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MARINE MAMMAL COMMISSION
4340 EAST-WEST HIGHWAY, ROOM 905
BETHESDA, MD 20814

9 December 2003

Mr. Stephen L. Leathery
Chief, Permits Division
Office of Protected Resources
National Marine Fisheries Service
1315 East-West Highway
Silver Spring, MD 20910

Re: Permit Application No. 1048-1717-00
(Peter Stein, Ph.D.)

Dear Mr. Leathery:

The Marine Mammal Commission, in consultation with its Committee of Scientific Advisors on Marine Mammals, has reviewed the above-referenced permit application with regard to the goals, policies, and requirements of the Marine Mammal Protection Act.

The purpose of the proposed research is to validate and improve low-power high frequency sonar systems as a tool for reliably detecting marine mammals that might otherwise be adversely affected by potentially harmful industrial and military operations. Up to 1,200 migrating gray whales annually would be exposed to low-power high-frequency active sonar offshore central California. Several other marine mammal species (both endangered and non-endangered) could be harassed incidental to the studies on gray whales. No takes resulting in injury or mortality are anticipated and no authorization for such taking is requested.

The Commission notes that the applicant proposes to use a ramp-up procedure when the source is first turned on so that the source level starts no higher than 180 dB re 1 μPa at 1 m and increases no faster than 5 dB per minute. The maximum source level used would be 220 dB 1 μPa at 1 m. As noted in the past, we believe that a ramp-up procedure is prudent to mitigate potential harmful effects on animals in the immediate vicinity of the sound source. However, the empirically derived information concerning the effectiveness of ramp-up has not been developed and may vary with a range of factors. For that reason, we suggest that, whenever possible, the investigator collect information on the response of marine mammals to the ramp-up procedure.

The Commission believes that the proposed research is important and will contribute to our knowledge concerning the efficacy of whale finding sonar and its effects on marine mammals. The Commission recommends that the permit be issued, provided that:

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- if an animal exhibits behaviors indicating a strong reaction (as described by Weinrich, *et al.* 1992) or risk of injury during or after an acoustic experiment, research activities directed at that individual animal be discontinued; and
- the Service ensure that activities to be conducted under the permit and those of other permit holders who might be carrying out research on the same species in the same areas are coordinated to avoid unnecessarily duplicative research and unnecessary disturbance of animals.

The Commission believes that the activities for which it has recommended approval are consistent with the purposes and policies of the Marine Mammal Protection Act.

Please contact me if you have any questions concerning this recommendation.

Sincerely,

David Cottingham

David Cottingham
Executive Director

Literature cited

Weinrich, M.T., R.H. Lambertsen, C.S. Baker, M.R. Schilling and C.R. Belt. 1991. Behavioural responses of humpback whales (*Megaptera novaeangliae*) in the southern Gulf of Maine to biopsy sampling. Report to the International Whaling Commission Special Issue 13:91-97.

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November 28, 2003

Permits
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Re: **APPLICATION OF SCIENTIFIC SOLUTIONS, INC.**
FOR SCIENTIFIC RESEARCH AND ENHANCEMENT PERMIT
FILE NO. 1048-1717

On November 5, 2003, the National Marine Fisheries Service (NMFS) published notice in the Federal Register that an application had been received from Dr. Peter J. Stein, Scientific Solutions, Inc., for a permit to test sonar on migrating Gray Whales. The application itself is dated May 15, 2003.

The Federal Register Notice stated that public comments on the application and accompanying draft Environmental Assessment (EA) are due on or before December 5, 2003.

This letter is to request an extension of time in which to file comments of at least two weeks and, preferably, thirty days. This letter should also be considered as a comment.

The bases for this request are the following:

The proposed experiment in this application is the same experiment that was subject to litigation in January of this year. Hawai`i County Green Party v. Evans, C-03-0078-SC, United States District Court, Northern District of California.

The litigation resulted in the court issuing a permanent injunction invalidating the permit that NMFS had issued for the experiment. Order Granting Permanent Injunction dated January 24, 2003 (hereinafter "Order"). The court based its ruling on the inappropriate invocation of the categorical exclusion provision of the National Environmental Policy Act (NEPA) for this proposal. The court found that the proposal required at least an environmental assessment.

Besides the procedural issue regarding the invocation of the categorical exclusion provision, the plaintiffs in the case raised a number of substantive issues. Those issues dealt primarily with two topics: (1) the potential impact of the experiment on migrating mother-calf pairs, particularly the potential overlap between broadcasts and Gray Whale vocalizations and hearing and (2) the potential impact of the experiment on the Gray Whale population generally, given the recent major reduction in both the total population and number of calves born.

In discussing the substantive issues, the court found that the combination of the two factors - high frequency overlap and dramatic population decline -- "suggests that Dr. Tyack's proposed experiments might inflict unacceptable levels of harm on gray whales." The court further stated that these issues "are precisely the type of issues that would have been discussed in an EA had one been performed." Order at 24 (emphasis added).

Having been a party to the litigation, NMFS is on notice of the concerns expressed by the plaintiffs and the direction provided by the court on the type of issues that the draft EA for the latest application should have addressed. Despite that guidance, the draft EA either ignores, misrepresents, or otherwise fails to adequately address the issues already identified.

This failure places a heavy burden on those wishing to file comments. Rather than being able to analyze an assessment prepared by NMFS, commenters are required to prepare their own analysis, complete with references and other support, and prepare their own assessment of environmental significance in light of the issues not addressed or inadequately addressed by NMFS. This process is the reverse of the process required by NEPA.

The Presence of Gray Whale newborns

On the issue of mother-calf impacts, the application never discusses Gray Whale calves. The applicant is an engineer whose company builds the sonar and has limited knowledge regarding marine mammals. At the same time, the applicant was associated with the Principle Investigator in the previous litigation and appeared as a witness in that litigation. He is responsible for discussing the environmental impacts of his proposed experiment. The failure to include any discussion of the Gray Whale calves is a major omission in the application.

On the same issue, the EA verges on deceptive.

The National Marine Fisheries Service (NMFS) barely discusses Gray Whales calves. In characterizing the Gray Whale migration, NMFS states:

> Pregnant females are at the front of the migration, followed by non-pregnant females, males and juveniles.

EA at 22. This characterization omits newborn calves, as if they are not present in the southbound migration.

The same omission occurs in the discussion of mitigation measures. The migrating population is described as "pregnant animals or unborn calves ... non-pregnant animals or males ...." EA at 42

The EA does state that "most calves are born in lagoons in Mexico." EA at 23. (emphasis added). Presumably referring to this earlier statement, the EA also states: "As mentioned above, some gray whale calves may be born before their mothers arrive at the calving grounds in Mexico."

Thus, NMFS either omits newborn calves altogether or acknowledges that there may be some calves in the southbound migration, while minimizing that possibility.

