor authorizes agencies to take any particular action.¹ The focus of NEPA's process is to ensure that federal agencies take a hard look at the probable environmental consequences of a proposed action and a reasonable range of feasible alternatives. While NEPA requires consideration of measures potentially available to mitigate the environmental effects of agency action, it does not require preparation of a formal mitigation plan and neither mandates nor authorizes implementation of any particular mitigation measures.² An agency decision made pursuant to the NEPA process must ultimately comply with the requirements of the statute that authorizes the agency's action in the first instance. Here, the applicable substantive standards are provided by the MMPA and OCSLA.

Because the purpose of the DPEIS is to inform decisions that must ultimately comply with the MMPA and OCSLA, it is critical that the DPEIS's analysis be informed by the substantive requirements set forth in those statutes. In order for NMFS and MMS to implement their Preferred Alternative through the MMPA and OCSLA regulatory processes, the alternative must satisfy the MMPA's and OCSLA's standards. As currently written, the DPEIS is flawed because its cursory discussion of the applicable substantive standards (pages I-1 to I-3) omits several

¹ See *Robertson v. Methow Valley Citizens Council*, 490 U.S. 322, 350-51 (1989) (“[I]t is now well-settled that NEPA itself does not mandate particular results, but simply prescribes the necessary process. . . . Other statutes may impose substantive environmental obligations on federal agencies, but NEPA merely prohibits uninformed – rather than unwise – agency action.”) (citations omitted).

² *Id.* at 333, 352.

important requirements. More significantly, the DPEIS fails to incorporate the relevant standards into its selection or evaluation of alternatives, resulting in an analysis that would not adequately support the intended regulatory actions, that is, NMFS's issuance of Incidental Harassment Authorizations (IHAs) under the MMPA and MMS's issuance of Geological and Geophysical permits (G&G permits) under OCSLA containing appropriate and lawful mitigation measures. A summary of the pertinent MMPA and OCSLA standards that must inform the DPEIS analysis are provided below. The DPEIS should be revised so that these standards are reflected throughout the document and are used to guide the identification of a preferred alternative.

A. The Marine Mammal Protection Act

The DPEIS correctly identifies the two primary statutory requirements that an IHA application must meet in order to obtain NMFS approval: NMFS must find that the proposed activity (1) "will have a negligible impact" on the affected species or stock, and (2) "will not have an unmitigable adverse impact on the availability of such species or stock for taking for subsistence uses." 16 U.S.C. § 1371(a)(5)(D)(i). The DPEIS fails, however, to discuss the regulatory standards that NMFS has formulated to implement these statutory mandates.

NMFS's regulations implementing the MMPA define "negligible impact" as:

an impact resulting from the specified activity that cannot be reasonably expected to, and is not reasonably likely to, adversely affect the species or stock through effects on annual rates of recruitment or survival.

50 C.F.R. § 216.103. In accordance with legislative history, NMFS has described this analysis as a balancing test, in which the agency evaluates the probability that potential impacts will occur and will result in adverse effects:

If potential effects of a specified activity are conjectural or speculative, a finding of negligible impact may be appropriate. A finding of negligible impact may also be appropriate if the probability of occurrence is low but the potential effects may be significant. In this case, the probability of occurrence of impacts must be balanced with the potential severity of harm to the species or stock when determining negligible impact.

53 Fed. Reg. 8,473, 8,478 (Mar. 15, 1988). Accordingly, in evaluating an IHA application, NMFS must analyze both the "probability of occurrence" and likelihood and degree of adverse population-level effects from the proposed activity.

NMFS must conduct this analysis of likely, population-level impacts "based upon the best available scientific evidence." 50 C.F.R. § 216.105(c); *see* 16 U.S.C. § 1371(a)(3)(A). The U.S. Supreme Court has interpreted the "best science" standard as intended to ensure that regulatory measures are based on sound science rather than "implemented haphazardly, on the basis of speculation and surmise."³ The Court has further described the "best science" standard as meant

³ *Bennett v. Spear*, 520 U.S. 154, 176-77 (1997).

to “avoid needless economic dislocation produced by agency official zealously but unintelligently pursuing their environmental objectives” and to “prevent uneconomic (because erroneous) . . . determinations.”⁴

The DPEIS as presently written could not provide a basis for regulatory action based on the above-mentioned standards, because it makes no effort to examine the “probability of occurrence” or “potential severity of harm” of any of the allegedly “potential” adverse effects from seismic activity discussed in the document. Instead, the DPEIS identifies a series of speculative impacts based on an entirely unrealistic worst-case scenario. For example, the DPEIS speculates that some unidentified level of concurrent seismic activity “could” result in some undefined and unquantified level of “biologically significant” effects on bowhead whales “if” the activity were to cause avoidance of feeding or resting areas. DPEIS at II-17; *id.* at III-118 (speculating that “if” cow/calf pairs or large whale aggregations avoid feeding or resting areas due to seismic surveys, this “could” disrupt important behaviors). Yet the DPEIS makes no effort to examine the actual likelihood that biologically significant disruptions will occur and provides no scientific evidence whatsoever suggesting that adverse effects on recruitment or survival are likely.

Instead, the DPEIS inverts the “reasonable likelihood” standard and appears to assert that any “potential” effects should be presumed to occur unless NMFS and MMS can “conclude with certainty” that they will not. *See id.* at II-19 (proposing to mitigate any effects that the agencies “cannot say with certainty” will not occur); *id.* at III-119, III-131. This patently un-scientific approach is completely at odds with both the “reasonable likelihood” and “best science” standards. As discussed further below, the available data on the BCB Seas stock, which has been described as “one of the best-studied large whale populations in the world,”⁵ demonstrates that adverse effects are highly unlikely, as the population has been growing at a healthy rate consistent with the theoretical maximum net productivity rate calculated by NMFS for the stock over many decades of seismic activity. The DPEIS’s discussion of hypothetical impacts that “could” happen “if,” based on a standard of “certainty,” cannot inform the question whether a proposed seismic program is “reasonably likely” to cause population-level adverse impacts on bowhead whales. Nor can it assist in formulating mitigation measures designed to avoid such impacts. Unless the DPEIS’s effects analysis is revised to distinguish between speculative and reasonably likely impacts, it cannot lawfully be used to select a mitigation alternative that complies with the MMPA.

An additional MMPA requirement acknowledged in the DPEIS yet not incorporated into the selection or evaluation of alternatives is that mitigation measures imposed by NMFS be *feasible*. Throughout the MMPA, Congress recognized the need for practical limitations on the Act’s prohibition against take and acknowledged the need to balance conservation with economic and technological feasibility. *E.g.*, 16 U.S.C. § 1361(b) (MMPA policy of protecting marine mammals “to the greatest extent feasible”); 16 U.S.C. § 1737(b)(5) (in prescribing regulations allowing take, NMFS must consider, *inter alia*, “economic and technological feasibility of

⁴ *Id.*

⁵ Letter from the Marine Mammal Commission to William T. Hogarth, NMFS, dated January 25, 2006, at 6.

implementation”); 16 U.S.C. § 1371(a)(5)(D)(ii)(I) (IHAs may contain “means of effecting the least practicable impact” on marine mammal stocks). Yet the DPEIS contains only the most cursory discussion of the serious safety and implementation problems associated with the 120/160 dB safety zones, a particularly notable failing given the previous attention devoted to this issue in the 2006 Alaska Federal District Court litigation challenging the 120/160 dB conditions.⁶ See Section V.F below. Indeed, the proposed alternatives do not even identify the type of monitoring that would be required, instead referring generally to some form of aerial or passive acoustic monitoring that will be determined at a later time. *E.g.*, DPEIS at IV-7 to IV-9. The DPEIS also fails to analyze the feasibility of the time and area closures contemplated by Alternative 8, an inevitable consequence of NMFS’s failure to identify the specific measures NMFS and MMS contemplate adopting. NMFS cannot avoid evaluating the feasibility of proposed mitigation by simply not disclosing or considering how the mitigation will be implemented. Because the MMPA requires that mitigation be feasible (and indeed common sense dictates that in order to be effective, a measure must be capable of implementation), the DPEIS must be revised to both clearly identify the proposed monitoring alternatives and thoroughly discuss their feasibility, including safety, availability and capability of equipment, impacts on the ability to collect seismic data, and costs.

Finally, NMFS’s guidance, acknowledged yet not incorporated into the DPEIS’s analysis, sets the threshold sound levels for when an activity is deemed to “harass” marine mammals, thereby bringing the activity within NMFS’s MMPA authority. These thresholds are 160 dB for level B harassment of all species, 180 dB for level A harassment of cetaceans, and 190 dB for level A harassment of pinnipeds. DPEIS at I-1 to I-2. Exposing marine mammals to sounds below 160 dB does not constitute “harassment” and does not violate the MMPA. Nevertheless, NMFS and MMS have included a number of alternatives that require mitigation designed to protect bowhead whales from sound levels well below the 160 db “harassment” threshold. These alternatives are fundamentally inconsistent with the MMPA’s requirements and therefore cannot be considered feasible or consistent with the intended purpose of the proposed action.

B. The Outer Continental Shelf Lands Act

The OCS is a significant source of oil and gas for the nation’s energy supply. Offshore areas of the United States supply over 25 percent of the country’s natural gas and oil production and are estimated to contain roughly 60 percent of the oil and 40 percent of the natural gas resources in remaining undiscovered fields. The importance of oil and gas exploration and development in the OCS is clearly reflected in the OCSLA and its implementing regulations.

In 1978, Congress amended the OCSLA to address both the nation’s energy needs and safety concerns. The congressional policies embodied in the 1978 Amendments declare the OCS to be a vital national resource with significant quantities of oil and natural gas that should be made available for “expeditious and orderly development” subject to appropriate “environmental safeguards.” 43 U.S.C. §§ 1332(3), 1801(7), 1802(1)-(2) (OCS resources should be made

⁶ The DPEIS incorrectly states that the evaluation of alternatives must be “bounded by some notion of feasibility.” DPEIS at II-10. More than this, the selected alternative must in fact *be* feasible.

available as “rapidly as possible” to reduce dependence on foreign sources and meet the nation’s energy needs). In addition, Congress stated that operations on the OCS should be conducted in a “safe manner,” which prevents or minimizes activities that endanger life or health. 43 U.S.C. §§ 1332(6), 1801(9), 1802(3) .

In amending the OCSLA, Congress recognized the central role exploration plays in the successful development of OCS oil and natural gas resources. 43 U.S.C. § 1334(a)(7) (directing Secretary to promulgate regulations for the prompt and efficient exploration of the OCS).⁷ Information about hydrocarbon resources and sea floor properties gained through seismic exploration is essential to Congress’s goal of making energy resources on the OCS available to meet the nation’s energy needs as “rapidly as possible.” 43 U.S.C. §§ 1332(3), 1802(2); 2006 PEA at 1, 3. Courts interpreting OCSLA have consistently found that expeditious exploration and development of the OCS is the *primary purpose* of the statute.⁸ Because expeditious exploration and development of the OCS is the objective of the statute, environmental considerations, while important, need not be given the same weight as those related to potential oil and gas discovery.⁹

In order to support MMS’s proposed actions under OCSLA, the DPEIS must be revised to clearly identify the impacts on development of OCS resources that would result from each of the proposed alternatives and must also explicitly address the serious risks to human safety that Arctic Ocean aerial monitoring entails. In its present form, the document provides only the most cursory discussion of the burdens on exploration and consequent impairment of resource development that would result from the 120 and 160 dB safety zones, and no discussion of the burdens that would result from multiple blackout periods imposed on an activity that must occur in a remote area under stringent conditions during a very limited time period due to uncertain ice and weather conditions. It also fails to seriously evaluate the feasibility of monitoring large zones or the significant risks to human life inherent in aerial monitoring over remote ocean areas. Yet, as MMS is aware, no seismic surveys were able to go forward last season fully as planned due to the agencies’ imposition of such measures. The DPEIS must explicitly address the lost opportunity for resource development as well as safety risks. Also, because OCSLA’s mandates and priorities are different from those of the MMPA, MMS must ultimately engage in its own analysis of alternatives, bearing in mind that “environmental considerations . . . need not be given the same weight as those related to potential oil and gas discovery.” MMS cannot satisfy its statutory obligations by simply requiring an IHA or imposing conditions selected by NMFS.

