CRE Comments on the MMS Proposed OCS Leasing Plan and its EIS

The CRE comments attached hereto were developed through the use of an Interactive Public Docket (IPD) located at **http://www.thecre.com/creipd/**. The IPD is premised on the fact that in a wired society the time-limited public comment period in the Administrative Procedure Act is obsolete – public comment is a 24/7 operation. National Public Radio reviewed the IPD at **http://www.npr.org/templates/story/story.php?storyId=4599065**.

Why should the public not be involved in a rulemaking prior to the issuance of a proposed rule? Why should not the public be able to provide updated information to regulators after the close of a public comment period? Why should not the public be able to provide information to regulators during the implementation stage of a rule?

In that it often takes months, if not years, for an agency to complete a rulemaking subsequent to the close of the public comment period, new information should be provided to federal agencies on a continuous basis. CRE is not suggesting that agencies not establish deadlines for the issuance of a rule but instead that they announce a policy which states that while they are working on a rule agencies will review the contents of IPDs and introduce the relevant portions of the IPD into the record when such information contributes to the issuance of a technically sound rule.

The most helpful IPDs are those that encourage the posting of opposing views. To this end the IPD used to formulate the CRE comments on the Five Year OCS Plan contain comments received from the public on proposed CRE comments on the IPD. The public comments received by CRE are posted on the Discussion Forum at **http://www.thecre.com/zoning-forum/**. CRE responses to the considered comments of the public are contained in Section V of the CRE comments.

Consequently, CRE is not only presenting its comments to MMS but it has also vetted them with the stakeholders holding diverse views. The IPD also contains CRE's reaction to the views of diverse persons including those who disagree with one or more aspects of CRE's analyses. In addition the IPD provides a forum for all stakeholders to comment on the comments submitted by other stakeholders.

MMS should encourage the use of IPDs because it is a mechanism which ensures that the agency not only receives the views of a particular stakeholder but the public reaction thereto.

The data in the IPD will be augmented on a continuous basis by CRE and the public; it is for this reason that the CRE submission consists in part of a link to the IPD.

The thrust of the CRE comments are twofold and are attached hereto:

(1) There is authoritative legal precedent, in the D.C. Circuit, interpreting the environmental protection provisions of the Outer Continental Shelf Lands Act ("OCSLA") to require that the Department of the Interior and its Minerals Management Service give primary emphasis to the goal of developing new oil and gas resources with potential environmental impacts a secondary concern.

(2) There are no data, which complies with the Data Quality Act, demonstrating that seismic exposure reduces foraging in sperm whales.

Before the
Department of the Interior, Minerals Management Service

CRE Comments on the Draft Proposed 5-Year Outer Continental Shelf Oil and Gas Leasing Program for 2010-2015, and Notice of Intent to Prepare an Environmental Impact Statement (EIS) for the Proposed 5-Year Program	)))))	74 Fed. Reg. 3631, Jan. 21, 2009, and Secretary Salazar's announcement of Feb. 10, extending the comment period to Sept. 21, 2009, 74 Fed. Reg. 9426.

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September 2009

COMMENTS ON THE DRAFT PROPOSED 5-YEAR OUTER CONTINENTAL SHELF OIL AND GAS LEASING PROGRAM FOR 2010-2015 AND NOTICE OF INTENT TO PREPARE AN ENVIRONMENTAL IMPACT STATEMENT (EIS) FOR THE PROPOSED 5-YEAR PROGRAM

Introduction

The Center for Regulatory Effectiveness ("CRE"), a regulatory watchdog, is pleased to provide these comments to the Minerals Management Service ("MMS"). In its capacity as a watchdog, CRE works to ensure federal compliance with "good government" laws that regulate the regulatory process including the Data Quality Act, the Paperwork Reduction Act, the Regulatory Flexibility Act, and the Unfunded Mandates Reform Act.

CRE was established by former senior career officials from the White House Office of Management and Budget. For additional information about CRE, please see, **http://www.thecre.com/emerging/Jim_Tozzi_Bio.html**.

As part of its work to promote transparency regarding the Outer Continental Shelf ("OCS") and other marine science issues, CRE established the Ocean Zoning Interactive Public Docket ("IPD"), found at **http://www.thecre.com/creipd/**.[1]

CRE published a Working Draft version of these comments on the Ocean Zoning IPD for public review, discussion and comment.[2] Comments on CRE's working draft comments were posted on the IPD's Discussion Forum by a representative cross-section of stakeholders including academicians, environmentalists, and industry organizations.[3] CRE's comments to MMS include responses to those comments received on the IPD.

Two of the issues that CRE has identified as relevant to the draft OCS oil and gas leasing plan that are addressed in these comments, and responses to comments, are:

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[1] For additional information about the IPD, please see CRE's comments to the Office of Science and Technology Policy, **http://www.thecre.com/zoning-forum/wp-content/uploads/125/CRE%20Charting%20the%20Course%20Comments.pdf**

[2] **http://www.thecre.com/creipd/?p=114**.

[3] **http://www.thecre.com/zoning-forum/**.

1. Interpretation of the "Avoid Harm" provision of Executive Order 13158 establishing Marine Protected Areas ("MPAs") in light of judicial interpretation of the Outer Continental Shelf Lands Act ("OCSLA"); and

2. The effects of seismic operations associated with oil and gas exploration on marine mammal foraging.

CRE is also including as part of these comments a letter with recommendations for protecting marine mammals. This letter and an associated regulatory analysis were originally sent to the International Whaling Commission ("IWC") by CRE's Brazilian affiliate, CRE Brasil. These documents discuss the significance and implications of a landmark study prepared by the Petrobras Research and Development Center (CENPES/Petrobras), and the Marine Mammal Studies Group in the Lagos Region (GEMM-Lagos), entitled "Whales, River Dolphins, and Dolphins in the Campos Basin."

I. Analysis of Environmental Impacts under the OCSLA; Interpretation of the Impact of the "Avoid Harm" Provision of E.O. 13158 on Marine Protected Areas

Summary

Executive Order 13158 on Marine Protected Areas ("MPAs") contains a directive that agencies shall "avoid harm" to MPAs "to the maximum extent practicable," and other language in the Order adds emphasis to this apparent goal. However, the "avoid harm" directive is qualified so that it applies only "[t]o the extent permitted by law." There is authoritative legal precedent, in the D.C. Circuit, interpreting the environmental protection provisions of the Outer Continental Shelf Lands Act ("OCSLA"), principally section 18(a)(3), to require that the Department of the Interior and its Minerals Management Service give primary emphasis to the goal of developing new oil and gas resources, with potential environmental impacts a secondary concern. Although the Draft Proposed Plan for 2010-2015 (the "DPP") discusses this legal authority, the discussion does not explain the D.C. Circuit's finding that oil and gas leasing must be the primary emphasis under the OCSLA, and it does not explain that this legal authority counterbalances the "avoid harm" direction in the Order.[4] The discussion in the DPP should be expanded to address that point.

A. Executive Order 13158 and Its "Avoid Harm" to MPAs Provision

President Clinton issued Executive Order 13158 on May 26, 2000. The Order established the term "Marine Protected Area" ("MPA") as a term encompassing "any area of the marine environment that has been reserved by Federal, State, territorial, tribal, or local laws or regulations to provide lasting protection for part or all of the natural and cultural resources therein." The Order established a "National System of MPAs", and provided various measures and policies to coordinate protection of MPAs.[5]

The Order contains a number of statements and provisions indicating that its purpose was not only to maintain the existing level of protection for MPAs, but to enhance protection. Section 1, on "Purpose," states that the Order "would enhance the conservation" of natural and cultural resources within the MPA system, and would "avoid causing harm to MPAs through federally conducted, approved, or funded activities." Section 4, on creation of the National System of MPAs, states that federal agencies should use a variety of enumerated measures "to further enhance and expand protection of existing MPAs . . . ."

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[4] For additional crucial information on the relationship between MPAs and OCSLA, see "The Implications of the NOAA National System of Marine Protected Areas on the Outer Continental Shelf Lands Act" available at **http://thecre.com/pdf/20090615_MMS_MPA_Five_Year_Plan_Conflict.pdf**.

[5] For additional information on the establishment of MPAs, see CRE's "Comments on NOAA's Proposed National System of Marine Protected Areas (MPAs)" available at **http://thecre.com/pdf/NSSubmission.pdf**.

Section 5 of the Order contains a direct Executive mandate to agencies with regard to protection of MPAs, stating:

> *Each Federal agency whose actions affect the natural or cultural resources that are protected by an MPA shall identify such actions. To the extent permitted by law, and to the maximum extent practicable, each Federal agency, in taking such action, shall avoid harm to the natural and cultural resources that are protected by an MPA. ...*

It appears that the OCSLA[6] is one of the laws providing for Federal actions potentially affecting MPAs because the Order states that it is issued "in furtherance of the purposes of the ... OCSLA," among other laws.