The truth is that there is not just some possibility that calves "may be born" on the southward migration. The presence of calves on the southward migration is well documented and the numbers have increased over time.

In the earlier litigation over this same experiment, both plaintiffs and defendants submitted evidence documenting the presence of a substantial number of newborns in the southward migration.

The plaintiffs submitted at least two scientific papers discussing the calves that included the following information:

> During the 1990s, the major calving areas remained essentially the same, however increasing numbers of newborn calves were observed during the fall southward migration along central California and Northern Baja California ....

Plaintiffs' Exhibit 2 (Status of the Eastern Gray Whale Population: Past and Future Monitoring by Brownell et al. SC/53/BRG 21) p. 5.

> The highest number of sightings occurred during the 1997/98 season with 60 calves reported by standard watch observers (5 additional calves were reported by using 25-power binoculars). ... The low rate of concurrence between observers (x=16%) makes it evident that many calves go unseen by shore-based observers.
>
> ...
>
> As an addendum to Shelden et al. (2001), this report provides data on gray whale (Esrichtius robustus) calves observed since 1995 at Granite Canyon, California, the site used by NMFS most years since 1967 to census the gray whale southbound

> migration. These data again emphasize the presence of newborn calves well north of the calving lagoons in Baja California. Many newborn calves have also been reported off southern California near Los Angeles (Schulman-Janiger, 1999) and as far north as Washington State and British Columbia, Canada (Shelden et al., 2000)"

Plaintiffs' Exhibit 31 (Gray Whale Calf Sightings in California During Southbound Migrations, 1995-2001 by Kim E. W. Shelden and David J. Rugh) (emphasis added).

The Defendants, including NMFS, submitted the declaration of David J. Rugh, which contained the following statements:

> It has been commonly thought that all gray whales are born in the lagoons of Baja California, Mexico, but in fact some calves are born on the southward migration before the whales get to Mexico. Most calves are born before mid-February, and pregnant females are the vanguard of the southward migration, so the location of birthing depends on how far south they have traveled before the calf arrives - usually near the end of the migration in California or Baja California. Of all the gray whale sightings made from the shore station at Granite Canyon, [central California] 0.1% to 1.5% have been calves; however, these counts underestimate the true number of calves because they are difficult to see from shore. Counts of calves in the migration going south past the census site at Granite Canyon have risen through the past three decades.

Declaration of David J. Rugh in Support of Defendants' Opposition to Plaintiffs' Motion for Preliminary Injunction, p. 2.

There is also the status review prepared for NMFS by Dr. Rugh and others. Rugh, D.J., M. M. Muto, S. E. More, and D.P. DeMaster. 1999 Status review of the eastern north Pacific stock of gray whales. U.S. Dep. of Commer., NOAA Tech. Memo. NMFS-AFSC-103. In that review, the authors discuss southbound calf migration and observe that the number of calves as a percentage of total whale sightings increased between 1952 and 1998. Ibid. at 8-9. The authors also note that aerial surveys "indicated that shore-based observers missed 62% of the calves with their viewing area." Ibid at 8.

The above research also means that calf births are taking place during the migration, with most taking place off the coast of California and Baja California.

The newborn calves on the southbound migration are the most vulnerable members of the species. That vulnerability is based on at least the following factors:

- -- these calves are born in the open ocean, rather than in protected lagoons
- -- the open ocean is a far more turbulent environment than the placid lagoons
- -- the baby Gray Whale cannot swim unassisted for up to 30 minutes
- -- these calves are born in cold water while they lack a significant insulation of

blubber, not in the warm waters of the lagoons, and, therefore, require a higher level of energy/nursing to remain warm

-- the birth in open ocean in the midst of the migration limits the ability of the mother to assist the calf in surviving

-- migrating Gray Whales generally do not sleep, migrating day and night, while the babies need to stop to rest

-- the babies born on the southward migration pass through areas of greater natural and Human-produced noise than are present in the lagoons, possibly reducing their ability to communicate with their mothers

-- the blood in the water from birthing may attract predators

-- given all these conditions, the baby Gray Whales are more likely to be taken by predators, such as Orcas; to strand; or to otherwise perish

-- the need for mothers to stop or slow to give birth, to remain with the baby for an extended period of time before continuing to migrate, and the need of the baby to rest may all contribute to keeping the newborns and their mothers in the zone of potential impact longer than the other migrating whales.

These and other factors mean that the calves born on the southbound migration are particularly at risk and that any additional interference the proposed experiment might cause in the ability of these calves to remain with their mothers only increases that risk.

Furthermore, as raised in the prior litigation and supported by expert testimony, there is the issue of stress impacts.

In the application, Dr. Stein responds to the required discussion of stress, pain, and suffering, with a simple "None expected." His two-word dismissal of the possibility is simply evidence of an applicant lacking proper qualifications to be a Principle Investigator on a project with potential impacts on marine mammals.

Having either denied or minimized the presence of baby Gray Whales in the southbound migration, the EA contains no discussion of stress impacts either.

Note: For comments to have to make the case for even the presence of baby Gray Whales in the southbound migration, when their presence is not in dispute scientifically, illustrates the burden imposed by the arbitrary and capricious treatment of just this one basic fact.

Gray Whale new born vocalizations

The prior litigation raised the issue of potential interference in mother-calf relationships caused by the sonar impacts. One area of concern identified was potential interference in mother-calf communications.

Given that the applicant fails to acknowledge the presence of newborns in the southbound migration, there is no discussion in the application regarding potential impacts on the mother-calf relationship

The discussion of impacts on communication in the EA inadequately addresses the issue. The EA discussion omits any discussion of the vocalizations of the baby Gray Whales. EA at 29. Instead, the discussion addresses the hearing of newborns and the hearing and vocalizations of adults. Given that the prior litigation specifically raised the issue of calf communications to the mother and that the EA at least acknowledges the possibility that there is communication going on, communications from the baby to the mother should have at least been discussed.

The EA does state that "the whale finder sonar would not likely interfere with any communications between mother and calf since adult gray whales do not produce high frequency vocalizations that could be masked by the sonar ...." EA at 29. The issue raised in the litigation was the high frequency vocalizations by the calves. The EA does not mention, let alone discuss, such vocalizations.

The EA further states that adults are not likely to be "very sensitive to high frequency sound." EA at 29. The implication of the latter statement is that the mothers are not likely to hear high frequency communications from a calf.

Yet the EA also states that baleen Whales reacted to "sounds at frequencies up to 28 kHz." EA at 28.

In the prior litigation, the court found that, based on the evidence submitted by NMFS, "gray whales can hear sounds within the range of 10 Hz to 26 kHz." Order at 23. The 20 to 26 kHz range is high frequency hearing.

Thus, the NMFS discussion of potential disruption of mother-calf communication ignores a key component -- the calf vocalizations heard by the mother – and relies upon adults not being "very" sensitive to high frequency sound for an implied conclusion that mothers do not hear high frequency communications from their babies anyway, so the high frequency sonar cannot interfere with such communications.