⁷ See also H.R. Rep. No. 95-590, at 70, *reprinted in* 1978 U.S.C.C.A.N. at 1477 (noting importance of seismic exploration to discovery of undetected recoverable reserves); *id.* at 1551-52 (preserving Secretary’s authority to permit public and private exploration strategies before lease sale).

⁸ See *Natural Res. Def. Council, Inc. v. Hodel*, 865 F.2d 288, 302 (D.C. Cir. 1988); *Energy Action Educ. Found. v. Andrus*, 631 F.2d 751, 761 & n.58 (D.C. Cir. 1979).

⁹ *California v. Watt*, 668 F.2d 1290, 1316-17 (D.C. Cir. 1981) (“A balancing of factors is not the same as treating all factors equally.”).

C. Summary of Modifications Needed in the Final PEIS to Comport with the MMPA and OCSLA

As explained above, in order to ultimately support NMFS's decisions regarding IHA applications, the DPEIS must (i) distinguish between theoretically conceivable and reasonably likely effects and evaluate the likelihood and degree of population-level impacts; (ii) set forth reasonable conclusions derived from the best available evidence rather than imposing an unlawful "certainty" standard; (iii) identify and fully examine the feasibility of proposed monitoring measures; and (iv) not only acknowledge the applicable 160 dB harassment threshold but explain how the proposed alternatives are or are not consistent with NMFS's scope of authority under the MMPA in light of this threshold. Additionally, for the purpose of supporting MMS's decisions on G&G permit applications, the DPEIS must be revised to include a detailed analysis of the effects of the proposed mitigation alternatives on the efficient development of OCS resources and on the safety of human life.

The need to ultimately satisfy these legal requirements should be plainly stated in the Purpose and Need section of the Final PEIS, acknowledged and incorporated into the evaluation of alternatives, and utilized to guide the selection of a Preferred Alternative. As currently written, the DPEIS does not even acknowledge, let alone evaluate compliance with, these requirements. As such, the document would not provide an adequate legal basis for an MMPA or OCSLA decision. Moreover, as discussed in more detail below, the DPEIS as written does not comply with NEPA, because it fails to present an evaluation of the *probable* environmental impacts of the proposed action, but instead presents an unrealistic worst case scenario. These significant flaws must be remedied in the final PEIS.

III. MMS AND NMFS HAVE PERFORMED A WORST-CASE SCENARIO EFFECTS ANALYSIS THAT IS CONTRARY TO LAW AND REASON

The overarching flaw in the DPEIS is that the effects analysis presents an entirely unrealistic worst-case scenario. The result is a speculative and hypothetical analysis with little or no discernable relationship to probable or foreseeable effects, or to the legal standards that apply to the regulatory decisions to be made by NMFS and MMS.

The focus of the NEPA process is to ensure federal agencies take a hard look at the probable environmental consequences of a proposed action and a reasonable range of alternatives. The U.S. Supreme Court has expressly rejected the notion that NEPA contemplates performance of a worst-case scenario analysis, including in instances where there is substantial uncertainty. *Robertson v. Methow Valley Citizens Council*, 490 U.S. 322, 354-356 (1989) (an EIS must "focus on reasonably foreseeable impacts"). In addition, as discussed above, NMFS's regulations direct the focus of its "negligible impact" determination under the MMPA to effects that are "reasonably expected" and "reasonably likely."¹⁰ Under OCSLA, MMS's decisions

¹⁰ 50 C.F.R. § 216.103 ("negligible impact" is "an impact resulting from the specified activity that cannot be reasonably expected to, and is not reasonably likely to, adversely affect the species or stock through effects on annual rates of recruitment or survival.").

must balance expeditious oil and gas exploration and development with environmental effects; however, the principal purpose of OCSLA is to expedite OCS exploration and development.¹¹

Despite these clear and long-standing principles, the effects analysis in the DPEIS stacks unrealistic assumptions one upon another, and gives full weight to “possible” adverse effects even though such effects have never occurred and are admittedly improbable. This type of analysis does not reflect the best available science nor is it useful as a decision-making tool given the applicable legal standards under the MMPA and OCSLA.

A. Twelve Concurrent Seismic Surveys Will Not Be Conducted Annually in the Beaufort and Chukchi Seas in the Years 2007-2010

The DPEIS is predicated upon a “foreseeable level of effort” assumption of six simultaneous seismic surveys in each of the Beaufort and Chukchi Seas for a total of twelve surveys every year for the next five years. DPEIS at I-5. Rather than foreseeable, this level of effort is virtually impossible due to the limited duration of the open water season, interference problems with multiple concurrent surveys, ice conditions, the complex regulatory requirements faced by operators,¹² costs, and the limited number of appropriate vessels and crews available world-wide.

In 2006, for example, two crews operated in the Chukchi Sea. Those operators reported seismic interference and time spent waiting for ice to clear. Given the MMS stipulation that operators maintain a 15 mile separation between sources, it is unlikely that three source vessels could effectively operate simultaneously in the Chukchi. It would not be physically possible for six crews to acquire data over the leasehold and exploration areas.

Also, due to the substantial costs and risks of operating in the Arctic, companies are likely to share vessels to achieve coverage over combined multi-company lease holdings, and crews are likely to work some portion of the open water season in both the Chukchi and Beaufort, reducing both the total number of surveys and the likelihood of multiple concurrent surveys. Because the Arctic is a long transit for a limited season with high risks and costs compared with other markets, it would be unrealistic to expect that industry would have more than two or three vessels total dedicated to the Arctic in the next five years, much less eight to twelve vessels.

The DPEIS does not provide an explanation or analysis of how the agencies concluded that twelve concurrent seismic surveys every year would be feasible, let alone a reasonable assumption. Although the DPEIS attributes this implausible estimate in part to “discussions with the oil and gas industry,” DPEIS at I-1, we dispute this characterization, given the very real, practical limitations described above. Indeed, Table 1.C-1, which is identified in the DPEIS as providing “information about the potential level and type of seismic survey activities that may

¹¹ See *California v. Watt*, 668 F.2d 1290, 1316-17 (D.C. Cir. 1981) (“A balancing of factors is not the same as treating all factors equally.”).

¹² The environmental consulting industry relied on by E&P companies operating in the Arctic to develop permit applications and prepare monitoring and compliance reports can support only two or three companies in a given season, which is yet another limiting factor demonstrating the improbability of 12 surveys in one season.

occur in the Beaufort and Chukchi seas between 2006 and 2010” predicts that the “maximum number of permitted surveys” would be four in each of the Chukchi and Beaufort Seas for a total of eight. *See* DPEIS at III-228,-229.¹³ However, as explained herein, even eight total surveys annually is most likely a significant over-estimate.

Known seismic survey effort in 2007, reinforces that the “maximum” assumption of twelve (or even eight) concurrent surveys is inflated. The DPEIS assumes twelve surveys will be conducted in 2007, yet MMS and NMFS know that only one operator has applied for an open-water seismic survey permit. That operator is planning a single survey in the Chukchi and a single survey in the Beaufort using the same vessel. There will not be twelve seismic surveys in 2007; nor will there be multiple or concurrent surveys. *See* DPEIS at III-176 (acknowledging that “the potential of up to six concurrent surveys being conducted in the 2007 open-water season in the Chukchi and Beaufort seas is low,” but then assuming twelve surveys every year).

An analysis of the probable effects of the proposed action – even a conservative analysis – could not assume that an unrealistically high number of concurrent surveys will occur every year, including in a year when the agencies know there has been only one application for a survey permit. An analysis of probable effects should project what the expected maximum number of surveys may be in any one year, as well as minimum expectations and expected averages. Having polled our members, which are the businesses with the most relevant experience and information from which to project expected levels of seismic effort in the OCS over the next four years (2007-2010), we maintain that the following is “reasonably foreseeable”:

- In 2007, one survey in the Chukchi and one non-concurrent survey in the Beaufort;
- In 2008-2010, no more than two concurrently conducted seismic surveys in any year in the Chukchi and Beaufort;
- In 2008-2010, probable levels of seismic effort in the range of one to six total surveys for the combined Chukchi and Beaufort Seas;
- In 2008-2010, a maximum number (*i.e.*, possible, but still unlikely) of four surveys in each of the Chukchi and Beaufort Seas for a total of eight.

These informed projections are both reasonable and conservative. They take into account recent seismic survey levels, including actual levels in 2006 and the one permit application pending for 2007. Our estimates also take into account the realistic availability and cost of seismic survey vessels, crews, and logistical support in Alaska, and the sonic interference that would result in

¹³ The entire discussion of marine seismic surveys in the DPEIS Section III.H.5.a, at pages III-228 and III-229, is confusing and contains many with errors. Most of the text refers to assumed levels of seismic effort in 2006, which is not covered by the DPEIS. Moreover, the worst case assumptions about 2006 have already proven to be inaccurate. Only three seismic surveys were permitted for the Chukchi, and only two were conducted concurrently. One seismic survey was permitted in 2006 for the Beaufort Sea, but it was never actually conducted. In addition, the referenced Table III.C-1 inexplicably provides assumptions for the “maximum” number of permits in 2002-2007 (not 2006-2010) despite actual experience in 2002-2006 demonstrating these assumptions to be grossly inflated.

significant degradation of data if more than two concurrent surveys were conducted in proximity to each other.¹⁴

B. Worst Case Assumptions Regarding Population Size, Harvest, and Significance Levels Are Contrary to the Best Available Scientific Information

The effects analysis in the DPEIS further exaggerates the potential for adverse impacts because of unrealistic assumptions regarding the current population size, subsistence harvest levels, and, ultimately, potential biological removal levels (PBR) for bowhead whales. Worst-case assumptions based upon the minimum population estimate from 2001 (despite increasing abundance) and upon subsistence harvest levels at the maximum allowable level (despite take rates $\frac{1}{2}$ to $\frac{1}{4}$ of the maximum) are contrary to scientific consensus and long-term reliable data. The impact of these unreasonable assumptions is to depress PBR and to minimize beyond reason the level of mortality sustainable by the BCB Seas bowhead whale stock from human activity other than the subsistence harvest.

1. The “minimum population estimate” for 2001 greatly underestimates the likely BCB Seas population for 2007-2010

The DPEIS uses the “minimum population estimate” from 2001 for the BCB Seas population, despite scientific consensus that the population has been increasing at the rate of 3.4-3.5 percent per year since that time. *See* DPEIS at III-75. Use of the lowest population estimate from more than 5 years ago during a period of strong population growth is unrealistic and contrary to the best available scientific evidence.