The issue then is whether E.O. 13158 established a new, higher level of protection for MPAs and their natural and cultural resources that might be affected by OCSLA leasing in stating the agencies must "avoid harm" "to the maximum extent practicable," or whether the initial qualifier that the "avoid harm" directive applies only "[t]o the extent permitted by law" counterbalances that directive in the case of the OCSLA.

B. The Extent of MPAs with a Potential for Being Affected by OCSLA Leasing

MPAs added to the National System of MPAs and subject to E.O. 13158 are located in virtually all of the coastal waters of the Untied States.[7] There are currently nearly 1,700 MPAs, designated and managed by federal, State, territorial, and local agencies. The MPAs are located in marine waters roughly 0-200 miles from the coast and under both primary federal and State jurisdiction or partnership.

If E.O. 13158 is interpreted to require that MPA's be given a higher level of protection than prior to its issuance (avoid harm "to the maximum extent practicable"), the Order's policy could have a significant impact on federal oil and gas leasing decisions under the OCSLA. The Department of the Interior would have to make OCS lease planning decisions so as to give priority to protection of the natural and cultural resources within every potentially affected MPA, regardless of the value of those MPA resources in comparison to the Nation's need for domestic oil and gas sources.

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[6] 42 U.S.C. §§ 1331 *et seq*. The Act was amended substantially in 1978.

[7] See **http://mpa.gov/pdf/national-system/nat_sys_snapshot.pdf**.

C. The Environmental Protection Provisions of the OCSLA

At the planning stage of the leasing process, which is currently ongoing, the key provision of the OCSLA concerning consideration of environmental impacts is section 18(a)(3), 43 U.S.C. § 1344(a)(3),[8] which states:

> *The Secretary [of the Interior] shall select the timing and location of leasing, to the maximum extent practicable, so as to obtain a proper balance between the potential for environmental damage, the potential for the discovery of oil and gas, and the potential for adverse impact on the coastal zone.*[9]

The Act gives no specific guidance with regard to what constitutes "a proper balance." On its face, however, the phrase appears to rule out an interpretation that gives more weight to environmental impacts than to energy development, which seems to be an interpretation otherwise supported by much of the language of E.O. 13158. And, as will be seen below, section 18(a)(3) and the phrase "a proper balance" has been interpreted on this point by judicial precedent that remains firmly in place.

Other provisions of the OCSLA addressing assessment of environmental impacts of OCS oil and gas leasing at the stages beyond the planning/area selection phase (leasing, oil and gas development and production), indicate that energy development on the OCS is to be given more weight than potential environmental impacts, and that significant risk or degree of environmental impact is considered acceptable. For example:

- The provisions on "Administration of leasing," 43 U.S.C. §1334, provide that the Secretary may cancel a lease if he determines that the leasing activity "would probably cause serious harm of damage to life (including fish and other aquatic life) . . . or to the marine, coastal, or human environment, " and "the threat of harm or damage will not disappear or decrease to an acceptable extent within a reasonable period of time." Sec. 1334(a)(2)(A) (emphasis added).

- The provisions on "Oil and gas development and production," 43 U.S.C. § 1351, contain similar qualifications, stating that the Secretary shall disapprove a development and production plan if he determines, "because of . . . exceptional resource values in the marine or coastal environment, or other exceptional circumstances, that (i) implementation of the plan would probably cause serious harm or damage to life (including fish and other aquatic life) . . . or to the marine, coastal or human environments, (ii) the threat of harm or damage will not disappear or decrease to an

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[8] Section 18 was added by the 1978 amendments to the OCSLA.

[9] The "coastal zone" is defined as "the coastal waters (including the lands therein and thereunder) . . . in proximity to the shorelines of the several coastal States . . . which zone extends seaward to the outer limit of the United States territorial sea . . . ."

acceptable extent within a reasonable period of time, and (iii)the advantages of disapproving the plan outweigh the advantages of development and production." Sec. 1351(h)(1)(D).

D. Potential for Conflict between the E.O. and the OCSLA

Executive Order 13158 gives the impression that its intention is to increase the degree of protection from federal activities, including activities under the OCSLA, given to MPA's prior to issuance of the Order. However, section 5 of the Order (and under general principles of law the rest of the Order) is subject to the stated qualification that its directives apply only "[t]o the extent permitted by law. . . ." Therefore, if the Draft Proposed 5-yr Plan does not clearly explain the extent to which the OCSLA permits consideration of environmental impacts in OCSLA decisions, the Executive Order could be viewed as supporting objections to OCS leasing plans based on low probability of slight risks of impacts on natural and cultural resources within MPAs. The established legal precedent regarding the limited weight that should be given to potential environmental impacts in relation to oil and gas development is described below.

E. Case Law Interpreting Section 18(a)(3) of the OCSLA

The U.S. Court of Appeals for the District of Columbia Circuit has directly addressed interpretation of section 18(a)(3) of the OCSLA. No other federal Circuit Court has addressed the issue, nor has the U.S. Supreme Court.

The leading case is *State of California ex rel. Brown v. Watt*, 668 F.2d 1290 (D.C. Cir. 1981). The court found that, although section 18(a)(3) does not define the "proper balance" between oil and gas development and environmental concerns, a correct interpretation could be derived from statements of Congressional purpose and other provisions of the Act.

First, the court observed that in the Act Congress declared it to be the policy of the United States that "the outer Continental Shelf is a vital national resource . . . which should be made available for orderly and expeditious development, subject to environmental safeguards . . . ." 43 U.S.C. § 1332(3). At 1315. The court found that this statement of purpose reflected the Act's "primary emphasis on expeditious development of the OCS, qualified by the recognition of a need for measures to alleviate or minimize its adverse impacts." *Id*. (emphasis added). See also 43 U.S.C. §1802. It found this view to be supported also by the Act's legislative history.

In arguing its case, the State of California contended that the term "balance" in section 18(a)(3) meant that the three factors in the provision -- the potential for environmental damage, the potential for the discovery of oil and gas, and the potential for adverse impact on the coastal zone -- should be weighed equally in the lease planning process. The court explicitly disagreed, holding that meeting national energy needs should be considered the most important objective:

> *That the Act has an objective -- the expeditious development of OCS resources -- persuades us to reject petitioners' view that the three elements in section 18(a)(3) are "equally important" and that no factor is "inherently more important than another."* [Footnote omitted] *The environmental and coastal zone considerations are undoubtedly important, but the Act does not require they receive a weight equal to that of potential oil and gas discovery. A balancing of factors is not the same as treating all factors equally. The obligation instead is to look at all factors and then balance the results. The Act does not mandate any particular balance, but vests the Secretary with the discretion to weigh the elements so as to "best meet national energy needs."*

At 1316-17 (emphasis added). The court also endorsed the Secretary's approach of weighing oil and gas benefits against potential environmental costs, and stated with regard to the State's concerns regarding this approach:

> *Petitioners' objection to this view is essentially that it allows even significant environmental costs and coastal zone impacts to be overriden* [sic]. *Yet this is precisely what the Act intends, provided that the potential oil and gas benefits exceed those potential costs.*

In other words, in order to achieve a "proper balance" under section 18(a)(3), the Secretary must not weigh the factors in section 18(a)(3) "equally"; but rather, must give the greatest weight to the "inherently more important" objective of best meeting national energy needs.

The continuing validity of the Circuit Court's 1981 decision in *State of California ex rel Brown*, has been recognized in *Natural Res. Def. Council v. Hodel*, 865 F.2d 288, 302 (D.C. Cir.1988) ("The primary purpose of OCSLA is expeditious, orderly development of the oil and gas resources of the OCS, with due consideration for the impact of that development . . . .", citing State of California). Very recently, in *Center for Biological Diversity v. U.S. Dept. of the Interior*, 563 F.3d 466, 472 (D.C. Cir. 2009), the D.C. Circuit again reaffirmed that the primary purpose of the Act is "to ensure 'the expeditious but orderly development of OCS resources,'" citing its 1981 decision in *State of California ex rel. Brown*.

Potential environmental or other impacts on MPAs cannot be given equal or greater weight, as might be considered to be implied by E.O. 13158 and its directive to "avoid harm" "to the maximum extent practicable." Instead, the avoidance of harm to MPAs must be limited to "the extent permitted by law" under *State of California ex rel Brown, supra*, which established that development of oil and gas resources on the OCS must be considered the primary objective of the Act.

F. Department of Commerce/NOAA Interpretation of E.O. 13158

In November 2008, the Marine Protected Areas Center of the National Oceanic and Atmospheric Administration (NOAA) of the Department of Commerce published a document entitled FRAMEWORK FOR THE NATIONAL SYSTEM OF MARINE PROTECTED AREAS OF THE UNITED STATES OF AMERICA.[10] This Framework document contains extended discussion of implementation of E.O. 13158. One section of the Framework document describes and discusses section 5 of the Order -- the "avoid harm" provision.

The Framework document first notes that "[e]ach federal agency is responsible for its own implementation of its responsibilities under Section 5." At 43. The document then cites a list of legal authorities to which the Order is applicable, which includes the OCSLA. Thus, it is clear that the Department of Commerce/NOAA/MPAC position is that it is not its responsibility to interpret section 5 for other federal agencies, and that interpretation of the OCSLA is the province of the Department of the Interior. The Framework document does not contain any discussion or commentary on the responsibility of the Department of the Interior to "avoid harm" under established interpretation of the OCSLA.