Such an obtuse and incomplete discussion of a major issue raised in the prior litigation is hardly sufficient.

Gray Whale newborns hearing

Another issue raised in the litigation was the potential impact on newborn hearing from sonar overlapping the hearing range of the newborns.

The EA states that "[n]ewborn or very young calves may have hearing sensitivity at higher frequencies than adult whales, but their hearing sensitivity at the extremes of the range will rapidly decrease." EA at 29 (emphasis added).

In the prior litigation, NMFS submitted the declaration of Dr. Darlene Ketten in which Dr. Ketten stated:

> Given a normal ear, juvenile animals will have a wider range and better sensitivity to sound than adult animals. ... At birth, ears are at their peak sensitivity ...."

Declaration of Darlene R. Ketten in Support of Defendants' Opposition to Plaintiffs' Motion for Preliminary Injunction at p. 6. The conditional "may have" in the EA description is a half-truth because the only newborns that will have less sensitivity than adult animals will be those born with defective hearing.

The hearing characteristics of adult and baby Gray Whales raise at least the following issue:

-- a high frequency sonar broadcast may be heard by a mother and calf at different sensitivities or may be heard by the calf and not the mother. "The most likely affect of the whale finder sonar sounds on marine mammals is avoidance." EA at 36.

A sonar broadcast in the audible range for a baby Gray Whale could cause the baby to move away from a broadcast. The same broadcast heard more poorly or not at all by the mother could have no effect on her. The potential exists that a baby Gray Whale will have a stronger response to a broadcast than its mother does and move farther away from the source than the mother will.

While a single pulse is unlikely to cause a major separation, the application requests permission to broadcast for as long as one second with a 10% duty cycle. The duty cycle is the duration of the broadcast divided by the interval between broadcasts. The 10% duty cycle for a one-second broadcast would permit one broadcast every 10 seconds. Such a permit would, therefore, permit up to 360 pulses in an hour.

Any effects from a single pulse would be greatly magnified by the numerous repetitions in a concentrated period of time, both in terms of distance the baby would move away and in terms of the overall physiological response of the baby.

While the EA seeks to minimize the exposures that any Gray Whale would experience, the

EA also describes the maximum exposure as follows:

> In the case of the migrating gray whales, individual animals are not likely to be within the action area for more than one 8-hour period."

EA at 40.

The 8 hour maximum time does not include any potential extended time necessary for a birthing mother to linger with a new born after birth and while learning to swim nor for a new born to stop and rest. Under those circumstances, the number of exposures would be even greater.

There is no discussion in the EA of this possible impact.

The fragility of the Gray Whale population

The prior litigation also raised the issue of a major decline in the Gray Whale population.

> The application states:
> The 1997/98 population estimate for [the Gray Whale] stock is 26,635 (Hobbs and Rugh 1999). The stock has been increasing over the past several decades, and it was delisted in 1994 from the list of endangered and threatened wildlife. The delisting was reviewed in 1999 by a NMFS workshop, and the recommendation was that the stock is not likely to become endangered within the foreseeable future.

Application at 7.

The use of population figures from five years ago is inappropriate when more recent figures are available.

More seriously, the use of the 1997/98 figures -- the highest count to date -- ignores the serious decline in the population that took place in the 1998-2002 period.

NMFS adopts the same approach as the applicant, while attempting to portray the information as more current.

> The minimum population estimate for the eastern stock of **gray whales** is 24,477 (Caretta et al., 2002).

EA at 22 (emphasis in original).

The reference to "minimum" population estimate attempts to portray the stock assessment number as conservative by using a number lower than the estimate used by the applicant.

The reference is to Caretta et al., 2002 U.S. Pacific Marine Mammal Stock Assessments. NOAA Tech. Memo. NOAA-TM-NMFS-SWFSC-346. EA at 56. The report cited, however, does not contain population estimates for Gray Whales. NMFS created a difficulty for commenters by citing to a report that is not the basis for the estimate requiring research to identify the actual source of the information. The false reference also hid the fact that the estimate in the 2002 report came from four-year-old data.

The reference should have been to the Alaska Marine Mammal Stock Assessment 2002. NOAA Technical Memorandum NMFS-AFSC-133, p. 143. Examination of that report reveals that the minimum estimate of 24,477 is also based on the 1997/1998 population estimate of 26,635 used by the applicant. Id.

While the applicant's citation to outdated data may be attributable to ignorance, the NMFS presentation of the data as current combined with the use of a false reference to obscure the actual time frame of the data is evidence of a deliberate attempt to deceive.

This characterization is particularly appropriate in this case because the plaintiffs in the prior litigation submitted into evidence a paper with more current data.

> In 2000/01, the estimated number of whales passing during watch periods with good visibility (<5) was 5,229 (estimated CV = 10%). Correcting for whales that passed between watch periods and including a correction for higher travel rates at night results in a total of 18,761 whales (CV = 10%); 95% log-normal confidence interval) 15429 to 22,812.
>
> In 2001/02 approximately 5,261 whales (estimated CV = 10%) passed during watch periods, resulting in a total abundance estimate of 17,414 (CV = 10%, log=normal confidence interval = 14,322 to 21, 174).

Plaintiffs Declaration of Jane Suzanne Arnold, Exhibit 4 at 5 (A preliminary estimate of abundance of the Eastern North Pacific stock of gray whales in 2001/ and 2001/02 by Rugh et al.).

The paper presented did state that these numbers were provisional and subject to revision, "although data analysis procedures were essentially the same as those used in previous years ...." Ibid. at 1.

Dr. Rugh's testimony in the prior litigation is more definitive on the population estimates for these later years.

Results from our census showed a large drop in abundance when we counted the whales in their next southward migration during the winter of 2000/01 and again in 2001/02 (no counts were done by NMFS between 1997/98 and 2000/01). Although point estimates from the counts from the latter year (2001/02) are lower than those from 2000/01, the difference is not statistical, and the abundances from Fisheries Service

> these two years (approximately 17,000 to 18,000) are considered to be roughly the same. These estimates are also the same as an estimate made a decade before, in 1992/93, but lower than any other estimate from the 1990s.

Declaration of David J. Rugh in Support of Defendants' Opposition to Plaintiffs' Motion for Preliminary Injunction, p. 3.

Using the figures in the Rugh et al. paper cited above, the minimum population estimate in 2002 would be 14,322. That number is 10,000 or 42% less than the minimum estimate used by NMFS in the draft EA.

The court found that:

> There is evidence in the record that the total population of gray whales is now 17,414, which is significantly below the population of gray whales (21,942) in 1984 when the gray whales were removed from the list of endangered species.

Order at 24.

The NMFS minimum population estimate is based on the highest count ever recorded and fails to note the precipitous drop in subsequent years.