It is well-established that the BCB Seas population has experienced a sustained period of growth and continues increasing in abundance. *See* DPEIS at III-89 (“All recent available information indicates that the population has continued to increase in abundance over the past decade and may have doubled in size since 1978.”). There has been no significant adverse change in the population status since various agency analyses were conducted in 2003, 2004, and 2006. *Id.* In 2001, the year of the most recent population census, the number of calves counted was the highest ever recorded. *Id.* at III-75. MMS and NMFS have consistently estimated a steady growth rate of between 3.4 and 3.5 percent. *See* DPEIS at III-75. No data supports a finding, and no scientists and no agency has found, that populations levels have remained static since

¹⁴ The DPEIS assumes the “maximum acquisition number” for seismic surveying per vessel, leading to assumptions that each of the 12 assumed vessels and surveys will cover two percent of the Beaufort or Chukchi for a total coverage of 12 percent of the Beaufort and 12 percent of Chukchi. DPEIS at I-10. This is another worst case assumption that inflates the effects analysis beyond reason. The area actually expected to be ensonified by a single seismic survey is approximately 1.8% at the 160 dB level and 0.36% at the 180 dB level for the Beaufort Sea and much less for the Chukchi Sea due to its larger shelf area and lower sound transmission characteristics. *See* Appendix B hereto.

2001. Nevertheless, the DPEIS relies upon the “minimum population estimate” for 2001 of 9,472 whales as the current population estimate.¹⁵ See DPEIS at III-24.

It is unreasonable to conclude that the BCB Seas population is steadily increasing at a healthy rate, but to then rely upon stale minimum abundance data from 2001. Instead, the 2001 population census should be extended to reasonably estimate the current population and the expected population in future years. Extrapolating the 2001 minimum population estimate to 2007 by using the lower published estimated rate of increase (3.4%) provides a minimum population estimate of 11,416 for 2007, when adjusted for annual subsistence harvest. Use of the best scientific estimate from the 2001 census (10,545 whales), extrapolates to a 2007 population of over 12,000 whales. Using either the minimum or best estimates for 2001, reasonable estimates for the years beyond 2007 would be approximately 360 additional whales for each additional year. The DPEIS should be revised in accordance with the best available data to reflect these more realistic yet still conservative population estimates.

2. The annual subsistence harvest has never taken, and is not reasonably expected to take, the maximum number of whales allowed by law

It is also well-established that the subsistence harvest over a sustained period of time has been well below the maximum subsistence quota of bowhead whales. The current subsistence quota for Alaskan and Russian natives is 82 whale strikes per year (67 plus up to 15 unharvested whales from the previous year). See DPEIS at III-24. Although the quota establishes the maximum allowable, actual subsistence harvest levels based upon highly reliable data ranged from 31 to 55, and averaged 40 whales, from 1999 through 2006 (Suydum and George 2004; IWC unpublished paper); note 21, *infra*; see also *infra* Section IV.B; DPEIS at III-24 (“This assumption of [82] take[s] by subsistence hunters is the maximum that could be taken, but exceeds the average number of whales taken in recent years.”).

As with the population figures used in DPEIS, it is unreasonable to assume maximum subsistence figures that are unsupported by long-term highly reliable data. Instead, the DPEIS should discuss the range of expected subsistence take and use an average annual take figure.

3. The level of potential biological removal is at least four to six times greater than assumed by NMFS and MMS

Unrealistic worst case assumptions regarding bowhead whale population levels and regarding subsistence take levels calculate out in the DPEIS to a PBR of 95 animals, and to a maximum of 12 annual mortalities that could theoretically occur from seismic activity (PBR *minus* subsistence quota *minus* commercial fisheries mortalities) while allowing the BCB Seas stock to reach or maintain its optimum sustainable population (OSP). DPEIS at III-24. MMS and NMFS then find that the loss of 12 animals from a population of more than 10,000 “would be

¹⁵ Even the best estimate calculation for the 2001 population is more than 1,000 whales larger than the “minimum population estimate” used in the DPEIS. Compare DPEIS at III-24 (minimum estimate of 9,472) with George et al. 2004a, Zeh and Punt 2004, and Angliss and Outlaw 2005 (estimating 10,545 animals in 2001).

significant.” *Id.* The assessment of mitigation measures is, in turn, premised on the alleged need to ensure with “certainty” that no more than 12 animals will be impacted by seismic operations.. *See, e.g.*, DPEIS at III-119, III-131. However, this line of logic is contrary to the best available evidence.

Using a projected minimum or best estimate 2007 population figure results in a PBR value¹⁶ of 113 to 126 animals.¹⁷ Deducting for a maximum native subsistence quota of 82 whales and removal of one whale due to commercial fishery interactions results in a “significance” level of 30 (113-82-1) to 43 (126-82-1) whales (i.e., the number of individual whales that could be removed from the population annually while allowing the stock to remain at and maintain its OSP). If the actual average annual take level for subsistence (40 whales) is used, the “significance” level rises to **76-89 whales or, even more conservatively, 57-70 whales assuming the highest harvest level (55) reported between 1999-2006.** Even 57 to 76 whales – which is 4.75 to 6 times more than the worst-case scenario figure used by MMS and NMFS – is highly conservative because it is based on the minimum population estimate increased using the lower end of the rate of population growth. Finally, even if NMFS’s unrealistically low minimum population estimate as of 2001 is used, with a resulting PBR of 95, and the average annual subsistence take is used instead of the maximum allowed by law (but never experienced), and even if it is assumed that the proposed seismic activity will result in injuries or mortalities despite all scientific evidence to the contrary, the mortal take for this species that could occur due to seismic activity without having a population-level impact is 54 whales, which is more than 4 times greater than the twelve-whale standard proposed in the DPEIS. As discussed further below, there is no evidence to suggest that any bowhead whales will be harmed or injured by seismic operations, let alone 54 whales.

4. Certainty is not the standard for NEPA analysis or agency decisions; improbable effects cannot be the basis for imposing stringent mitigation

Using a “significance” threshold of twelve whales, and taking into account other worst case assumptions addressed elsewhere in these comments, the DPEIS speculates that “significance could be reached” if behavior disturbances attributable to seismic activity resulted in the “effective loss” of twelve whales. DPEIS at III-25. These hypothetical statements are not scientifically-based conclusions that such impacts are “likely,” “probable,” “foreseeable,” or “expected.” In fact, nowhere in the DPEIS do MMS and NMFS conclude that the loss of as many as twelve whales is likely, probable, expected, or even reasonable to assume. *Compare, e.g.*, DPEIS at III-119 (considering impacts because the agencies cannot wholly eliminate them “with certainty”), *and id.* at III-99 (considering adverse impact of separating cow/calf pairs even though there is no scientific support and potential is “low”), *with id.* at II-20 (concluding the potential for “any injuries” to all cetaceans under Alternatives 3-8 “very limited”), *id.* at III-130 (“There has been no documented evidence that noise from previous OCS operations has hindered the overall migration of bowhead whales”), *and* 2006 DEIS for the Outer Continental Shelf Oil & Gas Leasing Program: 2007-2012 at IV-115 (“There have been no documented deaths, physical injuries, or physiological effects on marine mammals from seismic surveys.”). Indeed,

¹⁶ DPEIS at III-24 (PBR = minimum population estimate x 0.02 x 0.5).

¹⁷ 11,416 x 0.02 x 0.5 = 114; 12,646 x 0.02 x 0.5 = 126.

if a less improbable (and still exceedingly conservative) “significance” threshold of 57 whales is used, it would be impossible for seismic activities to cause such a level of removal, particularly since there has never been a whale or marine mammal injury or death from seismic operations in the Alaskan Arctic. *See id.* III-201 (“There are no data that indicate that, other than historic commercial whaling, any previous human activity has had a significant population-level impact on the current status of the BCB Seas bowheads or their recovery.”); III-205 (“The subsistence take, while additive, actually is small as compared to the capacity of the population to absorb it and to thrive. We are aware of no other known potential human-related effects that approach, or could reasonable [sic] be predicted to approach, the level of this known removal.”).

In sum, NMFS and MMS have used assumptions that lead to a highly unlikely worst-case scenario. The foreseeable level of seismic effort is no more than half what is assumed, the affected whale population is thousands of whales larger than assumed, the annual subsistence impacts are less than half what is assumed, and the realistic number of whales that could be removed from the population while allowing the population to reach or maintain its OSP is at least four to six times larger than the figure of twelve used in the DPEIS. This speculative form of analysis does not provide a means for analyzing the probable environmental consequences of seismic survey activities in the Beaufort and Chukchi Seas, conflicts with the applicable decision-making standards in the MMPA, and contradicts the intent of Congress as expressed in the OCLSA.

**IV. IT IS IMPROBABLE THAT FORESEEABLE SEISMIC SURVEYS
WILL HAVE DISCERNABLE ADVERSE IMPACTS
ON THE HEALTH, STATUS, HABITAT, SURVIVAL OR RECOVERY
OF MARINE MAMMAL POPULATIONS OR ON SUBSISTENCE USES**

Geophysical surveys using seismic reflection are an essential, state-of-the-art, component of oil and gas exploration in the OCS. Geophysical data are used by both industry and MMS to make informed economic and regulatory decisions regarding potential accumulations of oil and natural gas. As one of the earliest components of the lengthy and costly process leading from leasing of lands, to exploration, development, and production of hydrocarbon resources, seismic surveys are both critical to OCS resource development mandated by Congress and, in the marine environment, a low impact activity with no detectable long-term effects.¹⁸

The DPEIS contains (or incorporates by reference) extensive discussion and analysis of environmental impacts related to possible seismic activities in 2007 and in later years. The principal focus of this analysis is on potential impacts from noise on marine mammal populations, particularly the BCB Seas stock of bowhead whales. We concur in key agency findings that: (i) there is no evidence that seismic exploration has ever resulted in detectable reductions of any marine mammal stock or population; (ii) there is no evidence that any human activity individually or collectively, other than historic commercial whaling, has had a significant adverse impact on the current status and recovery of the BCB Seas bowhead whales; and (iii)

¹⁸ *See* 2006 PEA at 3 (“The MMS needs geological and geophysical seismic-survey information to fulfill its statutory responsibilities to ensure safe operations, support environmental impact analyses, . . . and perform other statutory responsibilities.”).

there is no evidence that noise from all past OCS operations have hindered or altered the overall migration or health of the BCB Seas bowhead whales. The agencies have previously noted:

[T]here is no evidence to suggest that routine [seismic] surveys may result in population-level effects for any of the affected marine mammal species. There have been no documented deaths, physical injuries, or physiological effects on marine mammals from seismic surveys (MMS, 2004a).

DEIS for the Outer Continental Shelf Oil & Gas Leasing Program: 2007-2012 (OCS EIS/EA MMS 2006-004) at IV-115. No data are available indicating that, other than historic commercial whaling, any previous human activity has had a significant adverse impact on the current status of BCB bowheads or their recovery.

DPEIS at III-72.

There has been no documented evidence that noise from previous OCS operations has hindered the overall migration of bowhead whales.

DPEIS at III-130.; These facts are strong support for the absence of significant adverse environmental impacts from foreseeable seismic exploration activities.

Despite the clarity of decades of observations and data, and despite NMFS's and MMS's conclusion that impacts to all stocks of marine mammals are expected to be temporary and nonlethal, the DPEIS includes or references speculative statements regarding "potential" adverse impacts to the BCB Seas stock of bowhead whales. In various places, the DPEIS indicates that significant uncertainty exists regarding potential impacts of seismic activity on bowhead whales, particularly with respect to calf survival and growth, and female reproduction. With respect to bowhead cows and calves, the DPEIS and materials incorporated by reference speculate without support that seismic activity could have population-level impacts by affecting cow/calf pairs. The DPEIS also assumes that bowhead whales will deflect from seismic activity by a distance of at least 20 kilometers. *E.g.*, DPEIS at II-16, III-128. Each of these statements, and other speculative or unsupported statements, are addressed in detail below.