The Framework document also comments that "[t]he implementation of Section 5 is governed by existing authorities . . . . The Order does not provide any new authority for any federal agency or the MPA Center to review activities of any other federal agency or alter standards for existing review." At 44.

G. Department of the Interior/MMS Interpretation of the OCSLA

The Minerals Management Service (MMS) regulations implementing the OCSLA do not address the issues that are the subject of this paper.[11] On the other hand, the Draft Proposed Plan ("DPP") does address the balancing provision of section 18 of the OCSLA as interpreted in *State of California ex rel Brown, supra*, and it quotes much of the same language as quoted above (at 114-16). However, the DPP does not refer to the passage of the court's opinion quoted above regarding expeditious energy development being the primary emphasis of the Act, and does not explain that the "balancing" required by section 18(a)(3), and as explained by the Court of Appeals, requires that this primary emphasis be incorporated into the balancing.

The DPP also does not contain any reference to, or discussion of, section 5 of E.O. 13158 in relation to section 18(a)(3) of the OCSLA and its authoritative judicial interpretation in *State of California ex rel. Brown*.

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[10] Available at **http://mpa.gov/pdf/national-system/finalframework_full.pdf**.

[11] 30 CFR Ch. II.

H. Conclusions

Section 5 of E.O. 13158 directs all federal agencies, including the Department of the Interior in its implementation of the OCSLA, to "avoid harm" to all MPAs "to the maximum extent practicable." But, it qualifies this directive by stating that it applies only "[t]o the extent permitted by law." Under *State of California ex rel Brown*, oil and gas development on the OCS must be considered the "primary emphasis" in the balancing of oil and gas development and environmental impacts required by section 18(a)(3) of the OCSLA, and environmental considerations are not entitled to equal weight. However, the federal agency responsible for implementing the OCSLA, the Department of the Interior/MMS, has not expressly interpreted section 5 of E.O. 13158 in light of that judicial authority.

I. Recommendations for Changes to the Proposed Plan

We recommend that the discussion of the "balancing" requirement of section 18(a)(3) of the OCSLA that is currently contained in the Draft Proposed Plan be expanded to address clearly the relationship between section 5 of E.O. 13158 and *State of California ex rel. Brown*. The Draft Plan should explain that under *State of California ex rel. Brown*, section 5 of the Executive Order must be interpreted so that the goal of oil and gas development on the OCS is given "primary emphasis," with potential environmental impacts given lesser emphasis.

II. Oil and Gas Seismic Operations Do Not Affect Sperm Whale Foraging

Summary

Despite extensive research, there are no reliable data showing that oil and gas seismic operations adversely affect sperm whales' foraging for food. United States regulatory agencies are fully aware of all the foraging effects studies and have correctly decided not to regulate seismic on the basis of foraging effects. MMS and other regulatory agencies should state clearly that there are no reliable data showing adverse effects from seismic when they discuss the foraging issue.

A. There are No Data Showing That Seismic Exposure Reduces Foraging in Sperm Whales

One study concluded that oil and gas seismic operations cased no measurable effects on the feeding activities of grey whales.[12]

Another study found no effects from low frequency sound on the foraging actions of fin blue and balaenoptera whales. The abstract for this article is quoted in part below:

> *We conducted a manipulative field experiment to test the effects of loud, LF noise on foraging fin blue (B. musculus) and (Balaenoptera physalus) whales off San Nicolas Island, California. Naive observers used a combination of attached tracking devices, ship-based surveys, aerial surveys, photo-identification and passive monitoring of vocal behaviour to examine the behaviour and distribution of whales when a loud LF source (US Navy SURTASS LFA) was and was not transmitting. During transmission, 12-30% of the estimated received levels of LFA of whales in the study area exceeded 140 dB re 1 μPa. However, whales continued to be seen foraging in the region. Overall, whale encounter rates and diving behaviour appeared to be more strongly linked to changes in prey abundance associated with oceanographic parameters than to LF sound transmissions. In some cases, whale vocal behaviour was significantly different between experimental and non-experimental periods. However, these differences were not consistent and did not appear to be related to LF sound transmissions.*[13]

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[12] "Feeding of western gray whales during a seismic survey near Sakhalin Island, Russia," Yazvenko, McDonald, Biokhin, Johnson, Melton, Newcomer, Nielson and Wainwright, Environmental Monitoring and Assessment 2007;134(1-3):93-106, which concludes, inter alia, that an oil and gas seismic survey had no measurable effect on bottom feeding activity of western gray whales of Sakhalin Island.

[13] Croll, D.A., Clark, C.W., Calambokidis, J., Ellison, W.T., and Tershy, B.R. 2001. Effect of anthropogenic low frequency noise on the foraging ecology of Balaenoptera whales. Animal Conservation 4:13-27.

With regard to sperm whales, another article concludes that "no statistically significant effects of airgun activity on sperm whales were found during" a UK study.[14] However, this study did not directly investigate seismic effects on sperm-whale feeding activity.

The only direct research on seismic effects on sperm whale feeding is presented in the 2008 Synthesis Report on the Sperm Whale Seismic Study in the Gulf of Mexico ("Synthesis Report"), which is published by the U.S. Minerals Management Service ("MMS").[15] The Synthesis Report discusses data on the foraging behavior and avoidance movements of 8 tagged sperm whales in the Gulf of Mexico during exposure to airguns ("Study"). This Study rests on the assumption that whales' buzz rates reflect the rates of their foraging for food.

Section III of CRE's comments presents a technical analysis of MMS' version of this Study.[16]

The scientists who conducted the Study recently wrote an article about it. These scientists described their Study as follows:

> *The behavioral response experiments were performed in August-September of 2002 and June of 2003 in the northern Gulf of Mexico. The experimental procedure involved the following steps: (1) tagging one or more whales with Dtags, (2) following tagged whales at a distance to fix their surfacing locations, (3) after a pre-exposure period, exposing the tagged whales to sound from an airgun array on a dedicated seismic source vessel at a controlled distance, (4) continuing to follow tagged whales after the airguns were turned off to record post-exposure behavior, and (5) recovering the tag once it detached from the whale.*[17]

This Article contains the most recently published discussion of the Study by the researchers who actually conducted it. This Article differs from the Synthesis Report and other discussions of the Study in at least two respects.

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[14] The effects of seismic airguns on cetaceans in UK waters, Stone and Tasker, J. Cetacean Res. Manage. 8(3): 255-263, 2006,available online at **http://www.carolynbarton.co.uk/Stone_Tasker_2006.pdf**.

[15] The Synthesis Report is available online at **http://www.gomr.mms.gov/PI/PDFImages/ESPIS/4/4444.pdf**.

[16] See CRE comments, *infra* at page 15.

[17] Using at-sea experiments to study the effects of airguns on the foraging behavior of sperm whales in the Gulf of Mexico, Deep Sea Research Part I: Oceanographic Research Papers, Volume 56, Issue 7, July 2009, Pages 1168-1181, P.J.O. Miller, M.P. Johnson, P.T. Madsen, N. Biassoni, M. Quero, P.L. Tyack, available online at **http://thecre.com/pdf/Airguns.pdf**.

B. The Article Does Not Mention the 60% Whale or the Bayesian Analysis

First, according to the Synthesis Report, the Study authors performed a nonparametric rotation test on the seven whales who made foraging dives. This test "found no evidence for a concerted reduction in foraging rate during airgun exposure by all seven whales." However, according to the Synthesis Report, the same test showed a 60% reduction in foraging for one whale.[18] By contrast, the Article does not even mention the 60% whale or the nonparametric rotation test.

Second, the Article does not mention any Bayesian statistical analysis. Yet the Synthesis Report claims that the Study authors performed Bayesian analysis on the foraging effects data because ANOVA analysis did not show any statistically significant relationship between seismic exposure and buzz rate/foraging among the seven whales who made foraging dives. By contrast to the Article, the Synthesis Report discussed this Bayesian analysis extensively. The Synthesis Report claims that the analysis "indicated that the odds favor that, during exposure, there was a decrease in foraging activity of approximately 20% rather than that there was no change in foraging activity" of the seven whales.[19]

These two claims are prominent in the Synthesis Report's discussion of the Study. By not mentioning these claims in their peer-reviewed Article on the Study, the authors of the Study appear to abandon them, perhaps because their underlying analysis is flawed.[20]

C. The Study's Pitching Data Do Not Show Adverse Foraging Effects

The Synthesis Report explains that the Study "used the animal's pitching energy, which reflects fluking movements, to estimate locomotion costs...."[21]

The Synthesis Report acknowledges that except for one whale who took a nap, the tagged "whales continued to make deep foraging dives during controlled acoustic exposure."[22]

However, according to the Synthesis Report, "Results of an ANOVA statistical test for changes in foraging behavior of in the 7 whales that did foraging dives during exposure indicated a statistically

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[18] Synthesis Report, page 263 (emphasis added). See also Synthesis Report at pages 13, 259, 261.