The only EA discussion that even approaches a discussion of the massive decline in population is limited to the following:

> "There was a brief period in the late 1990's when an unusually high number of dead gray whales were observed during the time of their northward migration. This unusual mortality event corresponded to a temporary reduction in food availability related to a natural fluctuation in ocean temperatures in their northern feeding grounds. Counts of migrating whales in subsequent years have yielded below average mortality rates and calf counts have rebounded to above average levels. As with any population at or near the carrying capacity of its environment, gray whale population numbers can now be expected to fluctuate over short time frames, while the overall trend remains stable.

EA at 23.

The statement omits the precipitous population decline in the 2000/01 and 2001/02 counts, attempts to portray the population crash as a brief episode in the late 1990s with no lasting effect or implications for the future. The statement refers to counts after the late 1990s, without providing references for those counts, and portrays those counts as showing recovery from the episode. A decline in mortality and an increase in calf counts do not mean a recovery or anything near a recovery from the 35% drop in population. The failure to provide references hides the actual crash in the population.

Furthermore, the following precedes this discussion:

> The best available information indicates that gray whale abundance has increased since the end of commercial whaling in the 1800s, and that increase may have been slowing through the 1980s and 1990s. This slowing rate of increase does not reflect a decline in the population. Rather, it most likely represents a natural stochastic response of a healthy population to the limitations (carrying capacity) of its environment. In fact, by the end of the 1990s, the abundance of gray whales in the North Pacific was likely close to levels prior to commercial whaling.

EA at 23.

The latter analysis seeks to portray the population as on a steady growth path with only a "slowing rate of increase" that "does not represent a decline in the population." The drastic reduction in the population in the 1998-2002 period is relegated to a tiny blip on the NMFS radar screen, rather than a major event requiring a reassessment of the fragility of the Gray Whale population as a whole.

The prior litigation asserted that the precipitous drop in the total population and the calf count represented evidence of a population under stress and provided testimony that the Gray Whale could be pushed to extinction by a loss of no more than 50 members above the authorized whaling quota.

These issues raised in the court, supported by proffered evidence, and acknowledged by the judge as matters that should be addressed in an environmental assessment are completely ignored in the EA.

Once again the burden is placed on commenters to provide the analysis, research support, and implications, rather than commenting on an analysis presented to the public by NMFS. The commenters are also left to perform the NEPA analysis on "significant" regarding the impacts NMFS refused to discuss, minimized, or misrepresented.

These points are not the only points that could be made about inadequacies in the application and EA requiring extensive work to produce an adequate response in comments. They are sufficient, however, to demonstrate that NMFS has placed the burden on commenters to actually prepare an EA to fill the void left by NMFS non-feasance and correct errors and misrepresentations in the NMFS presentation.

For all the above reasons, an extension of time is appropriate. Given the time available before the close of the current comment period, I request a response by telephone or fax to this request.

Lanny Sinkin

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Re: **APPLICATION OF SCIENTIFIC SOLUTIONS, INC.**
FOR SCIENTIFIC RESEARCH AND ENHANCEMENT PERMIT
FILE NO. 1048-1717

Dear Mr. Leathery,

Enclosed are comments on the above-referenced application.

Aloha,

Lanny Sinkin

Lanny Sinkin

COMMENTS FILED ON
APPLICATION OF SCIENTIFIC SOLUTIONS, INC.
FOR SCIENTIFIC RESEARCH AND ENHANCEMENT PERMIT
FILE NO. 1048-1717
December 5, 2003

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These comments are filed on behalf of **:**

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Sea Sanctuary, Inc.
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Stop LFAS Worldwide Network
1556 Halford Avenue, Box 322
Santa Clara, California 95051

The Cetacean Community
c/o Lanny Sinkin
P. O. Box 944
Hilo, Hawai`I 96721

These comments address the Application of Scientific Solutions, Inc. for a scientific research and enhancement project identified within the Office of Protected Resources, National Marine Fisheries Service (NMFS), as File No. 1048-1717 (hereinafter "Application").

These comments incorporate by reference all other comments filed on this application.

1.0 BACKGROUND AND INTRODUCTION

The permit application at issue in these comments seeks permission to test a high frequency sonar on migrating Gray Whales off the coast of California.

NMFS issued a similar permit to a different applicant.

The earlier permit was the subject of litigation. In that litigation, the court entered a permanent injunction invalidating the permit, requiring that any application for such testing be subject to at least an environmental assessment (EA), and identifying issues raised by plaintiffs as the type of issues the EA should address. Hawai`i County Green Party et al. v. Evans et al., Order Granting Permanent Injunction, C-03-0078-SC (N.D. Ca. January 24, 2003) (hereinafter "Order"). These comments incorporate by reference the entire record of the referenced litigation.

As will be shown in these comments, NMFS studiously avoided the issues raised in the prior litigation and did not address the issues the court specifically identified as appropriate for consideration in the draft EA.

As an overall comment, these omissions are substantive and clearly violate the Admnistrative Procedures Act (APA) and NEPA requirements. NMFS now faces the decision whether to revisit the EA to include these issues and provide public comment on the newly discussed issues as required by NEPA or to ignore the issues and create a final EA that violates NEPA requirements.

COMMENTS

2.0 Procedural Inadequacies and/or Violations

2.1 Comment 1

The procedural history of the current application supports a conclusion that NMFS has manipulated the process to minimize public scrutiny and participation.

The applications is dated May 15, 2003. NMFS withheld public notice of the application's receipt because the Office Director determined that an EA would be prepared, EA at 7, as required by the court's ruling in the prior litigation. EA at 8.

NMFS did not publish notice of the application received in mid-May and draft EA until November 5 with a comment period ending on December 5.

The application states that the experiment would be conducted "over an approximately 3 week period in the late December 2003 to early February 2004 time frame during the whale's southward migration." Application (hereinafter "App.") at 22.

With only a three week window between the close of comments and the earliest starting date and a maximum six week window between the close of comments and the latest starting date, NMFS put itself in a position where requests for extension of time in which to comment would be very difficult to accommodate.

On November 28, 2003, counsel for plaintiffs in the prior litigation faxed a request for an extension of time to NMFS.

On December 2, 2003, the Office Director for NMFS left a telephone message saying such an extension is unlikely to be granted and a final decision would be communicated by fax or telephone.

The denial of the request for extension came at 4:55 p.m. Eastern Standard Time on November 5.

If NMFS issues the permit, the likelihood is that anyone wishing to challenge the issuance of the permit will have to pursue a temporary restraining order and that there will be a very short time frame in which a court could address the adequacy of the NMFS decision. By delaying the notification of the application and the comment period until the initiation of testing is imminent, NMFS has created a situation where opportunity for public and judicial review is limited.