A. Seismic Activity Has Not Caused Population-Level Impacts to Marine Stocks

There is no evidence that seismic exploration has ever resulted in detectable reductions of marine mammal stocks or populations. With respect to the BCB stock, the agencies have observed:

Available information does not indicate that oil- and gas-related activity (or any recent activity) has had detectable long-term adverse population-level effects on the overall health, current status, or recovery of the BCB Seas bowhead population. Data indicate that the BCB Seas bowhead whale population has continued to increase over the timeframe that oil and gas activities has occurred.

Biological Evaluation of the Potential Effects of Oil and Gas Leasing and Exploration in the Alaska OCS Beaufort Sea and Chukchi Sea Planning Areas on Endangered Bowhead Whales (*Balaena mysticetus*), Fin Whales (*Balaenoptera physalus*), and Humpback Whales (*Megaptera*

novaeangliae) (MMS's 2006 Alaska OCS BA) at 123; *see* DPEIS at III-72 (no data indicate any previous human activity, except historic whaling, has had a significant adverse impact on BCB Seas bowheads); DEIS for Lease Sale 193 at III-42 (same).

We are aware of no evidence in the scientific literature of seismic operations causing mortality, injury, or decline in any marine mammal population. *See* DPEIS at II-20 (“[N]o injuries to marine mammals have been documented from seismic surveys”). NMFS has prepared stock assessment reports annually since 1995 for sixty-five species of marine mammals in the North Pacific Ocean, Alaskan Arctic Ocean, Eastern North Pacific Ocean, Gulf of Mexico, and Eastern Tropical Pacific Ocean (Hawaii), which address mortality and other population characteristics for determining each species' status.¹⁹ Over this 12-year period (2006 is most recent reporting period), there have been active seismic activities in the Gulf of Mexico, the western North Atlantic Ocean, the eastern North Pacific Ocean, and the sub-Arctic and Arctic Ocean off Alaska and adjoining Canada. Yet, for this same span of years, there have been no reported deaths or injuries of marine mammals, or declines of their populations, from seismic operations.²⁰

B. The BCB Seas Population of Bowhead Whales is Healthy and Resilient

We concur in MMS's and NMFS's findings regarding the health and resilience of the BCB Seas stock of bowhead whales:

All available information (e.g., Shelden et al., 2001; IWC, 2004a, b; NMFS, 2003a, b) indicates that the BCB Seas population of bowheads is increasing, resilient to the level of mortality and other adverse effects that are currently occurring due to the subsistence hunt or other causes, and may have reached the lower limit of the estimate of the population size that existed prior to intensive commercial whaling.

DPEIS at III-74; *see* MMS's 2006 Alaska OCS BA at p. 10 (same); DEIS for Lease Sale 193 at III-43 (same); *id.* at IV-118 (“Based on available information, the bowhead population that may be affected is robust and resilient to a relatively steady lethal take in the subsistence hunt. . . . We do not expect direct mortality on baleen whales from the Proposed Action but acknowledge that mortality could occur. However, it is clear that this population has continued to recover, despite previous activities that caused disturbance and lethal take. This continued recovery is informative about its resilience at least to the level of disturbance and take that have occurred within the past 20 years.”); *id.* at V-24 (cumulative effects of all other past and current noise and

¹⁹ *See* <http://www.nmfs.noaa.gov/pr/sars/species.htm>.

²⁰ Deaths, injuries, and population declines of marine mammals documented in the status reports have been associated with fisheries interactions and harvest, ship strikes, chemical pollution, debris, sonar, and commercial and aboriginal harvest of marine mammals. Similar findings have been reported for the world stocks of polar bears with over-hunting being the most common factor for polar bear declines (Lunn et al. 2002). Consequently, marine mammal population declines or failures of populations to increase have been entirely associated with these anthropogenic effects, and not seismic operations.

disturbance factors have had no lasting physiological or other adverse effects on bowhead population).

It is well-established that the BCB Seas population of bowhead whales is healthy and increasing (Angliss and Outlaw, 2005).

Data indicate that what is currently referred to as the Western Arctic stock (by NMFS) or as the Bering-Chukchi-Beaufort (BCB) Seas stock (by the International Whaling Commission [IWC]) of bowheads is increasing in abundance. There are scientific analyses indicating that the BCB Seas bowheads may have reached or are approaching the lower limit of their historic population size.

. . . .

All recent available information indicates that the population has continued to increase in abundance over the past decade and may have doubled in size since about 1978.

DPEIS at III-72, III-89. The most recent population census, conducted in 2001, led to a population estimate of 10,470-10,545 bowhead whales (Zeh and Punt 2004, George et al. 2004a), which may be approaching its carrying capacity (Brandon and Wade 2004). In addition, the population is increasing at an annual rate of 3.4-3.5% (359-369 whales/year), which is a rate similar to previous estimates and indicative of a reproductively healthy population (Brandon and Wade 2004; George et al. 2004a). *See* DPEIS at III-75. The most recent published count of 121 calves during the 2001 census was the highest recorded for the population (George et al. 2004a). *Id.* The high calf count is reflected in a high pregnancy rate and low length at sexual maturity, which is characteristic of an increasing population (George et al. 2004b). George et al. (2004a) concluded that the recovery of the BCB Seas bowhead whale population is likely attributable to low anthropogenic mortality, relatively pristine habitat, and well-managed subsistence harvest. *Id.*

The increase in the BCB Seas population has coincided with over 30 years of oil and gas activities in the Beaufort and Chukchi Seas, including high levels of seismic surveys and exploration drilling in the late 1970s and 1980s.

Available information does not indicate there were detectable, long-term population-level adverse effects on the BCB Seas bowhead from the high level of seismic surveys and exploration drilling during the late 1970s and 1980s in the Beaufort and Chukchi seas. . . . The rates of population increase do not indicate any sublethal effects (if they occurred) resulted in a detectable effect on this population's recovery.

See DPEIS at III-129. Activities have included offshore seismic drilling and production on man-made islands. During this time and throughout these activities the population has grown from fewer than 5,000 to over 10,000 animals (Zeh and Punt 2004). In addition, the population has maintained, with no noticeable alteration, interruption, or displacement, its historical seasonal

use patterns and migrations between the Bering and Beaufort Seas (Treacy 2001, 2002; Treacy et al. 2006). These events have occurred every year during the period of oil and gas activities at essentially the same general time, location, and order by sex and age groups, except when affected by ice conditions.

The health of the population and regularity of the timing and location of the migration has enabled the whaling communities to harvest 832 bowhead whales between 1974 and 2003 (Suydam and George 2004). The number of whales harvested each year has been fairly consistent as demonstrated for the most recent reporting period of 1999 and 2006. During this time, the annual harvest was 42, 35, 49, 37, 35, 36, 55, and 31 whales²¹, which except for 2005 is similar to the harvest in the previous seven years. Variation in the harvest is due to the environmental factors (Suydam and George 2004). The IWC set the quota in 2002 at 67 strikes per year with a total landed not to exceed 280 over a five-year block. This information confirms that the integrity and size of the harvest and availability of bowhead whales to hunt has not been affected by activities of the oil and gas industry.

C. There Is No Evidence That Bowhead Cows Abandon or Separate from Their Calves in Response to Seismic Exploration or Other Human Activities

The DPEIS states that the ability of females to provide adequate care for offspring and for calves to maintain needed contact with their mothers during the period of dependency is critical to the continued recovery and long-term viability of the BCB Seas population. DPEIS at III-99. We do not dispute the importance of cow/calf health. However, it is important to separate appropriate concern for a key life stage from the suggestion that seismic surveys present a likely or probable risk to cows or cow/calf pairs. Indeed, there is no scientific support whatsoever for any assumption or speculation that impacts to cows or cow/calf pairs from seismic surveys could result in the loss or injury of a whale.

First, the DPEIS acknowledges that the greatest potential for effects is in the spring and early summer shortly after calves are born and before they develop a thick blubber layer in the summer. DPEIS at III-99. However, all alternatives considered fully protect this critical stage by prohibiting seismic operations before July 1 in areas where bowhead cows and calves might be present. *Id.*

Second, there is no evidence in the scientific literature regarding bowhead or other baleen whales indicating that seismic exploration and related activities have ever caused the separation of cow/calf pairs or resulted in a cow abandoning its calf or a feeding area. To the contrary, all of the scientific evidence shows that seismic and other anthropogenic activities, including the most

²¹ Suydam and George 2004; IWC unpublished papers; Suydam, R., J.C. George, C. Hanns, and G. Sheffield. 2006. Subsistence harvest of bowhead whales by Alaskan Eskimos during 2005. International Whaling Comm'n Rep. SC/58/BRG21, 7 p.; Suydam, R., J.C. George, C. Rosa, B. Person, C. Hanns, G. Sheffield, and J. Bacon. 2007. Subsistence harvest of bowhead whales by Alaskan Eskimos during 2006. International Whaling Comm'n Rep. SC/59/BRG4, 7 p.

extreme activity, commercial whaling, have not caused the separation or abandonment of cow/calf pairs. The cow/calf maternal bond in bowhead and other species of whales is among the strongest found in nature. The DPEIS acknowledges the remote potential for such impacts to occur. DPEIS at 99 (“[S]eparation of mother/calf pairs caused by operation of the seismic source does not appear to be likely the potential for separation of bowhead whale mother/calf pairs appears low.”).

The unyielding strength of this mother-offspring bond is supported by field observations reported by renowned marine mammal researchers and accounts by commercial whalers. Years of field observations of bowhead whales have never shown seismic operations to cause cow/calves to separate or abandon each other (Reeves, et al. 1984; Richardson et al 1986, 1987; Koski and Johnson 1987; Richardson 1999). Moreover, the scientists responsible for these studies as well as unpublished observations and studies (John Richardson, Bill Koski, and Bernd Wursig),²² who have collectively logged thousands of hours of observations of bowhead whales, have all confirmed that they have never observed a single instance of seismic operations or other oil and gas activities in the Alaska Arctic Ocean causing a cow to separate from or abandon its calf. Similar findings have been reported for other marine mammals exposed to man-caused activities; for example, NMFS scientist Phillip Clapham²³ has not observed or found any cases of humpback whale cows separating or abandoning calves because of an anthropogenic activity. Consistent with these observations of the cow/calf bond, Wartzok et al (1989) reported two observations of bowhead cows and calves separated by a few hundred meters quickly rejoined each other when a ship approached them. The DPEIS acknowledges these scientific observations. DPEIS at III-99.

Third, commercial whalers often capitalized on this cow/calf relationship to kill whales. Tonnessen and Johnson (1982) reported that whalers hunting right whales would first harpoon the calf, and as the mother refused to abandon her young, she became easy prey for the harpooner. Scammon (1968) noted that whalers commonly hunted the lagoons off Mexico for gray whales, where a cow with a young calf made it easy to harpoon the parent because in trying to escape the calf would tire rendering the inseparable cow vulnerable to kill.