[19] Synthesis Report, page 283.

[20] See *infra* at page 6, for a discussion of the flaws in their analysis.

[21] Synthesis Report, page 258.

[22] Synthesis Report, page 283.

significant decrease in pitching movements generated by swimming motion during full-array exposure as compared to post-exposure periods."[23]

By contrast, the Article imposes several caveats on these pitching data (emphasis added):

> *Although pitching movements likely correlate with swimming effort, it is not possible to estimate energy expenditure in absolute terms from accelerometer measurements because the relationship between fluking and energy expenditure* [citation omitted] *has not been calibrated for sperm whales. Moreover, the relationship between fluke oscillations and body pitching angle depend upon the location of the tag on the animal which varies from whale to whale.*
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> ***
>
> *We only examined pitching movements during the search phase of echolocation-mediated foraging, and not during prey capture attempts.*
>
> ***
>
> *The seven whales that conducted foraging dives during and after airgun exposure all had lower pitching effort during full airgun-array exposure compared to the post-exposure period, with a statistically significant difference of 6.4%. Although the relationship between pitching effort, as quantified here during the search phase of echolocation-based foraging, and energy expenditure is not simple, the implication is that whales expended less energy during exposure.* ***This result was contrary to the hypotheses that fluking effort might increase during exposure if sperm whales actively swam away from the source or if finding prey in increased noise required more swimming effort****. However, this pattern is maintained, in a more extreme way, by the one whale that did not perform a deep dive until after airgun transmissions ceased. Thus, all eight tested whales seem to have had lower expenditure of energy on locomotion when airguns were firing than in the immediately subsequent post-exposure condition.*[24]

The change in pitching, assuming it occurred, could indicate that whales had an easier timer foraging during airgun exposure because they did not have to expend as much energy in finding food. This seems unlikely, so the pitching data most likely has no biological significance at all.

The "***one whale that did not perform a deep dive until after airgun transmissions ceased***" took a nap after being tagged. Napping is normal for sperm whales. The whale's long nap cannot be attributed

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[23] Synthesis Report, page 283.

[24] The Article as published online is not paginated. As noted above, the Article is available online at **http://thecre.com/pdf/Airguns.pdf**.

to seismic exposure because the Article explains that he started napping ***before*** he was exposed to seismic:

> *Sperm whales worldwide conduct stereotyped resting drift dives during which they maintain a vertical posture near the sea surface* [citation omitted]. *The tag data for whale sw173b recorded the whale to be in a resting bout that lasted 265 min. The resting bout started 14 min after the tag was deployed, continued throughout pre-exposure, rampup and full-array conditions, and ceased 4 min after the final airgun pulse* [citation omitted]. *It is unknown if the whale had been resting prior to tag attachment.*

D. The Study Data Have Other Flaws

The Article explains that the Study does not include pre-seismic exposure foraging data for the napping whale or for any of the other whales:

> *Therefore, to reduce the risk of making comparisons to 'baseline' behavior that had been influenced by tagging, we did not use the pre-exposure condition as a baseline for studying effects on foraging behavior in the 2002 experiments. We had solved this `problem by 2003, indicated by long intervals between tagging and the start of exposure* [citation omitted]. *However, rather than split an already small data set, we used the post-exposure condition as the non-exposure condition for comparison.*

The Article concludes that:

> *[t]he sample size from this study was insufficient to generate conclusive results on the effect of seismic airguns on the foraging of sperm whales in the Gulf of Mexico. We found consistent, but small, changes in pitching effort which is a behavior completely under each animal's control. However, our sample size was too small for conclusive results on buzz-rates, which, as an interaction between whale and prey, have additional sources of variability. Nonetheless, our results provide preliminary evidence that airgun operations might affect the foraging behavior of sperm whales negatively, possibly reducing their foraging rate even at the moderate received levels and large ranges between whale and sound source used here. Behavioral changes may include, at one extreme, delay of diving to avoid high-intensity exposure when horizontally close to an airgun array, and, at lower levels, disruption of the whales' foraging, perhaps linked with behavioral reactions of prey, as mentioned above.*

This conclusion is very equivocal. It could not support regulation of seismic on the basis of adverse foraging effects in sperm whales, especially given the other problems with the Study discussed above and below.

E. MMS and NMFS Know About the Foraging Studies and Correctly Aren't Using Them to Regulate Seismic

MMS and the U.S. National Marine Fisheries Service ("NMFS") have known the Study results since at least 2006.[25] Since then, NMFS and MMS have taken many actions regulating seismic effects on sperm and other whales. None of them regulate on the basis of the Study, and none of them impose any new regulatory requirements to prevent seismic effects on sperm whales' foraging.

For example, MMS issued 5-year leases for the period 2007-2012 for the U.S. Outer Continental Shelf. These leases include areas in the Gulf of Mexico, where the Study occurred. Environmental groups sued MMS on these leases, and succeeded in part. This suit did not include any seismic forging claims.

As another example, MMS' new Notice to Lessees for oil and gas seismic operations does not include any requirements to prevent or mitigate foraging effects.[26]

As a final example, NMFS has issued several IHAs that discuss the foraging Study, but don't impose any new conditions as a result of the Study.[27]

This absence of regulatory consequence is not surprising because there are no reliable data showing that seismic causes adverse foraging effects.

F. Regulatory Agencies Such as MMS and NMFS Should Clearly State that the Data Do Not Support A Conclusion that Seismic Causes Foraging Effects

There follows a recent statement by NMFS on seismic foraging effects. This statement is from an IHA for a Rice University seismic vessel in the Atlantic (emphasis added):

> *Most studies of sperm whales exposed to airgun sounds indicate that this species shows considerable tolerance of airgun pulses (Stone, 2003; Moulton et al., 2005, 2006a; Stone and Tasker, 2006; Weir, 2008). In most cases, the whales do not show strong avoidance and continue to call (see Appendix A of Rice's EA for review).* ***However, controlled exposure experiments in the Gulf of Mexico indicate that foraging effort is somewhat altered upon exposure to airgun sounds (Jochens et***

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[25] See, e.g., **http://www.gomr.mms.gov/PI/PDFImages/ESPIS/3/3600.pdf** for 2006 document discussing the foraging data.

[26] **http://www.gomr.mms.gov/homepg/regulate/regs/ntls/2007NTLs/07-g02.pdf**.

[27] *E.g.*, Rice University IHA at 74 FR 28890, 28899 (June 18, 2009).

> ***al., 2006, 2008).*** *In the SWSS study, D-tags (Johnson and Tyack, 2003) were used to record the movement and acoustic exposure of eight foraging sperm whales before, during, and after controlled sound exposures of airgun arrays in the Gulf of Mexico (Jochens et al., 2008). Whales were exposed to maximum received sound levels between 111 and 147 dB re 1 μPa (rms) (131 to 164 dB re 1 μPa pk-pk) at ranges of approximately 1.4 to 12. 6 km (0.9 to 7.8 mi) from the sound source.* ***Although the tagged whales showed no horizontal avoidance, some whales changed foraging behavior during full array exposure (Jochens et al., 2008)****.*[28]

The unqualified NMFS statement that "some whales changed foraging behavior during full array exposure" is based on the Synthesis Report (*i.e*., "Jochens et al., 2008"). This statement is misleading given the subsequent Study article's much more equivocal statements (e.g., "***our results provide preliminary evidence that airgun operations might affect the foraging behavior of sperm whales negatively, possibly reducing their foraging rate***..."); given the fact that there are no data showing a statistically significant relationship between seismic exposure and reduced buzz rates/foraging; and given the many flaws in the Study.

MMS and other regulatory agencies should be careful to state that the Study does not support any conclusions that oil and gas seismic operations adversely affect sperm whale foraging.

[28] 74 FR 28890, 28899 (June 18, 2009).

III. Technical Analysis of MMS' Sperm Whale Seismic Study

The Sperm Whale Seismic Study (SWSS) was a five year, multi-institutional research program that focused on sperm whales in the northern Gulf of Mexico. SWSS objectives were to establish the normal behavior patterns of sperm whales, characterize habitat use, and to determine possible changes in behavior of sperm whales when exposed to noise from seismic gun arrays. The Minerals Management Service (MMS) produced two documents: Sperm Whale Seismic Study in the Gulf of Mexico Synthesis Report (MMS 2008-006) and Sperm Whale Seismic Study in the Gulf of Mexico Summary Report (MMS 2006-034). These documents summarized the SWSS program results. Our comments focus on section 6 of the MMS Synthesis Report (*Response of Sperm Whales of the Northern Gulf to Anthropogenic Noise)* and section 7.3.5 of the MMS Summary Report *(Analysis of Whale Movement and Behavior in Relation to Controlled Experimental Exposures from a Seismic Array)*.