On November 17, 2003, NMFS published notice in the Federal Register that a public meeting would be held to address the Scientific Solutions, Inc. application in the Washington, D.C. area on November 20. 68 Fed. Reg. 221 at 64865 (November 17, 2003). Convening the meeting with three days notice limited the ability of people to either learn about or prepare for the meeting.

Despite sending a copy of the application and draft EA to counsel for plaintiffs in the prior litigation, NMFS did not send a copy of this public meeting notice or otherwise notify counsel of this meeting.

The impact of the proposal is in California. The plaintiffs in the prior case were primarily California groups. Yet NMFS scheduled the public meeting in the Washington, D.C. area, again limiting the ability of interested parties to participate in the public process.

The EA states that other than the Marine Mammal Commission and the U.S. Fish and Wildlife Service, "[n]o other Federal, state, or local agencies are involved in the proposed action." While "involved" might be technically correct, the California Coastal Commission (CCC) demonstrated an interest in the earlier plan to test sonar on Gray Whales by requesting a briefing, which Dr. Tyack provided. The CCC can request jurisdiction over such proposals and make findings regarding consistency that determine whether the planned action can go forward.

The last meeting of the CCC took place on November 5, 2003, the day notice appeared in the Federal Register of the sonar testing on Gray Whales application.

The next meeting of the CCC is scheduled for December 10, after the close of the comment period.

The delay in publishing notice of the application and EA until November 5 with a comment period limited to thirty days in order to accommodate the schedule of the applicant made participation in the process by the CCC very difficult and forced the CCC to choose between no involvement or requesting full review, rather than having options of more limited involvement.

In the prior litigation, the court found that the proposal fell within the exception to the categorical exclusion that requires an environmental assessment, if the proposal is controversial.

All of these efforts to limit knowledge about and participation in the regulatory process for the new application appear within a context in which NMFS is determined to make a finding that the proposed action is not very controversial and, therefore, does not

require an environmental impact statement under the National Environmental Policy Act. 42 U.S.C. § 4322(2)(C), 40 CFR § 1508.27, NOAA NAO 216-6 § 6.01b.

> For example, the EA section on "Consideration of Significant Criteria" states:
>
> Although concerns were previously raised about a similar study by a small segment of the pubic, based on the analyses in the draft EA, the effects of the Proposed Action on the human environment are not considered to be highly controversial to the extent that the preparation of an EIS is necessary.

EA at 49, item 9.

NMFS seems to consider the number of people expressing concern to be a measure of whether a project is controversial. Yet NMFS did everything it could to limit the number of people and organizations that might express concern. The very limited time frame available for public comment, the holding of a public hearing far from the individuals and organizations known to be concerned, and the very brief notice provided for even that one public meeting are all indicia of an agency determined to avoid a finding that the controversial nature of the proposal is sufficient to require an EIS.

As will be set forth below, the substantive omissions in the EA hide the potential environmental impacts of the proposal and, therefore, further the effort to prevent or dampen demonstrations of public concern.

The NMFS process improperly limited participation by the general public, individuals and organizations known to be concerned, and a public agency previously having demonstrated interest.

2.2 Comment 2

Inadequate scoping

To repeat as a formal comment what was said briefly in the Background and Introduction section above, this same proposal, made previously by Dr. Peter Tyack, was the subject of the litigation noted above. In the course of that litigation, the plaintiffs raised various issues of concern and presented evidence in support of those concerns. Additional evidence came in through the defendants.

As a result of the litigation, a federal judge entered a permanent injunction requiring NMFS to at least prepare an environmental assessment, if anyone submitted a proposal to conduct the same experiment. That opinion took note of issues raised by plaintiffs as the type of issues to be discussed in an EA. Order at 24.

It would seem reasonable that an applicant for the same experiment would discuss the litigation and the issues raised therein. The applicant in this case does not.

The EA states:

> The purpose of scoping is to identify the issues to be addressed and the significant issues related to the proposed action, as well as identify and eliminate from detailed study the issues that are not significant or that have been covered by prior environmental review. An additional purpose of the scoping process is to identify the concerns of the affected public and Federal agencies, states, and Indian tribes. CEQ regulations implementing NEPA do not require that a draft EA be made available for public comment as part of the scoping process.

EA at 8 (emphasis added).

The EA at least acknowledges the litigation. EA at 6, 8. Presumably concerns expressed by a federal judge would be taken as seriously as concerns expressed by a federal agency.

While the draft Environmental Assessment notes the litigation, the draft EA ignores the issues raised by plaintiffs and the evidence presented. Both the application and the draft EA also ignore the opinion of the judge in that case. Details of this practice appear below.

The failure to incorporate into the EA scoping process a discussion of the issues raised in the prior litigation and identified by the court as appropriately considered by such an EA violates APA/NEPA.

2.3 Comment 3

Incomplete NEPA analysis

The applicable regulation states that the notice of receipt of an application will include "a NEPA statement that an initial determination has been made that the activity proposed is categorically excluded from the requirement to prepare an EA or EIS, that an EA was prepared resulting in a finding of no significant impact, or that a final EIS has been prepared and is available." 50 CFR §216.33(d) (emphasis added).

In this case, the notice states that a draft EA is prepared and available for comments. 68 Fed. Reg. 214, p. 62564.

The draft EA does not have a statement on whether the NEPA analysis in the draft resulted in a preliminary finding of no significant impact. Such a statement would be premature because one element to be examined is the potential impacts on endangered or threatened species. On that issue, the EA states:

> The proposed action is not expected to have a significant adverse impact on endangered or threatened species of marine mammals, and is not expected to affect designated critical habitat of these species. [NOTE: this is only a "place holder," pending completion of the ESA section 7 consultation]

This "place holder" results from the decision to withhold the Biological Opinion until after the comment period. EA at 41.

The 50 CFR §216.33(d) notice provision does not include release of a draft EA for comments without completing the NEPA analysis and reaching a decision on whether there is significant impact. That regulation has three options only: (1) determination of a categorical exclusion, (2) an EA concluding no significant impact, and (3) a final EIS.

As noted above, a draft EA is part of the scoping process. Presumably, with the experiment scheduled to begin within a few weeks, we are beyond the scoping process and in the process for final determination regarding issuance of the permit. While circulating a draft EA for comment during the scoping process may be appropriate, even if not required, it is the final decision on significance that is supposed to be available for comment pursuant to the regulations. In presenting a draft EA without a determination of whether there is significant impact and withholding the Biological Opinions, NMFS denies public comment on the ultimate determination and access to one of the key documents on

which that determination will be made.

The incomplete NEPA analysis resulting from the draft nature off the EA and the withholding of the Biological Opinions violates the APA/NEPA requirement to submit agency determinations for public comment.

3.0 Applicant Qualifications

3.1 Comment 4

Conflict of Interest

The Applicant for this permit is Scientific Solutions, Inc. (SSI) with the Principle Investigator being Dr. Peter J. Stein, President of SSI.