Fourth, the strength of the bowhead cow/calf bond to persist throughout the history of seismic and other oil and gas operations in the Beaufort Sea is demonstrated by the rate of increase in the BCB Seas bowhead whale population. The population has increased from a few thousand whales in the 1970s to an estimated 10,545 animals in 2001 (George et al. 2004a; Zeh and Punt 2004; Angliss and Outlaw 2005). The population has been increasing at an annual rate of 3.4-3.5% or over 350 calves per year, which if extrapolated to 2006 would currently put the population size well within the 10,400-23,000 whales estimated in the population prior to commercial whaling (Brandon and Wade 2004; Angliss and Outlaw 2005; Woodby and Botkin

²² John Richardson, LGL, personal communication with Jay Brueggeman on October 12, 2006; Bill Koski, LGL, personal communication with Jay Brueggeman on October 12, 2006; Bernd Wursig, Texas A&M, personal communications with Jay Brueggeman on November 8, 2006.

²³ Phillip Clapham, NMFS, personal communication with Jay Brueggeman on November 7, 2006.

1993). These results clearly show that the population is growing and reproductively healthy (George et al. (2004a); George et al. (2004b)), and the calf survival rates are high, which collectively confirm that the cow/calf bond has not been disrupted or altered by seismic or other oil and gas operations, including during past periods of high seismic survey activity. *See* DPEIS at III-129 (“Available information does not indicate there were detectable, long-term population-level adverse effects on the BCB Seas bowhead from the high level of seismic surveys and exploration drilling during the late 1970’s and 1980’s in the Beaufort and Chukchi seas.”); *id.* (“The rates of population increase do not indicate any sublethal effects (if they occurred) resulted in a detectable effect on this population’s recovery.”).

D. Bowhead Whales Do Not Routinely Deflect 20 Kilometers From Seismic Operations

The DPEIS includes statements to the effect that bowhead whales have rarely been observed within 20 kilometers of active seismic operations. *See, e.g.*, DPEIS at III-115, III-118; *id.* at II-5 (“The 120-dB isopleth is the approximate zone where Richardson et al. (1999) found at 20 kilometers (km) from the seismic source almost total bowhead whale exclusion.”) However, this statement is contradicted by the available scientific literature. Bowheads have been observed near operating seismic ships (Reeves, et al. 1984; Richardson et al 1986, 1987; Brueggeman et al. 1990) and near controlled tests with single airguns and airgun arrays (Richardson et al. 1986; Ljungblad et al. 1988). Bowheads exposed to pulses from vessels more than 7.5-8 km away rarely show avoidance (Reeves, et al. 1984; Richardson et al 1986, 1987; Koski and Johnson 1987). Summering bowheads showed normal activities 3-5 km from active seismic operations (Richardson et al 1986). These studies clearly demonstrate that bowheads commonly occur well within 20 km of active seismic operations.

More recently, a study reported by Richardson (1999) concluded that migrating bowheads avoid active seismic operations by at least 20 km. However, the interpretation of the data is questionable based on the sample size and absence of corroborating behavioral observations recorded during the study. Sample sizes were small or problematic in the three-year study Richardson used to draw his conclusions. The data were analyzed for 1996, 1997, and 1998 to assess response of bowheads to seismic sounds. Sample sizes were 26 bowheads observed during no-seismic and 11 during seismic in 1996, 115 during no-seismic and 6 during seismic in 1997, and 59 during no-seismic and 65 during seismic in 1998. The sample sizes for 1996 and 1997 were clearly too small to draw any conclusions about seismic effects. The sample sizes were adequate in 1998 for analysis, but too few animals were recorded in the 0-10 km and 10-20 km distance intervals for no-seismic (3, 4 whales) to compare with seismic operations (0, 2) for analysis, suggesting that the absence of more similar numbers of whales to those in more distant categories may have been due to other factors than seismic operations. Furthermore, the presence of two bowheads in the 10-20 km interval during seismic operations indicates that not only were some whales relatively close, but their distribution was apparently unaffected by the operations.

Distances of all whales from the operations were highly variable over a wide range of distances, including those in the higher distance categories for no-seismic and seismic periods. The variability of these observations suggests that the observed distribution more likely was caused by natural events such as location, movement, and abundance of prey resources and not necessarily seismic operations. An even distribution of whales relative to distance would be

expected for no seismic unless this relationship was affected by natural environmental conditions or normal bowhead behavioral activities. It is noteworthy that seismic operations have been shown to cause behavioral responses of bowheads at or above the 160 dB, which corresponds to distances of 3-8 km from a seismic vessel, beyond which (i.e., 10-20 km) behavior would be expected to be normal (Richardson et al. 1986).

In addition, bowhead whale behavior observed during the study does not support Richardson's conclusions. Responses of bowheads to a disturbance are expressed by changes in normal behavior, such as changes in headings, swim speed and resting. However, behavioral changes were not seen in the bowheads observed by Richardson (1999) during the no-seismic versus seismic operations. In fact, Richardson states that there was (1) no significant difference in bowhead headings between seismic and no-seismic periods, (2) proportions of various behaviors observed during seismic periods were similar to those during no-seismic periods, and (3) there was no significant difference in the swimming speeds of bowheads during seismic and no-seismic periods. These analyses provide no evidence of seismic operations affecting bowhead, and suggest the bowheads were behaving normally, which would be expected since they were beyond the 160 dB level.

As a consequence, the small sample sizes and lack of corroboration of the behavioral data argues against Richardson's conclusions. Clearly, other factors may have been responsible for the distribution of bowheads relative to seismic operations. A key consideration that was not measured was the distribution of prey resources at the time of the observations. Bowhead distribution could have been associated with feeding or other environmental factors, which is indicative of the observed normal behavior and uneven distribution of bowheads during the seismic and no-seismic periods. More years of data than essentially the one year used in Richardson's analysis are necessary to draw any conclusions about bowhead responses during no-seismic and seismic operations at the distances reported by Richardson (1999).

In addition, the Richardson (1999) study has not been peer-reviewed by an independent scientific panel or published in a peer-reviewed journal, yet MMS and NMFS state the conclusion in the DPEIS that fall migrating bowheads avoid active seismic operations by at least 20 km (>120 dB) as though it were a widely accepted scientific fact. The DPEIS cites a summary statement approved by a loosely assembled ad hoc review group at the Arctic Open Water Noise Peer Review Workshop held in Seattle in 2001 supporting this conclusion; however, this review was not a scientifically valid peer review for several reasons: (1) the independence of the group was not established, as the group was comprised solely of scientists from the North Slope Borough and the National Marine Fisheries Service; (2) the review was not scientifically rigorous and was based primarily on a presentation by Richardson during the meeting; (3) there is no record of the review process, criticisms, or comments; and (4) Richardson prepared the summary statement for approval at the meeting. For these reasons, the Seattle workshop does not constitute a creditable peer review, and Richardson's interpretation of the data remains questionable due to the sample size and absence of corroborating behavioral observations recorded during the study. The DPEIS's statements suggesting that the Richardson study provides conclusive and scientifically-accepted evidence of avoidance at the 120 dB level are thus inaccurate and should be removed from the final PEIS.

**V. PROPOSED MITIGATION MEASURES ARE NOT SUPPORTED
BY SCIENCE, ARE UNSAFE, AND ARE NOT FEASIBLE TO IMPLEMENT**

The totality of the agencies' unrealistic and speculative effects analysis forms the premise for consideration of unwarranted and impracticable regulatory measures. These extreme measures are an effort to mitigate impacts that are improbable from a level of sustained and concurrent seismic activity that is unforeseeable.

The DPEIS includes discussion and analysis of a range of alternative mitigation measures extending beyond the time-proven 180/190 dB exclusion zone (Alternative 6), coupled with other standard mitigation requirements. These mitigation alternatives include imposition of seismic survey "safety" zones at either or both the 120 dB and 160 dB isopleths (Alternatives 3, 4 and 5), a combination of the 120 dB and 160 dB safety zones, plus the 180/190 dB exclusion zone (Alternative 7), and a combination of the 160 dB safety zone, the 180/190 exclusion zone and unspecified additional "specific temporal/spatial/operational restrictions" (Alternative 8). *See* DPEIS Section II. Also, the DPEIS appears to contemplate imposing a requirement that seismic operations completely shut-down, rather than power-down, when animals are sighted within the specified zones, which is a significant departure from past practice and for which no rationale is provided. The DPEIS suggests that the extraordinary measures identified in Alternatives 3-5 and 7-8 may be justified by concerns regarding the number of simultaneous seismic surveys, uncertainty and information gaps, concerns regarding potential impacts to cow/calf pairs, and concerns regarding feeding, socializing, or migrating aggregations of bowhead and gray whales. However, the DPEIS makes clear that the most important factor is the (entirely unrealistic) assumption of twelve concurrent seismic surveys annually in the Beaufort and Chukchi Seas. *See* DPEIS at II-16 to II-19.

WE strongly objects to the 120 dB and 160 dB safety zone mitigation options, as well as the new unspecified spatial/temporal closures alternative and any change from past practice that would require total shut-down rather than power-down of operations. These requirements are based upon supposition and speculation that cannot be reconciled with decades of well-documented data regarding the sustaining health of the BCB Seas bowhead whale population. Moreover, these measures are impracticable, present significant human safety risks, and undermine the purpose of seismic survey programs. In the final analysis, these measures, however well-intended, lack a rational scientific basis and conflict with applicable law.

A. MMS and NMFS Do Not Expect Seismic Activities Conducted Using the 180/190 dB Exclusion Zones and Other Standard Mitigation Measures to Result in More Than a Negligible Impact on Bowhead Whales or to Adversely Impact Subsistence Resources

The DPEIS does not contain any findings that a single bowhead whale death, injury or other detectable adverse impact, let alone a population level adverse impact, has ever been documented, or is expected, probable, or likely from even the maximum possible levels of seismic activity. *See* DPEIS at II-20 ("no injuries to marine mammals have been documented from seismic surveys"). Nor does the DPEIS contain any finding that unmitigable adverse impact on the bowhead subsistence hunt from seismic activity has been documented, or is expected, probable, or likely. *See id.* at III-130 ("There is no documented evidence that noise

from previous OCS operations has hindered the overall migration of bowhead whales.”). The DPEIS affirmatively concludes that the cumulative effects of past and present “noise and disturbance causing factors combined (e.g., oil and gas activities, shipping, subsistence hunting, and research activities),” habitat alteration activities and pollution (from local or distant sources) have not “had any long-lasting physiological, or other adverse effect(s) on the [BCB Seas] population.” *Id.* at III-201.

On this basis, MMS and NMFS have stated that “the potential for any injuries to cetaceans from the proposed activity and Alternatives 3 through 8 is very limited.” *Id.* The agencies have more broadly concluded:

The remaining alternatives (3 through 8) are environmentally sound as they all contain protective measures to mitigate possible impacts on marine life.

. . . [T]he environmental effects of the Proposed Action would be temporary in nature and would have no significant adverse long-term impacts on the long-term productivity of the Beaufort and Chukchi seas, if properly mitigation as proposed [in Alternatives 3 through 8]. . . . The benefits offered to the Nation from the long-term productivity of the Proposed Action are expected to off-set the short-term use of the environment, if properly mitigated as proposed [in Alternatives 3 through 8].

DPEIS at II-12, III-237. These findings, as well as the other key agency findings discussed above, are fully sufficient to support and warrant adoption of Alternative 6 as the preferred alternative.²⁴

B. Unrealistic Assumptions Regarding Maximum Seismic Activity Cannot Support the Imposition of Unwarranted Mitigation Measures

As addressed in detail in Section III.A above, the level of assumed seismic activity is unforeseeable. Yet, these improbable assumptions are the primary basis upon which the agencies have derived their alternative mitigation measures. Imposition of the 120 dB or 160 dB safety zones or of unspecified time and area closures cannot be justified by defining the action to consist of a level of sustained, multiple, and concurrent seismic surveys that is entirely unrealistic. *See* DPEIS at II-10 (alternatives analyzed in the DPEIS must be “non-speculative and bounded by some notion of feasibility”).