A. Foraging Behavior

Sperm whales were temporarily tagged with digital-recording acoustic tags (D-tags) that record whale orientation (pitch, roll, and heading), depth, and sounds produced and received by whales. These D-tags were used in controlled exposure experiments to measure responses of the tagged whales to sounds produced by seismic airguns. The effects of air-guns on foraging behavior were estimated by assessing the differences in responses between exposure and post-exposure control periods for 7 exposed and 13 non-exposed whales. Foraging was determined by changes in echolocation sounds, called buzzes, believed to be produced when whales attempt to capture prey.

As reported in the Summary Report, an ANOVA analysis indicated that there was a statistically significant decrease in swimming movements during a full-array airgun exposure as compared to post-exposure periods. The authors reported on page 253, that pitching movements generated by swimming motion were 6% lower during exposure ($p = 0.014$). Buzz rates were 19% lower during exposure to airgun sounds, but this effect was not statistically significant ($p = 0.141$). In the Synthesis Report, the authors refer to another document (Miller *et al*., 2005) that reports the pitching motions were 11% lower ($p < 0.05$) and the buzz rates were 24% lower ($p = 0.16$).

The authors also conducted a Bayesian analysis to quantify the odds-ratio. The Bayesian analysis indicated that a decrease in buzz rate is 3.6 times more likely than no change given the data and a decrease in pitching movement is 2.9 times more likely than no change.

B. Avoidance

Longer-term avoidance or horizontal displacement behaviors of sperm whales exposed to seismic airgun sounds were evaluated using Satellite-tracked radio telemetry tags (S-tags). The researchers attempted to determine whether satellite-tracked sperm whales occurred less frequently than expected in the vicinity of active seismic vessels (a possible indication of avoidance). Using location data from

tagged sperm whales and seismic lines, the researches tracked 12 whales that were determined to be within 25 km of an active seismic vessel. Analyses of the data suggest that there is no horizontal avoidance of sperm whales to seismic survey activities in the Gulf of Mexico. Moreover, the data do not support the assumption that whales swim away from an airgun array as it ramps up or approaches the whale at full power.

C. Reported Study Conclusions

- More research is needed to define the effects of sounds from seismic airguns on foraging behavior on sperm whales.

- Additional controlled experiments are necessary to increase the sample size to numbers yielding the desired statistical power.

- The data indicate a significant change in feeding behavior associated with exposure to seismic air-gun sounds with received levels ranging from <130 to 162 dBp-p re 1 μPa (decrease in fluking movement at $p < 0.02$).

- Bayesian analyses suggest a 20% decrease in foraging attempts at exposure levels ranging from <130 to 162 dBp-p re 1 μPa at distances of roughly 1 to 12 km from the sound source, is more likely than no effect. The odds are about three times more likely that there is a 20% reduction in foraging during air-gun exposure than that there is no effect.

- There appeared to be no horizontal avoidance by sperm whales to controlled exposure of seismic airgun sounds.

D. Assessment of Sperm Whale Seismic Study

1. <u>Study Strengths</u>

- The study is adequate for screening foraging behavior, but an expanded study is needed to address concerns about potential confounding factors and statistical analysis difficulties.

- The use of D-tags enabled researchers to track the 3-dimensional movement and sounds produced and received by exposed whales.

- In general, the descriptions of how the foraging behavior and avoidance experiments were planned and carried out are clear and understandable. The statistical experimental design and analysis are also clearly explained, but no

supporting evidence for the conclusions was provided. This point is discussed below in the section Study Weaknesses and Uncertainties.

- The use of Bayesian analyses is a useful addition. The small data set benefits from these analyses.

2. <u>Study Weaknesses and Uncertainties</u>

There are several factors that were not considered in the design and analysis of the study that are particularly relevant considering the small sample size.

- The results of the statistical analyses are presented in the two documents (the Summary Report and the Synthesis Report), but there does not seem to be a unified report that presents all the results. Also the analyses in the two documents do not always agree: (1) as noted in the opening summary of this document, there were apparently slightly different summary statistics for the same analyses in two different reports; (2) the Synthesis Report discusses a discrete distribution (Poisson) for the buzz production while the Summary Report seems to assume a continuous distribution for the buzz production. It would be useful to combine all the data analyses into one section of the document and present the results in a unified format.

- Availability of sperm whale prey was not evaluated during the controlled exposure experiments.
    - Prey availability and density affects foraging behavior of sperm whales.
    - The observed decrease in whale foraging behavior could have been due to random differences in prey distribution and density.
        - Whales in the controlled exposure experiments were at different locations. There are geographic variations in prey availability and density.
        - The controlled exposure experiments occurred in different years and seasons (spring, early and late summer). There are seasonal and annual variations in prey availability and density.
    - The statistical analysis in the Summary Report was based on individual whale differences (change scores), which may mitigate some of these problems. However, it is important to assess the level of prey availability to assure that the difference analysis is adequate to control for this important point.

- There were 2 adult males in the group of 7 exposed whales. It is uncertain whether gender and age differences in the exposed whales had an effect on

foraging behavior. The authors state on p. 264 of the Synthesis Report "It is also reasonable to expect that different age/sex classes and individual whales with different histories of exposure would have different patterns of behavioral response." As noted, some of the statistical analyses were based on difference scores that might mitigate the gender effect, but some test of the adequacy of the scores to account for these differences is important

- Control (non-exposed) whales included whales from locations other than the Gulf of Mexico. The sperm whale population in the Gulf of Mexico is genetically unique from those populations in the North Atlantic Ocean, Mediterranean Sea, and North Sea. Moreover, Gulf of Mexico sperm whales are also smaller than sperm whales from other areas. Differences in whale sizes and populations may be additional confounding factors. As noted, some of the statistical analyses were based on difference scores that might mitigate the size and location effects, but some test of the adequacy of the scores to account for these differences is important.

- The statistical model is a repeated measures ANOVA. This is appropriate for this type of experimental design, but perhaps not for the buzz production and movement data. The analysis for buzz production appears to be based on the buzz rate. The rate has a mean of about 0.01 buzzes per second based on the discussion in the Synthesis Report (section 6.2.3). The rate would be about 36 buzzes per hour and would not likely to be a continuous measure as required by the ANOVA. There does not seem to be any information concerning the specific measure used for pitching movement, so it is not possible to assess the appropriateness of this analysis.

- **The authors report the significance level (p-value) for the exposure no-exposure comparison, but no other results. It is not possible to statistically assess the overall interpretation without these results.** The authors should provide an ANOVA summary table.

- Since the sample size is small and significance level of the test for a noise effect is near the critical 0.05 level (reported *p* values were 0.014 and 0.141 for the buzz and locomotion measures respectively), it is important to test the ANOVA assumptions necessary to assess the statistical significance of the results. Some of the tests that need to be done are:
    - a test for the serial independence of the data values.
    - a test for the normality of the residuals.
      a test for the homogeneity of the variance among the individual whales.
      Figure 7.3.11 (Summary Report, page 252) shows a summary of the buzz

rates for the 20 whales; based on the length of the confidence intervals, it does not seem as if the variances can be considered homogenous. The lack of homogeneity can be due to variation in the response pattern from whale-to-whale or due to a different number of replicate measures from each whale. **If there is a large difference in the number of replicates per whale then the standard analysis of the split plot ANOVA may not be correct.** It is important to estimate the expected mean squares used to form the F-test to determine if they are correct for the sample sizes that were used. **If the authors used the mean response then the homogeneity of the variances assumption would not be met and might invalidate the results.**

- **The results of the analysis should be open to question until it can be shown that the ANOVA assumptions have been met.**

- The results are presented as a percent change in behavior from noise exposure to no exposure, but the analyses are based on the observed data difference.
    - If the authors wanted to report the results as a percent change, then the analyses should have been based on percent change. They could either analyze the difference score, as they did, and report a difference or they can analyze a ratio score and report the ratio. **From the reported analysis we know there is a statistically significant difference (p = 0.014) between the pitching during and after the air-gun noise, but we do not know if the percent change is statistically significant.** The analysis can be thought of as based on a difference, but the reported percent change is on the ratio of the responses. The percent change is a ratio because the percent difference is (NOISE-NONOISE)/NOISE or 1-NONOISE/NOISE. **This transformation can make a difference in the statistical significance of the results.**

- The time intervals of the exposure and post-exposure periods are not reported. If the time intervals are not equal, or nearly equal, the statistical analyses may be compromised because of unequal estimates of variability between periods and between whales. This is an example of incomplete data reporting.

- Pre-exposure data were not used in the analysis due to the difficulty in collecting pre-exposure data.
    - Pre-exposure foraging activity may have had an effect on subsequent foraging activity due to satiated appetite or need for rest.

3. Suggestions for Improvement

- More controlled exposure experiments with an increased number of whales are needed to address the potential difficulties with experimental design and analyses. Additional experiments would also add statistical power and aid the understanding of foraging and avoidance behavior in sperm whales exposed to sounds from seismic airguns.

- Conducting all controlled exposure experiments within the same year, season, and general location (within the Gulf of Mexico) would reduce experimental variability. Jaquet et al. (2000) reported that diving behavior of New Zealand sperm whales was significantly different between summer and winter. New Zealand sperm whales dived longer, stayed longer at the surface, and traveled further between consecutive fluke-ups in summer than in winter, indicating that there are seasonal differences in foraging behavior.