SSI is a company that manufactures the equipment to be used in the planned experiment. Proving the effectiveness and safety of this equipment is important to SSI's finances. Dr. Stein testified in the prior litigation that 50% of SSI's funding in the prior year came through the equipment at issue and that he expected 30% of the funding in the following year to be associated with the same equipment, if the testing proved successful. Hawai`i County Green Party et al. v. Evans et al., C-03-0078-SC (N.D. Ca.), Transcript, Friday, January 17, 2003, p. 137, l. 21 - 138, l. 13 (hereinafter "Transcript").

There is an obvious conflict of interest in having a company whose financial success depends on proving their system to be safe to also have the responsibility for monitoring and evaluating the responses of the Gray Whales and other marine species as to whether those responses demonstrate adverse impacts.

The applicant apparently seeks to avoid the obvious conflict by saying that he will appoint a lead observer and give that person "ultimate control as to whether it is safe to conduct or continue the testing." Application at 21. Delegation of that authority to someone other than the permit holder would violate NMFS regulations. 50 CFR 216.35(f).

In addition, the Principle Investigator appoints that person and can remove that person should disagreements arise.

The Application does not identify the person to whom the Principle Investigator intends to delegate this authority, so there is no ability for NMFS to determine that the person has the required qualifications and experience to make the required determinations nor an ability for the public to comment on the adequacy of that person's expertise.

The application should be denied based on the Principle Investigator having an irreconcilable conflict of interest.

3.2 Comment 5

Applicant Bias

The conflict of interest noted in Comment 2 manifests in the attitude of the Principle Investigator as revealed in the application itself.

The Principle Investigator filed an application in which the following statement

appears in the section titled "NATIONAL ENVIRONMENTAL POLICY ACT (NEPA) CONSIDERATIONS:

> This research is likely to be controversial among the general public, as excited by the more radical environmental groups with help from the media. It is not likely to be controversial by [sic] those that would be considered experts in the field of sound and its effects on marine mammals.

Application at 24.

In the preparation of an EA, a determination is made whether an environmental impact statement is necessary based on whether the impacts are significant. 42 U.S.C. § 4332(2)(C); 40 CFR § 1508.27. One required consideration is whether the effects on the human environment are "likely to be highly controversial." Ibid. at (4).

In his statement, Dr. Stein expresses his opinion that the research is "likely to be controversial among the general public" and of interest to the media. While Dr. Stein seeks to dismiss the controversy as manufactured by radicals, research that is so controversial would seem to meet the test of "highly controversial."

As noted above, a federal judge has already found the same research to be controversial, as that term is used in determining exceptions under NEPA to the categorical exclusion. The Court found that "[i]t is exceptionally clear that the experiments authorized by the First Amended Permit and the Third Amended Permit [Gray Whales] are controversial because of their potential environmental consequences." Order at 15. The court also found that "the impropriety of NMFS' failure to apply this public controversy exception is not at all hard to see."

The Principle Investigator offers no evidence to support his implication that a senior federal judge should be found to hold views that are only held by "radical environmental groups."

Also, the court found that the proposed research probably fell within some or all of the five other exceptions under NEPA. Order 14.

In the prior litigation, plaintiffs presented declarations and live testimony from experts on potential adverse impacts of the proposal that would make the proposal controversial. 50 CFR §216.24(b) requires an applicant to demonstrate that "[t]he opinions or views of scientists or other persons or organizations knowledgeable of the marine mammals that are the subject of the application or of other matters germane to the application will be considered."

In explaining the basis for his view that the public will be duped into believing the proposed experiment is controversial and that only radical environmentalists are really concerned, the principle investigator demonstrates he is not willing to consider the opinions or views of scientists or other persons who might disagree with the applicant and overall demonstrates a heavy bias against any possible finding that the research might have adverse effects.

The attitude of the Principle Investigator regarding the potential for harm from his experiment practically forecloses an objective response to such evidence arising. The bias is a manifestation of the conflict of interest identified in Comment 3.

The application should be denied based on the Principle Investigator demonstrating a profound bias regarding the nature and potential impacts of his experiment.

3.3 Comment 6

Lack of Expertise

Federal regulations require that the applicant's expertise is adequate "to accomplish successfully the objectives and activities stated in the application." 50 CFR §216.34(5).

In this case, one activity is determining whether the sonar testing affects marine life. App. at 17.

In the application, Dr. Stein states that he has a Ph.D. in Oceanographic Engineering. In the prior litigation, he admitted that he had no expertise in the effects of sound on marine mammals. Transcript p. 142, l. 23 - 143, l. 4.

The application demonstrates this lack of experience or expertise in the areas of marine ecology, marine mammals, or the impact of acoustic intrusion on marine life.

For example, the application contains the following:

> Larger baleen whales are expected to have little or no hearing sensitivity above 20 kHz. This has been determined through studies conducted of the inner ear of marine mammals. [ref??]."

Application at 19 (color emphasis in original).

An application for a scientific research permit that makes a statement about a critical factor in determining the risk of the experiment and cannot cite a reference for that statement calls into serious question the qualifications of the applicant.

This perfunctory discussion of potential impacts is accompanied by a chart that purports to graph the hearing sensitivity of various marine mammals. For Whales, the chart appears to show no sensitivity above approximately 5 kHz. Application at 19. An insert in the chart -- "? <----- Whales? --------> ?" appears to indicate sensitivity up to 10 kHz. Id. Overall, the chart is either misleading or unduly obtuse.

The application contains no information specifically regarding the hearing sensitivity of Gray Whales. As noted above, the application does state:

> Larger baleen whales are expected to have little to no hearing sensitivity above 20 kHz. This has been determined through studies conducted of the inner ear of marine mammals [ref??]." Application at 19.

Based on the evidence submitted by NMFS is the earlier litigation, the judge found that "gray whales can hear sounds within the range of 10 Hz to 26 kHz." Order at 23 (emphasis added).

As noted in Comment 3, the applicant proposes to turn over all authority to someone else for terminating the operation should adverse impacts on marine mammals be observed. Application at 21. This delegation only confirms that the Principle Investigator is disqualification to perform this function.

The application should be denied on the basis that the application demonstrates that the Principle Investigator lacks the necessary expertise to perform the marine mammal protection aspects of the proposal.

4.0 The application and the draft EA

4.1 Comment 7

The presence of newborn Gray Whales

A key issue in the prior Gray Whale litigation was the vocalization and hearing range of baby Gray Whales and whether the high frequency sonar would impact the baby Gray Whales and the mother-calf relationship.

The application never mentions the presence of baby Gray Whales in the southbound migration. As a result of this omission, the application does not discuss either the potential for impact on the newborns or the mother-calf relationship.

The draft environmental assessment describes the composition of that southbound migration as follows:

> "Pregnant females are at the front of the migration, followed by non-pregnant females, males, and juveniles."