Moreover, as addressed above, the BCB Seas bowhead whale population has more than doubled in size during the 25 year period OCS seismic activity has been conducted in the Chukchi and Beaufort Seas. Between 1978 and 1993, the BCB Seas stock of bowhead whales increased at a rate of 3.1% (Raftery et al. 1995). Correspondingly, the population increased 60% from approximately 5,000 to 8,000 animals during this time (Angliss and Outlaw 2005). The population has continued to increase at a similar rate (3.4-3.5%) to where the most current estimate (2001) is 10,545 (Angliss and Outlaw 2005), which if extrapolated to 2006 would easily

²⁴ *See also* DPEIS at II-13 (Alternatives 3-8 all intended to comply with applicable state and federal laws, including the MMPA and ESA).

exceed 12,000 animals, a level well within the pre-commercial exploitation size of 10,400 to 23,000 animals (Woodby and Botkin 1993). The population growth is underpinned by high pregnancy and survival rates and low mortality rates (George et al. 2004a, b), factors characteristic of a healthy population. In addition, the bowhead population has also continued to occupy its historic summer and winter ranges and migration routes, thereby demonstrating that seismic activity has not caused any temporal or spatial displacement (Treacy et al. 2006). In fact, like many increasing populations, it has geographically expanded use of its summer range as indicated by the presence of bowheads in areas not normally used during summer, such as off Point Barrow and elsewhere along the northern coast of Alaska. MMS confirmed these unwavering historic use patterns by stating in the DEIS that there is no indication that human activity (other than commercial whaling) has caused long term displacement of bowhead whales. *See DEIS for Lease Sale 193 at V-35.*

The scientific information on the BCB Seas bowhead whale population, and on other marine mammal populations,²⁵ demonstrates that multiple seismic operations over many years have not affected the health or status of bowhead whales,²⁶ gray whales, polar bears, or other marine

²⁵ There is also no evidence in the scientific literature to suggest that the health of any marine mammal population has been affected by seismic surveys over the history of operations in the Chukchi and Beaufort Seas. For example, the Eastern North Pacific gray whale population, which summers in northeastern Chukchi Sea, was removed from the threatened and endangered species list in 1994 due to its recovery to pre-commercial exploitation levels. This population has continued to expand the use of its historic summer range in concert with seismic operations as evidenced by the occurrence of higher numbers of whales feeding in more areas in the northeastern Chukchi Sea and Beaufort Sea. The population is considered to be at carrying capacity.

²⁶ The seismic vessel scenario presented by MMS in the environmental consequences section of the DPEIS to assess impacts to fall migrating bowhead whales is based on misinterpreted data, and it is not supported by the scientific literature. *See DPEIS at III-101.* The scenario relies on Richardson's (1999) data to suggest that seaward movements of migrating whales exposed to large airgun arrays or multiple seismic operations in nearshore areas on the shelf could be constrained by offshore sea ice. As stated previously, the distances Richardson reported that bowhead whales respond to seismic airgun sounds during the fall migration is questionable and should not be the basis for the scenario. *See Section IV.D above.* In addition, the scientific literature demonstrates that it is highly unlikely sea ice would hamper seaward movements of bowhead whales. Bowhead whales are highly adapted to sea ice and frequently migrate or feed under sections of ice. Several studies have shown that during years of heavy ice in the Beaufort Sea, bowhead whales move offshore and migrate in the leads and open water within the sea ice (Treacy et al. 2006, Moore 2000). Moreover, offshore sea ice would not be a barrier to fall migrating bowhead whales because it is generally broken with areas of new ice forming, which creates a checkerboard pattern of open water areas and light ice for the whales to surface. This combined with the morphology of bowhead, which is adapted to an ice-dominated habitat through hundreds of years of evolution in the Arctic (McLeod et al. 1993), provides them some ability to break sea ice in order to breathe (Carroll and Smithhisler 1980, Burns et al. 1981, George et al. 1989). They have been observed to break ice up to 18 cm thick (George et al.

mammals. Accordingly, data from the past 25 years reliably demonstrates that future seismic operations subject to existing mitigation measures will have no more than a negligible effect on these populations.

C. Scientific Evidence Does Not Support the 120 dB and 160 dB Exclusion Zones or Unspecified Time and Area Closures

1. There is no credible scientific foundation for the 120 dB or 160 dB safety zones

There is no scientific evidence to suggest that the seismic activities associated with Beaufort and Chukchi Seas exploration, with use of a 180/190 dB exclusion zone and other routine mitigation and monitoring requirements, will have an adverse population-level impact on the BCB Seas stock by reducing annual rates of recruitment or survival, or will have anything more than a minor and transitory effect on individual whales. NMFS and MMS has been permitting offshore seismic activity in the Chukchi and Beaufort Seas subject only to 180/190 dB monitoring and exclusion zone requirements for many years. Throughout this time, the bowhead whale population has continued to increase. DPEIS at III-129 (bowhead population has continued robust growth without detectable adverse impacts even during periods of the highest levels of seismic activity in Beaufort and Chukchi Seas).

MMS and NMFS have both recognized, as indeed they must, that the BCB Seas bowhead population is healthy and has been increasing at a steady rate for many decades. *See* DPEIS at III-89 (“All recent available information indicates that the population has continued to increase in abundance over the past decade and may have doubled in size since about 1978.”). As emphasized above, this dramatic population increase has occurred alongside ongoing seismic exploration, oil and gas development, and other industrial activities, all performed *without* use of a 120 dB or 160 dB exclusion zones.

Based on this information, MMS and NMFS have determined that “[n]o data are available indicating that, other than historic commercial whaling, any previous human activity has had a significant adverse impact on the current status of BCB Seas bowheads or their recovery.” DPEIS at III-201; *see also id.* (“Currently available information indicates that bowheads that use the Alaskan Beaufort Sea and Chukchi Sea Planning Areas are resilient at least to the level of human-caused mortality and disturbance that currently exists, and has existed since the cessation of commercial whaling, within their range.”); *id.* at III-74 (“All available information indicates that the BCB Seas population of bowheads is increasing, resilient to the level of mortality and other adverse effects that are currently occurring due to the subsistence hunt or other causes, and may have reached the lower limit of the estimate of the population size that existed prior to intensive commercial whaling.”); *see* Section IV above (no evidence that seismic exploration has ever resulted in a reduction of any marine mammal stock or population).

1989). Consequently, it is not likely that sea ice would constrain the movement of bowhead whales exposed to seismic sounds during the fall migration.

While there is ample evidence that bowheads are continuing to thrive under a 180 dB monitoring and exclusion zone, there is no scientific information indicating that 120 dB or 160 dB safety zones are necessary to prevent undue harm or otherwise protect the species.²⁷ Indeed, NMFS's longstanding guidance and conclusions regarding the impacts of seismic activity conducted using 180 dB mitigation measures contradict any such finding. *See* 71 Fed. Reg. at 43,117, 43,126 ("NMFS believes that 160 dB is the appropriate threshold for Level B Harassment.")²⁸; July 21, 2006 Incidental Take Statement at 6, 8 (NMFS incidental take statement finding that seismic activity conducted using a 180 dB exclusion zone is not likely to result in harm, injury or death to bowhead whales, or cause adverse population-level impacts).

2. The health and resilience of the BCB Seas stock is not uncertain

The DEIS and other referenced materials rely in part upon alleged uncertainties regarding the biological significance of noise in the marine environment for proposed mitigation at the 120 dB and 160 dB levels, as well as unspecified spatial/temporal closures. Indeed, there are many uncertainties regarding the biological significance of exposing individual whales to the acoustic effects of seismic surveys and other human activities. However, despite some inevitable unknowns, there is great certainty that: (i) seismic activity has not resulted in population-level effects to a marine mammal species;²⁹ and (ii) over a period of decades, there have been and continue to be no discernable population-level consequences to the BCB Seas bowhead whale population from all of modern human activity.

While such uncertainty exists about the details of some but not all cumulative effects, it also is the case that the Western Arctic stock of bowheads is relatively very well studied and monitored. The overall current status of this population is not uncertain, despite the inherent uncertainty associated with some factors that might have had, or might be having, some adverse (or even positive) effects on it.

DPEIS at III-202 (emphasis added). These undisputed, highly credible, scientific facts – based on use of standard 180/190 dB exclusion zones and without the proposed spatial/temporal closures – are the best measure of the effectiveness of the current sound criteria for protecting the BCB Seas bowhead whale population.

²⁷ The speculative nature of the 120 dB requirement is further illustrated by the fact that neither MMS nor NMFS has been able to establish with any degree of certainty that seismic sounds will be discernible by whales over natural background noise, including marine mammal sounds, at the 120 dB isopleth. *See* DPEIS at III-11. Ambient noise levels recorded in the Chukchi Sea have indicated ambient levels at or greater than 120 dB. MMS has recognized that ambient sounds in the Chukchi and Beaufort Seas often can exceed 120 dB and are therefore likely to mask seismic sounds at that distance from the source. *Id.* (ambient noise in Arctic marine environment is in the range of 63-133 dB and, accordingly, seismic sounds at 120 dB may be masked).

²⁸ Notably, no federal agency has ever made a finding that “harassment” as defined in the Marine Mammal Protection Act occurs for cetaceans at sound levels below the 160 dB threshold.

²⁹ *See* Section IV above.

The best measure of the effectiveness of the current 180 dB mitigation measures in preventing significant impact to the BCB Seas bowhead whale population is the status of its health. *Id.* An adverse effect from seismic activity or other anthropogenic activities, including the subsistence harvest, would manifest itself by causing a decline in the population size, reproductive rate and/or physical condition of the population. However, data collected during long-term monitoring of the bowhead whale population and the subsistence harvest show: (i) the population is increasing and likely has surpassed the lower level of its carrying capacity; (ii) the reproductive rate is consistent with a healthy and increasing population; and (iii) harvested whales are in excellent physical and reproductive condition (Suydam and George 2004; George et al. 2004b; Angliss and Outlaw 2005). An increasing population indicates that there are no barriers to accessing a healthy ecosystem, which was confirmed by NMFS's decision on August 30, 2002 to not designate the Beaufort Sea as critical habitat. A strong reproductive rate indicates sex ratios, breeding, birthing, nursing, weaning, and feeding are all normal. Normal body condition indicates the population has access to adequate food supplies, areas to rest, and manageable levels of stress throughout its seasonal movements between the Bering and Beaufort Seas.³⁰

In sum, while uncertainties regarding the significance of acoustic events certainly exist, all available information indicates to a very high degree of certainty that the BCB Seas bowhead whale population is steadily growing in size, resilient to the level of mortality and other adverse effects that are currently occurring due to subsistence hunting or other causes, and unaffected at the population-level by decades of oil and gas activity, including seismic exploration in the Chukchi and Beaufort Seas OCS. MMS and NMFS may not act on speculation and surmise about undetected biological impacts from seismic surveys when there is a scientific consensus, based upon the best available data, that the totality of all human impacts is having no discernable, let alone significant, effect on the BCB Seas population's health, status, habitat, survival, or recovery.