- Use of fishery echosounders to evaluate the density and distribution of biological assemblages (sperm whale prey) during exposure experiments could clarify observed foraging behavior in exposed whales. Miller et al. (2008, p. 225 Synthesis Report) reported "the foraging behavior of sperm whales in the Gulf of Mexico appears to be strongly related to vertical biological assemblages that can be tracked using acoustic techniques. Moreover on p. 284 of the Synthesis Report, it is recommended that future controlled exposure experiments " should include monitoring the prey field (for example by using fishery echosounders) before, during, and after exposure to test whether behavioral variations among acoustically exposed sperm whales could be explained by changes in the prey field."

- We suggest that the authors use a mixed model design for analysis instead of using the traditional 'split plot' repeated measures design that has several additional assumptions beyond those mentioned above (symmetry of the subject matrix, etc). The mixed model design has few assumptions (or more control over the assumptions) and would be a more powerful (smaller chance of committing a false negative error) test. The assumptions of normality of the residuals and homogeneity of the variances have to be checked for this type of analysis also. The serial dependence is accounted for in the mixed-model parameters. Suggested references are: Pinheiro and Bates (2002), Littell et al. (1996), Milliken, and Johnson (1984).

- Regarding the Bayesian analyses, the form of the prior distribution was well described in the reports, but the stated reasons for choosing the specific prior

were not obvious. We suggest a sensitivity type analysis to see how the results would have differed with the use of a uniform or other prior.

- If there are different numbers of sample data for each whale, then determine if the results are affected by the unequal sample size. Provide a summary table of number of observations and mean response per whale.

- Provide a complete ANOVA table for the analyses and a table of means and summary statistics so the reader has a better understanding of the measured values.

- In the legend for Figure 7.3.11 (Summary Report, page 252) change "The horizontal bars are one standard error of the percent difference in buzz rate." to "The vertical …. bars".

E. References

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IV. CRE Brasil Letter to the IWC

A landmark Field Guide was prepared by the Petrobras Research and Development Center (CENPES/Petrobras), and the Marine Mammal Studies Group in the Lagos Region (GEMM-Lagos), entitled *Whales, River Dolphins, and Dolphins in the Campos Basin* ("Whale Report"). The report focuses on the current status of Brazilian whales, river dolphins, and dolphins. It concludes that "Pollution, ship traffic, and fishing constitute the main threats to the survival and the continuation of these species." It also recommends that all of the Brazilian Abrolhos Bank be designated as critical habitat for Humpback Whales.

The Whale Report's lead individual author, Professor Salvatore Siciliano, stated in an interview that pollution is "by far" the biggest current threat to Brazil's marine mammals. Professor Siciliano further stated that he doesn't think that oil and gas exploration and production in the area poses a threat to marine mammals because "everything is done with the greatest care."[29]

The Whale Report contrasts with a previous and now discredited Brazilian study that incorrectly identified oil and gas activities as a major threat to marine mammals. Brazil's IBAMA, and other regulatory authorities like IWC and NOAA should concentrate on protecting marine mammals from their real threats. These threats are pollution including waste/garbage, ship traffic, and fishing. Oil and gas exploration and production are minor risks, and regulatory authorities should not waste their scarce resources concentrating on them.

CRE Brasil, a São Paulo-based non-profit NGO, considered the Whale Report to be of sufficient significance that it:

1) Prepared a report analyzing the regulatory implications of the Field Guide; and

2) Wrote a letter to the IWC explaining the importance of the Whale Report and transmitting the regulatory analysis of the document.

The letter to the IWC recommended that the "IWC should have a major reorientation of those activities which focus on seismic operations to pollution, ship traffic and fishing." The letter also recommended that the "IWC should act immediately to issue guidance which would address...recommendations in the Whale Report with respect to whale watching...."

In the letter, CRE Brasil requested that:

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[29] **http://www.thecre.com/creipd/wp-content/uploads/2009/09/Brazil-Whale-Doc-f.pdf**.

> "*the Whale Report, this letter, and the attached White Paper be included in the agenda for the next IWC meeting. To this end, by separate letter we will be requesting that the Administrator of NOAA conduct an interagency review of the aforementioned material with the objective of determining a US position on these important matters.*"[30]

The letter includes links to an English translation of a key section of the Whale Report as well as a link to the entire original document. CRE Brasil's letter to the IWC and the associated regulatory analysis based on the Whale Report are posted for comment on the Ocean Zoning IPD and can be found at **http://www.thecre.com/creipd/?p=128**.

The linked materials – including the CRE Brasil letter to the IWC, the regulatory analysis of Whale Report, and the Field Guide "Baleias, botos e golfinhos na Bacia de Campos" – constitute an integral component of CRE's comments to MMS.

[30] **http://www.thecre.com/creipd/wp-content/uploads/2009/09/Brazil-Iwc-f-...pdf**.

V. Responses to IPD Comments Received on CRE's Working Draft Comments

As explained in the Introduction, CRE published a Working Draft version of these comments on the Ocean Zoning IPD for public review, discussion and comment. Below are CRE's responses to comments received on the IPD.

A. CRE's Response to Wehrly and Hervic Comments on Its Draft Analysis of Section 5 of E.O. 13158

We very much appreciate the comments on the CRE draft comments submitted by Mr. Wehrly and Ms. Hervic. Such comments are very useful in identifying potential errors, omissions, or the need for clarification. Below are our responses to what we perceive as the main points in the comments.

Because there is some overlap between the Wherly and Hervic comments, we are responding to them together.

Framing the Issue

The issue is how to interpret that portion of section 5 of E.O. 13158 that instructs agencies to avoid harm to MPAs to the maximum extent possible "to the extent permitted by law." The CRE draft comments examine the meaning of "to the extent permitted by law" in light of the language of the OCSLA and the case law interpreting the OCSLA. We do not perceive any "conflict" between the Order and the OCSLA, and we are not trying to "vitiate" section 5; we are only attempting to ascertain how section 5 should be interpreted.

In particular, our comments were not intended to imply in any way that MMS is free to disregard potential environmental impacts or to devalue such impacts. The OCSLA and the case law are clear that OCSLA leasing plans must give adequate consideration to potential environmental impacts and that they must be adequately valued. The issue, framed more precisely, is whether section 5, in conjunction with the "balancing" provision of the OCSLA, should be interpreted to require MMS to give greater weight to potential environmental impacts than to potential oil and gas production, as could be read into section 5. We believe the answer is clearly that section 5 must be interpreted to mean that MMS must consider potential environmental impacts, but without giving them greater weight than oil and gas production, and can give them lesser weight in view of the need for domestic energy sources.

The assertion that the "primary emphasis" language in *California ex rel. Brown* is dicta

Ordinarily, Circuit Court case law is only binding within that particular Circuit. The exception, however, is where Congress has vested in a particular Circuit exclusive jurisdiction for review of issues arising under a particular statute. In such a case, there can be no case law from another Circuit that would be applicable, so that, absent U.S. Supreme Court review on a petition for certiorari, the case law of the Circuit with exclusive jurisdiction is the only law on interpretation of the statute.

The OCSLA vests in the U.S. Court of Appeals for the District of Columbia exclusive jurisdiction for review of the Secretary [of the Interior]'s approval of a leasing program under section 1344, subject to possible further review by the U.S. Supreme Court upon writ of certiorari. 43 U.S.C. § 1349(c). The U.S. Supreme Court has not reviewed any of the cases in which OCSLA lease plans were challenged in the U.S. Circuit Court for the District of Columbia, and therefore those decisions constitute the "existing law" under section 5 with regard to interpretation of the lease plan provisions of the OCSLA, unless portions of the decisions are dicta.

The significance of a court's statements being determined to be dicta is that those statements would not have to be considered binding precedent even in the Circuit where they originated – *i.e.*, they would not be "law" within the meaning of the phrase "to the extent permitted by law" in section 5.

Assertions that statements in prior case law were mere dicta are frequent, because, if accepted, such an argument can dispose of the "dicta" language as binding precedent. Definitions of what constitutes dicta vary both among the Circuits and within the Circuits, and the various definitions are sometimes vague and open to interpretation. Many case opinions seem to treat dicta in a "I know it when I see it" manner. For example, it is sometimes said that dicta are statements that are not necessary to the holding by the court. But application of such a definition can be difficult. For example, if one of the parties presents alternative arguments, and the court carefully analyzes and rejects one of the arguments in its opinion but accepts another, is the portion of the court's opinion on the rejected argument dicta because it was not the basis for the holding? If the narrow holding (the outcome) is that the case is remanded for further consideration or reconsideration of a particular issue or issues, the rejection of a particular argument is likely to provide important guidance for the remand.