EA at 22. The new born calves in the migration are simply written out of existence when discussing the migratory composition.

The same omission occurs in the discussion of mitigation measures. The migrating population is described as "pregnant animals or unborn calves ... non-pregnant animals or males ...." EA at 42.

While omitting the presence of highly vulnerable baby Gray Whales from the documents made available for public comment may further the NMFS goal of demonstrating lack of controversy, that omission is both scientifically erroneous and sufficient to conclude that the EA does not meet the test of revealing relevant information for the required NEPA comment process.

In the litigation, plaintiffs presented various scientific papers relevant to Gray Whales. At least two of those papers discussed the presence of calves in the southbound migration.

> "During the 1990s, the major calving areas remained essentially the same, however increasing numbers of newborn calves were observed during the fall southward migration along central California and Northern Baja California ...."

Plaintiffs' Exhibit 2 (Status of the Eastern Gray Whale Population: Past and Future Monitoring by Brownell et al. SC/53/BRG 21) p. 5.

> "The highest number of sightings occurred during the 1997/98 season with 60 calves reported by standard watch observers (5 additional calves were reported by using 25-power binoculars). ... The low rate of concurrence between observers (x=16%) makes it evident that many calves go unseen by shore-based observers.
> ...
> As an addendum to Shelden et al. (2001), this report provides data on gray whale (Esrichtius robustus) calves observed since 1995 at Granite Canyon, California, the site used by NMFS most years since 1967 to census the gray whale southbound migration. These data again emphasize the presence of newborn calves well north of the calving lagoons in Baja California. Many newborn calves have also been reported off southern California near Los Angeles (Schulman-Janiger, 1999) and

as far north as Washington State and British Columbia, Canada (Shelden et al., 2000)"

Plaintiffs' Exhibit 31 (Gray Whale Calf Sightings in California During Southbound Migrations, 1995-2001 by Kim E. W. Shelden and David J. Rugh).

The Defendants, including NMFS, submitted the declaration of David J. Rugh which contained the following statements:

> It has been commonly thought that all gray whales are born in the lagoons of Baja California, Mexico, but in fact some calves are born on the southward migration before the whales get to Mexico. Most calves are born before mid-February, and pregnant females are the vanguard of the southward migration, so the location of birthing depends on how far south they have traveled before the calf arrives - usually near the end of the migration in California or Baja California. Of all the gray whale sightings made from the shore station at Granite Canyon,[1] 0.1% to 1.5% have been calves; however, these counts underestimate the true number of calves because they are difficult to see from shore. Counts of calves in the migration going south past the census site at Granite Canyon have risen through the past three decades.

Declaration of David J. Rugh in Support of Defendants' Opposition to Plaintiffs' Motion for Preliminary Injunction, p. 2 (emphasis added).

The EA does state that "most calves are born in lagoons in Mexico." EA at 23. The EA also states:

> As mentioned above,[2] some gray whale calves may be born before their mothers arrive at the calving grounds in Mexico. Newborn or very young calves may have hearing sensitivity at higher frequencies than adult whales, but their hearing sensitivity at the extremes of the range will rapidly decrease. Regardless of the upper limits of gray whale calf hearing range, the sounds produced by the whale finder sonar would not likely interfere with any communications between mother and calf since adult gray whales do not produce high frequency vocalizations that could be masked by the sonar, nor are the adults likely to be very sensitive to high frequency sounds.

EA at 29.

As the quoted papers state, there is not some likelihood that calves "may be born" on the southward migration. The presence of calves on the southward migration is well documented and the numbers have increased over time.

There is also the status review prepared for NMFS by Dr. Rugh and others. Rugh, D.J., M. M. Muto, S. E. More, and D.P. DeMaster. 1999 Status review of the eastern north Pacific stock of gray whales. U.S. Dep. of Commer., NOAA Tech. Memo. NMFS-AFSC-103. In that review, the authors discuss southbound calf migration and observe that the number of calves as a percentage of total whale sightings increased between 1952 and 1998. Ibid. at 8-9. The authors also note that aerial surveys "indicated that shore-based observers missed 62% of the calves with their viewing area." Ibid at 8.

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[1] Granite Canyon is in central California.

[2] Presumably referring to the "most" calves statement earlier.

The NMFS attempt to minimize the presence of calves is contradicted by the evidence, including evidence submitted to the court by NMFS.

50 CFR 216.33 requires the Office Director of NMFS to determine whether "the application is complete," 50 CFR 216.33(c)(2)(i), and "[w]hether sufficient information is included regarding the environmental impact of the proposed activity to enable the Office Director ... (B) To prepare an EA ...." 50 CFR 216.33(c)(2)(v).

Incomplete applications should be returned. 50 CFR 216.33(c)(4).

The failure of the applicant to acknowledge the presence of a substantial number of newborn calves in the southward migration meant the application was incomplete and did not provide sufficient information to enable the preparation of an environmental assessment. The application should have been returned.

When NMFS proceeded to process the application anyway and then either denied or inappropriately minimized the presence of baby Gray Whales in the action area, NMFS violated federal regulations and NEPA's requirement to present the best available information to the public for comment.

4.3 Comment 8

Impacts on newborn calves

The failure of the applicant to mention the presence of baby Gray Whales in the southbound migration and the denial or cursory treatment of that presence by NMFS produced a failure on the part of both the applicant and the NMFS to discuss the possible environmental impacts on that population.

The newborn calves on the southbound migration are the most vulnerable members of the species. That vulnerability is based on at least the following factors:

-- these calves are born in the open ocean, rather than in protected lagoons

-- the open ocean is a far more turbulent environment than the placid lagoons

-- the baby Gray Whale cannot swim unassisted for up to 30 minutes

-- these calves are born in cold water while they lack a significant insulation of blubber, not in the warm waters of the lagoons, and, therefore, require a higher level of energy/nursing to remain warm

-- the birth in open ocean in the midst of the migration limits the ability of the mother to assist the calf in surviving

-- migrating Gray Whales generally do not sleep, migrating day and night, while the babies need to stop to rest

-- the babies born on the southward migration pass through areas of greater natural and Human-produced noise than are present in the lagoons, possibly reducing their ability to communicate with their mothers

-- the blood in the water from birthing may attract predators

-- given all these conditions, the baby Gray Whales are more likely to be taken by predators, such as Orcas; to strand; or to otherwise perish

-- the need for mothers to stop or slow to give birth, to remain with the baby for an extended period of time before continuing to migrate, and the need of the baby to rest may all contribute to keeping the newborns and their mothers in the zone of potential

impact longer than the other migrating whales

-- the broadcasts within the hearing range of the newborns might cause the newborns to vocalize in response to annoyance, stress, or discomfort, making their detection by predators more likely.

These and other factors mean that the calves born on the southbound migration are particularly at risk. Any impact the proposed experiment might cause only increases that risk.