3. There is no evidence that bowhead cows abandon their calves in response to seismic exploration or any other human activity

NMFS and MMS have premised imposition of a 120 dB safety zone with mandatory shutdown requirements on the potential for seismic activities to affect bowhead whale cow/calf pairs. DPEIS at IV-2, -3. In particular, the DPEIS and supporting materials include speculative statements that seismic activity may potentially cause population-level effects if they result in the abandonment of calves by cows or separation at early life stages. However, as addressed in detail above, all of the scientific evidence shows that seismic and other anthropogenic activities, including commercial whaling, have not caused the separation or abandonment of cow/calf pairs. *See* § IV.C above. The cow/calf maternal bond in bowhead and other species of whales is

³⁰ Nor do the available data support speculation that in the absence of exposure to seismic activity or other disturbances, increases in the population would have been greater. The BCB population has been steadily increasing for decades at an annual rate that is consistent with the maximum theoretical net productivity rate calculated by NMFS for this population. It is well-established among the scientific community that this rate of increase is indicative of a healthy marine mammal stock.

among the strongest found in nature. *See* DPEIS at III-99 (potential for separating cow/calf pairs, even assuming unrealistically high levels of seismic activity, is “low”).

In addition, there is no scientific basis for the arbitrary assumption that the observation of four cow/calf pairs “indicates that enough cow/calf pairs are likely present (but some unseen) in the area in numbers equal to or greater than 12 animals.” *See* DPEIS at IV-3. No scientific observations or studies are relied upon; nor to our knowledge do any supporting studies exist. Moreover, the agencies’ unsupported assumption is linked to its worst-case scenario PBR calculation of twelve whales, when a more realistic conservative figure is in the range of 45 to 75 whales. *See* Section III.B above. Use of a realistic population estimate and a realistic estimate of probable subsistence take, renders the already random threshold of four cow/calf pairs observed within the 120 dB isopleth well below any notion of significance.

4. There is no evidence that encountering aggregations of twelve whales or more at the 160 dB isopleth will have any adverse impact

NMFS and MMS have premised imposition of a 160 dB safety zone with mandatory shutdown requirements on the potential for seismic activities to affect bowhead or grey whale aggregations of twelve or more animals engaged in “biologically significant” behaviors. *See* DPEIS at IV-3, -4. The flaws with this rationale for unprecedented mitigation measures are many.

There is no scientific evidence that seismic activity has adversely affected any whale, let alone aggregations of whales engaged in behaviors of whatever nature. DPEIS at II-20 (“no injuries to marine mammals have been documented from seismic surveys”). In addition, the use of twelve aggregating whales as a threshold is linked directly to the unrealistic worst case scenario PBR calculation for bowhead whales. Use of a realistic population estimate and a realistic estimate of probable subsistence take, renders the aggregations of twelve bowhead whales at the 160 dB isopleth well below any notion of significance even assuming injury might occur (for which there is no supporting data). Finally, application of the twelve whale figure from the flawed PBR calculation for bowhead whales to grey whales is unexplained and unsupportable. The affected grey whale stock is not listed as endangered or threatened under the ESA. Its population is at carrying capacity, with estimates ranging from a minimum of 17,752 in 2005 to 29,000. DPEIS at III-145; 2005 Stock Assessment Report. According to NMFS’s most recent stock assessment, PBR for this population of grey whales is 417, compared with an annual rate of human-caused mortality of 130.4. Accordingly, although no mortalities or injuries to grey whales from the proposed action are expected, the mortal take for this species that could occur due to seismic activity without having a population-level impact is 287 whales, which is approximately 24 times greater than the twelve whale standard proposed in the DPEIS.

5. There is no evidence that time and area closures are necessary to protect bowhead whales or the fall subsistence whale hunt

For all of the reasons stated above, imposition of undefined time and/or area closures to protect migrating bowhead whales is scientifically unsupported and without a demonstrable benefit to the species. The DPEIS contains no evidence, nor is there any, indicating that such restrictions are needed. Indeed, the DPEIS premises its overly protective mitigation measures on alleged uncertainty regarding migratory timing and pathways. The agencies may not, on one hand

propose stringent mitigation based on uncertainty as to where whales may be in relation to seismic activity, and on the other assert a need to close specific areas for the protection of whales which admittedly may or may not be in any particular location. Furthermore, the available information regarding the non-effect of seismic exploration using the well-established 180/190 dB exclusion zone and other standard whale avoidance procedures contradicts the need to impose additional untested and scientifically unsupported measures. Finally, as explained below, data collected in 2006 indicates that the areas where seismic surveys are likely to occur do not substantially overlap with the timing or location of the fall whale migration, reinforcing the absence of any need to close additional areas for the protection of bowhead whales.

6. The 2006 monitoring results indicate very low interaction levels

Data collected during the 2006 seismic survey season by CPAI are important new information bearing on the need for mitigation measures beyond the established 180/190 dB exclusion zones. These data do not support a need for the 120-160 dB mitigation measures, or other unprecedented restrictions.

CPAI staffed three vessels for 24 hours per day with marine mammal observers between July 14 and October 16, 2006 in the region of seismic operations in the northeastern Chukchi Sea to document occurrence of bowhead whales and other marine mammals. In addition, aerial surveys were flown twice weekly in a band along the coast between Point Hope and Point Barrow and out 20 miles from shore from July 9 to 25 and again from August 23 to November 12, 2006.³¹

A total of 51 bowheads were recorded in the Chukchi Sea during the vessel and aerial surveys between July 14 and November 12. Twenty-five percent (13) of the whales were seen during July and August, and 75% (38) after September with over half of them (21) encountered in mid-November. The sightings included many single animals, indicating that few cow/calf pairs had as yet migrated into the Chukchi Sea. No large aggregations of whales were encountered or observed. During this time, larger feeding aggregations were observed in the Beaufort Sea, east of Point Barrow during the aerial surveys. These results suggest that very few bowheads use the region of the seismic operation in the Chukchi Sea from July through September, when most seismic operations occur. A few bowheads begin to enter the Chukchi in October and mid-November, but most appear to pass through the northeastern Chukchi Sea later, after the completion of seismic operations. Larger aggregations and most cow/calf pairs appear to also move through the region at a later time based on the observations during the time of the vessel and aerial surveys. The implications of these data are supported by the scientific literature (Treacy et al. 2006; Moore and Reeves, 1993). Yet this data is not incorporated into the DPEIS analysis.

The new information provided by monitoring during the 2006 seismic survey season suggests that only a small number (in both absolute numbers and as a percentage of the bowhead

³¹ Seismic operations were terminated on September 22 for Shell, October 13 for CPAI, and November 11 for GSX in the Chukchi Sea.

population) were exposed to seismic operations.³² These data indicate that the fall migration largely occurs after all or most seismic operations have ended as a result of severe weather and sea ice formation in mid to late October and November. Imposition of new stringent mitigation measures would be inconsistent with these data, which indicate that the normal migratory behavior of bowheads, combined with weather conditions, provides a high level of protection that is in addition to and independent from existing regulatory protections (i.e., 180 dB exclusion zone).

D. The DPEIS Fails to Analyze Safety, Feasibility, or Effectiveness

NMFS and MMS have failed to consider important and relevant factors in their analysis of the proposed 120 dB and 160 dB safety zones and the time/area closure mitigation measures.³³ OCSLA imposes a clear duty on MMS to consider safety. *See* 43 U.S.C. § 1332(6) (operations on OCS “should be conducted in a safe manner”); H.R. Rep. No. 95-590, at 159, *reprinted in* 1977 U.S.C.C.A.N. at 1565 (regulators must consider safety of procedures and equipment); S. Rep. No. 95-284, at 79 (1977) (indicating “the highest degree of safety” should be used in “OCS operations”).³⁴ Also, the MMPA authorizes NMFS to impose only feasible mitigation measures. 16 U.S.C. § 1371(a)(5)(D)(ii)(I). Despite these statutory obligations, and despite extensive evidence presented to MMS and NMFS, the DPEIS contains little discussion and no actual analysis of feasibility issues

In addition, NMFS and MMS have previously acknowledged its obligation to consider only those measures that are implementable, which the agencies have defined to mean “feasible in the technical (logistical or engineering limitations), environmental, economic, and social senses.” 2006 PEIS at 13. Although NMFS and MMS have been provided with substantial information establishing that the 120/160 dB mitigation measures are not implementable, none of this information is discussed in the DPEIS. *See* 2006 PEA at 15 (MMS and NMFS’s joint acknowledgement that “[l]ogistical complications and engineering limitations make effective monitoring of the 120-db isopleths-exclusion zone (in Alternatives 3 and 5 [of the PEA]) very difficult and overall not feasible to accomplish.”). Indeed, no attempt has been made to quantify costs, evaluate the available technologies, identify risks, or otherwise consider the feasibility of the 120/160 dB safety zone requirement or of time/area closures.

³² The 51 observed whales are 88 percent fewer than the number of whales NMFS predicted would be subject to temporary harassment from the 2006 seismic activity of CPAI using the 180 dB exclusion zone).

³³ MMS has acknowledged that obtaining seismic information is critical to its ability to address its statutory obligation to address safety. *See* 2006 PEA at p. 3 (“The MMS needs geological and geophysical seismic-survey information to fulfill its statutory responsibilities to ensure safe operations, . . .”).

³⁴ *See also Copeland v. Gulf Oil Corp.*, 672 F.2d 867, 868 n.2 (11th Cir. 1982) (recognizing “heavy emphasis [OCSLA] places on safety”); *W & T Offshore, Inc.*, 164 IBLA 193, 194 (2004) (“Congress intended to ensure that development of oil and gas resources be conducted safely”).

1. The 120 dB exclusion zone is not safe or implementable

In the 2006 PEA, which NMFS and MMS have referenced and incorporated into the DPEIS, MMS and NMFS admitted that the 120 dB requirements were “very difficult and overall not feasible to accomplish.” 2006 PEA at 15. This conclusion is amply supported by the associated safety risks, technical problems and costs of the 120 dB measures.

Aerial monitoring is extremely unsafe due to the remote location of the survey areas, unpredictable weather conditions, unfavorable ocean temperatures, and limited daylight hours, which make it unlikely that a rescue could be attempted in the event of mechanical problems. *See* AOGA’s Comment Letter on 2006 PEA, Section IV.B (incorporated herein by reference). The dangers of aerial surveillance over Arctic waters were sadly illustrated last season, when an operator lost all personnel on an aircraft that went down just outside of Anchorage and was never found. The DPEIS should address the very real risk to human life that aerial monitoring entails and reject this proposed form of mitigation as unsafe.

Moreover, monitoring a 120 dB exclusion zone is not practicable due to the size of the zone, poor weather conditions, and the remote locations of likely seismic activities. Monitoring the 120 dB isopleth would require aerial surveillance of a mobile zone of approximately 7,850 square kilometers, likely with a 50 kilometer radius, around a vessel that will transit thousands of kilometers. The availability of aircraft that meet the specific criteria for such a program is extremely limited. Assuming a suitable plane could be located and/or modified as needed, the cost could be substantial. Even if an appropriate aircraft could be found, the monitoring would be of dubious effectiveness, since flying time would be limited to one pass over the survey area per day.

When these substantial concerns were pointed out in comments on the draft 2006 PEA, NMFS and MMS responded that the 120 dB requirement would be “costly, and most difficult to implement.” 2006 PEA at D-15. However, the agencies did apparently recognize the dangerous nature of aerial monitoring programs required in 2006 and offered an alternative of allowing a passive acoustic monitoring (PAM) program instead. 71 Fed. Reg. at 43,130. However, the feasibility of PAM was not analyzed in the 2006 PEA and is not addressed in the DPEIS.