We have found only two cases in the D.C. Circuit that contain some definition of dicta. In *Lawson v. United States*, 176 F.2d 49 (D.C. Cir. 1949), the court utilized a multi-faceted definition of dicta. It stated that "[t]he courts of the land have many times defined the terms 'obiter dicta' and 'dicta' as 'language unnecessary to a decision,' ruling on an issue not raised, 'or opinion of a judge which does not embody the resolution or determination of the court, and made without argument or full consideration of the point.'" At 51. The court decided that none of these commonly quoted definitions of dicta had any application to the case before it, and that the disputed language from an earlier opinion was the holding in the case. At 52. More recently, in *Parker v. District of Columbia*, 478 F.3d 370 (D.C. Cir. 2007), *aff'd sub nom. District of Columbia v. Heller*, __ U.S. __, 128 S. Ct. 2783 (2008), the D.C. Circuit, in rebutting the dissent, which argued that the majority opinion consisted largely of dicta, stated that "dictum refers to reasoning that does not support the holding of a case," and that all of its reasoning supported the holding.

In *California ex rel. Brown v. Watt*, the petitioner States did not ask that the leasing plan be vacated; the relief they requested was only that the program be remanded to the new Secretary[31] "for reconsideration in accordance with the Act" and with further opportunity for public comment. At 1326. In order to remand for reconsideration, therefore, the D.C. Circuit had to provide direction to the Secretary on whether Secretarial interpretations were "in accordance with the Act." It was in this context that the court considered the proper interpretation of the balancing provision of section 18(a)(3).

As stated in the opinion in *California ex rel. Brown*, the Petitioners argued before the court that "balance" meant that the Secretary had to give equal weight to impacts on environmental and coastal zone considerations in comparison to the need for energy development. At 1316. The court firmly rejected this contention, stating that "the Act does not require they [i.e., the environmental and coastal zone impacts] receive a weight equal to that of potential oil and gas discovery," and the Act "vests the Secretary with discretion to weight the elements [of section 18(a)(3)] so as to 'best meet national energy needs.'" At 1316-17. The court also upheld the Secretary's position that the program complied with the Act if cost-benefit analysis indicated that the value of oil and gas production exceeded the cost of potential adverse impacts on environmental and coast zone resources. Petitioners also objected to this Secretarial interpretation of the Act on grounds that 'it allows even significant environmental costs and coastal zone impacts to be overriden [sic] [by energy values]." The court also rejected this related contention, stating that "this is precisely what the Act intends, provided that the potential oil and gas benefits exceed those potential costs."

In reaching these statutory interpretation conclusions, the court considered Congressional intent and the language of the Act as a necessary first step. As an integral part of this analysis the court found that the Act and the Congressional purpose, specifically with regard to section 18, reflected a "primary emphasis on expeditious development of the OCS, qualified by the recognition of a need for measures to alleviate or minimize its adverse impacts." At 1315.

In the end the court remanded the program to Secretary Watt because it found that the program did not adequately evaluate environmental and coast zone costs on an area-by-area basis, and therefore the court had "no basis on which to test the Secretary's program for fidelity to his interpretation of the statute, which is that locating [and timing] an area within the program was based on a comparison of 'cost' and 'benefit.'" At 1319.

Thus, the court's examination of the proper interpretation of section 18(a)(3) and its conclusions that Congress intended a "primary emphasis" on energy development, that potential environmental and coastal impacts were not entitled to equal weight in balancing them against energy development

[31] One of the comments implies that the D.C. Circuit gave deference to Secretary Watt's predilection for energy development; however, as both *California ex rel. Brown* and the decision on remand make clear, the leasing program being examined by the court was developed principally by Secretary Andrus. Secretary Watt then largely agreed with Secretary Andrus and was upheld by the court.

potential, and that even significant potential environmental and coastal zone impacts could be overridden by the potential for energy development based on cost-benefit analysis, were essential to determining whether a remand was appropriate and to providing directions for consideration of the program on remand so that it would be in accordance with the law. In other words, the court's analysis of section 18(a)(3) was an integral to its eventual holding, was based on careful analysis of the Act and Congressional intent, and was responsive to arguments and briefing by the petitioners. Thus, the court's pronouncements on section 18(a)(3) can hardly be called dicta.

Moreover, the validity of the above statutory interpretation was reconfirmed by the D.C. Circuit seven years later in *Natural Resources Defense Council, Inc. v. Hodel*, 865 F.2d 288, 302 (D.C. Cir. 1988) ("We have also examined the Secretary's interpretation of the statute and found it permissible. The primary purpose of OCSLA is expeditious, orderly development of the oil and gas resources of the OCS, with due consideration for the impact of that development and equitable sharing of its risk and benefits.")

Can section 5 override legal precedent in the D.C. Circuit?

The comments appear to suggest that an Executive order can override the statutory interpretation in *California ex rel. Brown*, and that section 5 was intended to supersede the existing case law in the D.C. Circuit. This is fundamentally inaccurate. Only Congress can enact laws, and "[t]he judiciary is the final authority on issues of statutory construction . . . ." *Chevron USA, Inc. v. Natural Resources Defense Council, Inc.*, 467 U.S. 837, 843 n. 9 (1984). Moreover, section 5 does not contain an interpretation of the OCSLA.

The comments also suggest that the phrase "to the extent permitted by law" in section 5 can somehow avoid the decisions by the D.C. Circuit because that language is "expansive" language, not qualifying language. We regard the phrase as meaning exactly what it says, no more nor less. We do note, however, that the courts have consistently regarded the phrase (which is very common in statutes and contracts) as limiting language. *E.g., R.M. Perlman, Inc. v. New York Coat, Suit, Dresses, Rainwear & Allied Workers' Union Local 89-22-1, ILGWU, AFL-CIO*, 33 F.3d 145, 157 (2d Cir. 1994); *United States v. Sims*, 586 F.2d 580, 586 (5th Cir. 1978).

The effect of changes in technology

The comments assert that CRE's draft comments neglect to take into account the D.C. Circuit's qualification to its review of section 18(a)(3) that "[t]he weight of these elements [in the section] may well shift with changes in technology," and therefore the proper balance might shift.

We find it hard to understand how this point impacts the court's decision with regard to environmental and coastal zone impacts not being entitled to equal weight in balancing them against

energy development. That technology might change and therefore the weights of the elements might change is a given, but that does not mean that the meaning of "proper balance" will change. For example, improvements in drilling, pipeline, and cleanup technology might reduce the potential for environmental and coastal zone impact, while ecological changes might make certain areas either less or more susceptible to spills or other energy development impacts, but that does not mean that as a result of such changes the court would change its view so that environmental and coastal zone impacts must now be given equal weight and that significant potential impacts cannot be overridden.

B. CRE's Response to Steve Nelson's "Seismic Impacts on Sakhalin Gray Whales: Summary and synthesis of recent studies"

Steve Nelson is a prominent marine resource scholar and consultant. He has written a response to part of CRE's draft comments. **http://www.thecre.com/zoning-forum/?p=158**.

After reviewing studies of seismic effects on western gray whales near Sakhalin, Russia, Mr. Nelson concludes that these studies support CRE's position that oil and gas seismic activities do not affect short term feeding behavior in sperm whales in the Gulf of Mexico. However, he is also concerned that the same studies indicate potential effects on other whale behaviors, and he stresses the importance of mitigation measures to protect whales during oil and gas seismic activities.

The gray whale studies in question were conducted during 2001-2003 by scientists from industry and academia in Russia and the United States. The study results are presented in six scientific articles. Mr. Nelson explains,

> "*the Sakhalin project in the Russian North pacific represents one of the world's largest oil projects operating under a consortium of partners from Russia, Europe, and the United States. Moreover, Sakhalin oil resources lie close to critical feeding habitats for western gray whales (Eschrichtius robustus) and the project represents a potential conflict between development and conservation.*"

The western gray whale was thought to be extinct during the 1970s. They are among the most endangered animals on earth. Mr. Nelson describes the results of the 2001-2003 seismic effects studies in part as follows:

> "*In the most direct terms, these studies show that seismic activities do not significantly affect short-term gray whale feeding behavior. In this context, they support, but do not prove* [CRE's] *conclusion do not harm marine mammals when surveyors apply mitigation techniques.*
>
> *On the other hand, seismic activities affected some aspects of whale behavior and their distribution on feeding grounds.*"

The Sakhalin studies do not show that these other behavioral effects, if they are real, have any biologically significant effects on either a species or individual level.

CRE greatly appreciates Mr. Nelson's response. It is perhaps the best review and analysis of the Sakhalin studies with regard to seismic effects on whale behavior. We agree with Mr. Nelson that reasonable mitigation measures are important and should be required during seismic operations. We continue to maintain our position that seismic does not adversely affect whale feeding behavior. We invite further comment in this issue and on CRE's position.

C. CRE's Response to Scott Madsen Comments on CRE's Analysis of Seismic Effects on Whale Foraging

Scott Madsen, an environmental lawyer, used the IPD to comment on CRE's foraging analysis. **http://www.thecre.com/zoning-forum/?p=138.** Mr. Madsen criticized some of the foraging studies on several grounds, and concluded that "more studies are needed to determine the effects, if any of the noises on the whales."

CRE thanks Mr. Madsen for his comments, but disagrees with his conclusion. The effects of seismic on sperm whale behavior have been studied for years at great expense. CRE's paper examines the substantial literature examining seismic effects on the foraging of other whales. After all this time and effort and expense, there is no evidence that seismic affects whale foraging in any biologically significant way.

By contrast, there are other unquestionable threats to marine mammals: *e.g.*, ship strikes and bycatch. CRE believes that the time and money and effort now devoted to seismic should be channeled to these other threats where they might do some good.

In particular, CRE notes the interview with Dr. Salvatore Siciliano, "*Our biggest Problem is the Pollution that comes in with the tide*," which is available online in English translation on the CRE Brazil website at **http://cre.org.br/index.php?action=see-news&wneCode=260&language=eng**. Dr. Sicilianao is a renowned scholar and researcher. Now that commercial whaling is generally banned, he identifies routine, everyday pollution (*e.g.*, discarded plastics) as by far the current greatest man-made threat to whales.

D. CRE's Response to Comments on CRE's Analysis of NOAA's National System of Marine Protected Areas

CRE posted on its Ocean Zoning IPD critical comments concerning the U.S. National Oceanic and Atmospheric Administration's proposed National System of Marine Protected Areas (MPAs). **http://www.thecre.com/creipd/wp-content/uploads/2009/06/ns-submission.pdf**. CRE also filed these

comments in April 2009 with NOAA. CRE requested and received public comment on the MPA component of our Ocean Zoning process.

1. CRE's response to Steve Nelson's *Considerations regarding NOAA's Proposed System of Marine Protected Areas: a review of recent comments from the Center for Regulatory Effectiveness*

Steve Nelson is a prominent marine resource scholar and consultant. He has written a response to CRE's MPA comments. **http://www.thecre.com/zoning-forum/?p=133**.

Generally, CRE commented to NOAA that the more defined process for designating and regulating marine sanctuaries under the National Marine Sanctuaries Act is superior to that used for MPAs. Mr. Nelson notes that CRE found "three key flaws" in the MPA process for designating and regulating marine protected areas:

> "*First, the nomination process is insufficient for establishing new MPAs. Second, Section 5 Executive Order 13158 creates problems for federal agencies by using vague language in defining their roles and responsibilities for managing MPAs. Third, NOAA disseminates questionable information regarding many non-federal MPAs.*"

Mr. Nelson further subdivides CRE's comments into four main topics: good science, sound governance, meaningful public involvement, and quality information. He addresses each topic in his review of CRE's comments.

Mr. Nelson generally agrees with some of CRE's comments on each topic, but he also argues for a less rigorous MPA process than CRE requests; more structured involvement by the federal MPA Center; and a federal process that recognizes the limited resources of the many state, tribal and local governments who designate and maintain MPAs.

With regard to CRE's request for good science in designating and regulating MPAs, Mr. Nelson says that "[a]t issue here is a tradeoff between cost of the analysis [for selecting and defining MPAs], the quality of information." He asks "how much science do we really need?" CRE believes that there is no such thing as too much good science. CRE believes that a slower, more thorough and more demanding MPA designation and regulation process would be a price worth paying. Such a process would ensure that the finally designated marine sanctuaries are really worth protecting.

With regard to sound governance of MPAs, and the current lack of existing standards to guide regulation of MPAs, Mr. Nelson concludes that CRE,

> "*presents credible arguments regarding the proliferation of non-federal, opinion-based MPAs and how they may affect federal agencies operating in the area. At the heart of the issue lies the responsibility of federal agencies to 'avoid ham' in questionable, non-federal MPAs. Moreover, vague language in the executive Order leaves it up to individual agencies to determine whether their actions would cause harm to natural and cultural resources.*"

To help solve these problems, Mr. Nelson recommends that "the NOAA MPA center should provide greater clarity regarding the respective roles and responsibilities of various institutions. It may also consider establishing regional management councils to accomplish this task."

CRE agrees that these actions would be a step in the right direction, but they will not solve the problems identified in CRE's comments. The steps proposed in CRE's comments should be adopted.

With regard to meaningful public involvement, Mr. Nelson states,

> "*Certainly NOAA policy makers can find a compromise between the comprehensive but costly NMFA approach and a sloppy local MPA process that ignores best available science. At minimum, sites seeking MPA status should conduct formal public outreach meetings and they should follow standard guidelines to integrate public involvement into the site selection process.*"

CRE believes that much more could and should be done, but Mr. Nelson's suggestions would be a welcome addition to the currently inadequate MPA process.

With regard to quality of information, CRE commented that NOAA was disseminating information that does not meet NOAA's Information Quality Act guidelines. After some discussion of the impossibility of ever getting "perfect" information, Mr. Nelson recommends,

> "*a tiered structure of information quality and an adaptive management process to improve utility, integrity, and objectivity as we incorporate greater knowledge. In this context, policy makers should ensure and enforce IQA guidelines to meet the letter of the law: but also adopt knowledge management systems that encourage process.*"

CRE's not sure what Mr. Nelson means. CRE still thinks that NOAA should comply with its IQA guidelines.

Finally, Mr. Nelson states that

> "*as an additional guiding principle, policy makers should explicitly consider uncertainty in decision-making and design adaptive management provisions to manage it. This is especially true in face of climate change and likely modifications in the marine and coastal environments....In practical terms this implies we may get more MPAs resulting from relaxed standards or larger perspectives.*"

CRE disagrees with Nelson's recommendation of "relaxed standards."

CRE thanks Mr. Nelson for his comments, which are a useful and valuable contribution to the continuing conversation over how best to designate and regulate marine sanctuaries.

2. CRE's Response to comments by Alliance of Communities for Sustainable Fisheries on Steve Nelson's *Considerations regarding NOAA's Proposed System of Marine Protected Areas: a review of recent comments from the Center for Regulatory Effectiveness*, and on CRE's comments on NOAA's System of Marine Protected Areas

The Alliance of Communities for Sustainable Fisheries (Alliance) filed comments on CRE's comments, and on Mr. Nelson's response to CRE's comments, **http://www.thecre.com/zoning-forum/?p=166** . The Alliance states that it "represents recreational and commercial fishing men and women of the Central Coast in California, along with their communities."

CRE's MPA comments to NOAA were critical of the NOAA-run National System of Marine Protected Areas ("NSPM"). Generally, CRE commented to NOAA that the more defined process for designating and regulating marine sanctuaries under the National Marine Sanctuaries Act is superior to that used for MPAs.

Mr. Nelson's response disagreed with some of CRE's comments, agreed with others, and added some thoughts of his own. See page 29 for CRE's response to Mr. Nelson.

The Alliance agreed with CRE that the NSPM system is generally superior to the MPA system with regard to designation of a marine sanctuary. However, the Alliance argues that, under the NSPM system, marine sanctuaries are not satisfactorily managed on a day to day basis. We will let the Alliance speak for itself:

> "*We note that when queried, the Monterey Bay National Marine Sanctuary could not supply any metric as to the degree to which its own regulations meet the policies and purposes of the National Marine Sanctuary Act. Nor upon query could the Monterey Bay Sanctuary provide any measurement as to how the rules, regulations and policies of other entities, such as how fishery management rules also contribute to the conservation goals of the Act. This situation occurs even though the Sanctuary*

> *was designated in 1992. We note that the National Marine Sanctuaries Act does not contain any explicit mandate to utilize the best available science, let alone a mandate to attempt to reconcile competing scientific opinions through the peer review process. Likewise the Sanctuary's public decision making process, which utilizes a Sanctuary Advisory Council, is also seriously flawed. The National Marine Sanctuaries Act should be much more explicit about how these councils will be created and operate. These councils are appointed by the Sanctuary site superintendents, and there is essentially no mechanism to assure that stakeholders or constituencies can hold these representatives accountable. Likewise Sanctuary Advisory Councils cannot set their own agenda, it must have the concurrence of the Sanctuary Superintendent, and they cannot communicate outside of the Sanctuary Program. In other words they cannot communicate directly with members of Congress, the media etc. This is despite the fact that these councils, by statue, are explicitly exempted from FACA. Without a credible public body advising or in partnership with the Sanctuary, then Sanctuary resource management decisions, let alone adaptive management decisions, are always suspect.*
>
> *Based on this experience, National MPA Center Standards should have very strong and detailed regulations for the continued management of MPA's.*"

The Alliance also states that "California MPAs have essentially zero support from California's recreational and commercial fishing men and women," and that "fishermen and their communities feel utterly marginalized in the California."

The Alliance has made some serious claims that go beyond CRE's and Mr. Nelson's comments. The Government should address them.

VI. Conclusion and Recommendations

1) The Draft Proposed Plan's discussion of the "balancing" requirement of section 18(a)(3) of the OCSLA should be expanded to clearly address the relationship between section 5 of E.O. 13158 and *State of California ex rel. Brown*. Specifically, the Draft Plan should explain that under *State of California ex rel. Brown*, section 5 of the Executive Order must be interpreted so that the goal of oil and gas development on the OCS is given "primary emphasis", with potential environmental impacts given lesser emphasis.

2) MMS should recognize that seismic operations do not harm marine mammals as long as the operations are conducted in accordance with the long-standing mitigation provisions.