A PAM system was never required as a means of enforcing a marine mammal exclusion zone in Arctic waters until last year, when it was implemented for the first time by one operator without any credible indication of success. Currently available PAM systems are not yet sufficiently developed to be able to locate vocalizing marine mammals in the water column with adequate confidence levels to warrant their use. Existing technology cannot reliably discern whale calls over the sounds of the seismic source, has nowhere near the necessary range to cover the 120 dB isopleth area, and is not capable of identifying the position of whales. Also, there is little or no standardization for either software or hardware, which makes it difficult to measure the effectiveness of a PAM system. The limited availability of experienced operators with the broad range of skills needed to operate the systems is also a significant impediment that the agencies must evaluate. Perhaps most importantly, PAM is not capable of identifying the age or sex of a

whale and so cannot be used to monitor for cow/calf pairs.³⁵ Accordingly, although industry believes that PAM technology may provide a useful means of supporting marine mammal monitoring efforts in the future, further testing and technological improvements are needed before PAM can be reliably and cost-effectively used in Arctic waters.

Even if PAM technology were currently capable of providing accurate marine mammal monitoring (which it is not), the costs of such a program would be prohibitive and could potentially render a seismic program uneconomic. PAM may require mobilization of a second chase vessel and crew, which could cost in the neighborhood of \$1,700,000 for one season. Adding another vessel to already logistically complex operations also increases safety risks for crew members, and increases sound levels. Although the extent of the impact on operations cannot be certain, a conservative estimate is that a 120 dB exclusion zone could result in total shut-down of seismic operations for 1-2 days per week for the duration of a seismic season, which would result in losses of approximately \$7-14 million. The associated lost opportunity cost from the inability to conduct adequate seismic exploration, as well as market impacts from lost future development opportunity, are incalculable.

In the final analysis, experience from 2006 is most telling. Three operators engaged in seismic surveys in 2006 – Shell, CPAI and GTX. None successfully implemented a functioning 120 dB safety zone. Shell ended its seismic operations before the date by which the 120 dB safety zone was required because it concluded that aerial surveys of this zone were unavoidably and unacceptably unsafe, and because PAM was unavailable and would be ineffective. CPAI proceeded with its seismic survey only after obtaining an injunction from a federal district court staying enforcement of the 120 dB safety zone requirement. GTX proceeded with use of a PAM system as required by NMFS, but there is no evidence that the PAM system functioned as intended or was capable of detecting and locating whales within the 120 dB isopleth.

2. The 160 dB safety zone is not practicable or warranted

The impracticalities of implementing a 160 dB safety zone are similar to those described for the 120 dB safety zone. The size of the 160 dB safety zone, while smaller than a 120 dB zone, is still extraordinarily large. Visual monitoring of an area this size from an assist vessel is of limited accuracy due to the time needed to transit the area and range of view limitations. Also, as explained above, introducing additional vessels to a seismic operation increases not only costs, but also increases overall noise levels and human safety risks. The data collected in 2006 indicate that few whales, and no large aggregations, were observed. . PAM systems cannot

³⁵ Although not addressed in the DPEIS, use of the PAM system in 2006 was conditioned upon a substantial change in the applicable monitoring and shutdown requirements. In 2006, when using a PAM system to monitor the 120 dB zone, complete shutdown of seismic operations was required if a *single* bowhead whale of any age or sex was detected within the 7,850 square kilometer exclusion zone. Accordingly, one whale located 50 kilometers from the seismic vessel would have required a complete shutdown of seismic operations. This requirement was not linked to any asserted biological need to protect a single whale (out of a population of well more than 10,000) from seismic sounds *below* the threshold found by NMFS to constitute “harassment” under the MMPA (*i.e.*, 160 dB).

reliably detect or locate whales at this distance from the seismic vessel. Under low visibility conditions that frequently occur in the Beaufort and Chukchi Seas, there is no existing method or technology that can effectively observe an area the size of the 160 dB isopleth. Coupled with the fact that, as discussed above, there is no scientific evidence indicating that whale aggregations of twelve or more that might be located within the 160 isopleth will be affected in a manner leading to more than a negligible impact on the population or species, imposition of a 160 dB safety zone, with or without other mitigation measures, is not supportable.

3. Unspecified time and area closures are not practicable

Alternative 8 in the DPEIS requires implementation of specific, but unspecified, time and area closures (i.e., blackout dates) during which no seismic activity would be allowed.³⁶ Because no specific measures are identified, we cannot provide a specific analysis of the feasibility of these measures. The DPEIS does mention the extended blackout dates agreed upon by one operator in 2006 in the Beaufort Sea in the vicinity of the communities of Kaktovik, Nuiqsut and Barrow as a possible example, as well as closure of the Chukchi Sea to all seismic activity after September 25th to protect migrating cow/calf pairs, but the basis for, effect of and feasibility of these measures are not discussed. *See* DPEIS at II-19.

We are unable to respond to the possibility of speculative unspecified discretionary blackout dates or other restrictions. Nor are MMS and NMFS able to rely upon the present NEPA analysis to support future decisions imposing unspecified and unanalyzed measures. As to those measures which are identified as possibilities, none are practicable or warranted.

In the Chukchi Sea, the sea ice retreats from oil and gas prospect areas in late July to early August.³⁷ By July 24th, there is a 50 percent probability that a majority of the area will be ice free. By November 1st, there is a 50 percent probability that a majority of the area will be covered by ice again. Assuming, based upon historical data, that there is a maximum 100-day open water period for conducting seismic activity in the Chukchi Sea, closure of the entire area after September 25th would reduce access to the area by 40 percent.

The limitations in the Beaufort Sea are even more significant. In the Beaufort Sea, sea ice generally retreats near Barrow around September 1st, but does not clear Kaktovik until around September 11th, with variability from year to year. Ice begins to reform along the coast in a reverse (western) direction. By October 9th, ice typically closes off Kaktovik, with Barrow being closed off by ice around October 16th. Accordingly, the available seismic season in the western Beaufort is 30 to 45 days (50 percent probability of open water between September 1st to October 15th), and in eastern Beaufort is 20 to 30 days (50 percent probability of open water between September 11th and October 9th). Applying the blackout periods identified as examples in the

³⁶ All alternatives include a provision prohibiting seismic survey activity prior to July 1 to protect the spring migration, calving and cow/calf pairs. Our comments concerning blackout dates are not addressed to this standard requirement.

³⁷ Our comments in this section regarding ice coverage and open water are based upon a review of ice conditions over the last 50 years. The more recent eight years, a period of very low ice coverage, were studied in more detail for our analysis.

DPEIS, in the western Beaufort there would be only a 9-day seismic season with a 50 percent probability of acquiring seismic data and a 13-day seismic season in the eastern Beaufort with a 50 percent probability for acquiring seismic data, assuming there are no other shutdown problems. Restrictions limiting seismic activity to these time periods, given the mandates of OCSLA, the absence of any data identifying a detectable adverse impact to the BCB Seas population or to its annual migration, and given the other costs and limitations of the remote areas involved pushes the proposed action beyond any common notion of feasibility or reasonableness. Indeed, in 2006, the voluntary agreement by one operator to the Beaufort Sea blackout dates identified in the DPEIS prevented any seismic survey from being performed due to ice conditions during the limited remaining time period.

The Chukchi and Beaufort Seas are remote areas of uncertain but high oil and gas potential. As MMS has previously acknowledged:

In a typical frontier area a simple concept often holds true – area equals opportunity. . . . [C]onsidering the area as a whole, restricting access limits the opportunities for successful exploration, which could lead to commercial development.

2006 DEIS for Lease Sale 193 at IV-8, -9. The DPEIS does not identify the lost opportunity costs associated with the identified blackout periods; however, they are substantial and greatly outweigh any potential benefits. In the western Beaufort, the identified 35-day blackout period equates to a lost opportunity cost of \$19,250,000. In the eastern Beaufort, the 14-day blackout period would result in a lost opportunity cost of \$7.7 million.

Today, ice class seismic vessels require long lead times to contract. Companies must commit to vessels at least six months in advance of the program to ensure adequate resources and time for logistical planning are in place. The cost for seismic acquisition, support vessels and otherwise required marine mammal monitoring for ice class vessels can cost over \$550,000 a day in the Chukchi and Beaufort Seas. Financial investment decisions are made based upon historical probabilities of ice free conditions and through long range weather and ice forecasting. If time and area closures of the nature identified in the DPEIS are imposed – or are at uncertain risk of being imposed – then the probable time period for seismic data acquisition is too small for the costs and risks involved in such a remote area and unpredictable environment. This is effectively what occurred in 2006 to Shell when there were no available open water days in the Beaufort Sea after imposition of the blackout days identified in DPEIS. This is also effectively what has resulted in the withdrawal or deferment of CPAI's and GXT's 2007 G&G permits.

E. The Findings of the Federal District Court are Instructive

Finally, it is instructive to consider the findings of the Alaska Federal District Court in staying the effect of the 120 dB mitigation requirements when first imposed last season. Faced with (i) a discretionary standard of review that required the plaintiff (CPAI) to demonstrate that the agencies were either acting without a rational basis or contrary to law, (ii) issues of science regarding which courts give great deference to agencies, and (iii) an issue that not only concerns a listed endangered species with public appeal, but cow/calf pairs of the endangered species, the Court nevertheless sustained CPAI's arguments for a stay. The court did so because of the

strength of the information demonstrating that imposition of such unprecedented mitigation measures is not necessary or appropriate under the governing legal standards. As stated by the court in response to NMFS's motion to reconsider the stay order:

[T]he Court [is] convinced that: (1) the bowhead whale population is robust and has increased steadily over the past several decades alongside ongoing seismic exploration without the use of the new monitoring requirements; (2) implementing the monitoring as required would pose substantial risks to human health and safety, would impose severe economic harm on plaintiff in the range of \$7-\$14 million, and would impair plaintiff's ability to carry out its 2006 seismic program resulting in incalculable and irremediable lost opportunity costs; (3) granting the requested stay would preserve the status quo of the past several decades; and (4) as [NMFS] has separately concluded, granting the requested stay would not result in adverse effects on the bowhead whale population.³⁸

We do not contend that the court's orders regarding the stay order bind NMFS or MMS in this matter. However, we do contend that the Court's decision is relevant information that NMFS and MMS should consider regarding both the reasonableness of our concerns and the appropriateness of the proposed mitigation measures.

VI. REASONABLE MITIGATION MEASURES WILL ENSURE A HIGH DEGREE OF ENVIRONMENTAL PROTECTION

The best scientific evidence demonstrates to a high degree of assurance that there will be no discernable impacts to the health of the BCB Seas bowhead whale population, or other marine mammal stocks, from foreseeable seismic survey programs in the 2007 to 2010 time period using the 180/190 dB exclusion zones and other standard (but rigorous) mitigation requirements as provided for in Alternative 6. The measures provided in Alternative 6 provide a high degree of assurance that required mitigation measures will be effectively implemented and rigorously monitored to protect marine mammals from harm or injury, and to protect subsistence resources, while still fulfilling the mandates of OCSLA.

We urge NMFS and MMS to adopt Alternative 6 as the preferred alternative for the benefit and protection of marine mammals and subsistence activities as required by the MMPA, and to promote responsible oil and gas exploration and development in the OCS as required by OCSLA. Thank you for your consideration of our comments on the DPEIS.

Sincerely,

Marilyn Crockett
Deputy Executive Director
Alaska Oil and Gas Association

³⁸ *CPAI v. NMFS*, Civ. No. 06-198 (D. Alaska), Order Denying Motions for Reconsideration at 4-5.