Furthermore, as raised in the prior litigation and supported by expert testimony, there is the issue of stress impacts.

In the application, Dr. Stein responds to the required discussion of stress, pain, and suffering, with a simple "None expected." His two-word dismissal of the possibility is simply evidence of an applicant lacking proper qualifications to be a Principle Investigator on a project with potential impacts on marine mammals.

Having either denied or minimized the presence of baby Gray Whales in the southbound migration, the EA contains no discussion of stress impacts either.

The failure of the application to mention, let alone discuss, the presence of newborn calves in the action area means the application is incomplete and should be returned to the applicant. 50 CFR §216.33(c)(4).

The failure of the applicant to provide a discussion of potential impacts of the proposed activity on newborn calves means that sufficient information was not provided to the Office Director to permit preparation of an informed environmental assessment. 50 CFR §216.33(c)(2)(B).

The omission or minimization of newborn presence produced a failure on the part of NMFS to provide any meaningful discussion of potential environmental impacts on newborns.

Absent the return of the application to the applicant, the Environmental Assessment should be supplemented with an additional assessment to address the issue of potential sonar impacts on baby Gray Whales. That analysis should include the possible impacts on Gray Whales in the midst of the birthing process and their offspring.

If the EA is supplemented with such an assessment, that assessment should be subject to a public comment period.

4.4 Comment 9

Gray Whale newborn vocalizations

The prior litigation raised the issue of potential interference in mother-calf relationships caused by the sonar impacts. One area of concern identified was potential interference in mother-calf communications.

Given that the applicant fails to acknowledge the presence of newborns in the southbound migration, there is no discussion in the application regarding potential impacts on the mother-calf relationship

The discussion of impacts on communication in the EA inadequately addresses the issue. The EA discussion omits any discussion of the vocalizations of the baby Gray

Whales. EA at 29. Instead, the discussion addresses the hearing of newborns and the hearing and vocalizations of adults. Id. Given that the prior litigation specifically raised the issue of calf communications to the mother and that the EA at least acknowledges the possibility that there is communication going on, communications from the baby to the mother should have at least been discussed.

The EA does state that "the whale finder sonar would not likely interfere with any communications between mother and calf since adult gray whales do not produce high frequency vocalizations that could be masked by the sonar ...." EA at 29. The issue raised in the litigation was the high frequency vocalizations by the calves. The EA does not mention, let alone discuss, such vocalizations.

The EA further states that adults are not likely to be "very sensitive to high frequency sound." EA at 29. The implication of the latter statement is that the mothers are not likely to hear high frequency communications from a calf.

Yet the EA also states that baleen Whales reacted to "sounds at frequencies up to 28 kHz." EA at 28.

In the prior litigation, the court found that, based on the evidence submitted by NMFS, "gray whales can hear sounds within the range of 10 Hz to 26 kHz." Order at 23. The 20 to 26 kHz range is high frequency hearing.

Thus, the NMFS discussion of potential disruption of mother-calf communication ignores one component -- the calf vocalizations heard by the mother -- and relies upon adults not being "very" sensitive to high frequency sound for an implied conclusion that mothers do not hear high frequency communications from their babies anyway, so the high frequency sonar cannot interfere with such communications.

Such an obtuse and incomplete discussion of a major issue raised in the prior litigation is hardly sufficient.

The applicant's failure to mention the presence of newborns in the southbound migration produced a concomitant failure to discuss potential interference in newborn communications with their mothers. This omission made the application incomplete. The application should have been returned. 50 CFR §216.33(c)(4).

The NMFS discussion of the calf-mother communication omits calf vocalizations. Absent a decision to return the application, a supplemental Environmental Assessment should be prepared for this issue.

If such a supplement is prepared, the supplement should be made available for public comment prior to a decision being reached on issuance of the permit.

4.5 Comment 10

Gray Whale newborn hearing

Another issue raised in the litigation was the potential impact on newborn hearing from sonar overlapping the hearing range of the newborns.

The EA states that "[n]ewborn or very young calves may have hearing sensitivity at higher frequencies than adult whales, but their hearing sensitivity at the extremes of the range will rapidly decrease." EA at 29 (emphasis added).

In the prior litigation, NMFS submitted the declaration of Dr. Darlene Ketten in which Dr. Ketten stated:

> Given a normal ear, juvenile animals will have a wider range and better sensitivity to sound than adult animals. ... At birth, ears are at their peak sensitivity ...."

Declaration of Darlene R. Ketten in Support of Defendants' Opposition to Plaintiffs' Motion for Preliminary Injunction at p. 6. The conditional "may have" in the EA description is a half-truth because the only newborns that will have less sensitivity than adult animals will be those born with defective hearing.

The hearing characteristics of adult and baby Gray Whales means that a high frequency sonar broadcast may be heard by a mother and calf at different sensitivities or may be heard by the calf and not the mother.

> Level "B" harassment is indicated by such responses as "avoidance (moving away from the sound), increased vigilance, cessation of an activity, or changes in swim speed or surfacing interval. Avoidance reactions are the most obvious indicators of disturbance. Avoidance reactions can be strong or mild and can have varying effects on individuals. ... The most likely affect of the whale finder sonar sounds on marine mammals is avoidance.

EA at 36.

A sonar broadcast in the audible range for a baby Gray Whale could cause the baby to move away from a broadcast. The same broadcast heard more poorly or not at all by the mother could have no effect on her. The potential exists that a baby Gray Whale will have a stronger response to a broadcast than its mother does and move farther away from the source than the mother will.

While a single pulse is unlikely to cause a major separation, the application requests permission to broadcast for as long as one second with a 10% duty cycle. App. at 18. The duty cycle is the duration of the broadcast divided by the interval between broadcasts. The 10% duty cycle for a one-second broadcast would permit one broadcast every 10 seconds. Such a permit would, therefore, permit up to 360 pulses in an hour.

Any effects from a single pulse would be greatly magnified by the numerous repetitions in a concentrated period of time, both in terms of distance the baby would move away and in terms of the overall physiological response of the baby.

While the EA seeks to minimize the exposures that any Gray Whale would experience, the EA also describes the maximum exposure as follows:

> In the case of the migrating gray whales, individual animals are not likely to be within the action area for more than one 8-hour period.

EA at 40.

The 8 hour maximum time does not include any potential extended time necessary for a birthing mother to linger with a new born after birth and while learning to swim nor for a new born to stop and rest. Under those circumstances, the number of exposures would be even greater.

An avoidance response by the newborns would likely result in interruption of nursing. Even without an avoidance response, a newborn exposed to a broadcast within its hearing range might respond by interrupting nursing

The wording of the regulations on permit restrictions raises another question.

The MMPA defines <u>take</u> to include "harass." EA at 3 *citing* 16 U.S.C.

§1362(18)(A). "Harass" is defined to include "[a]ny act of ... annoyance which ... (ii) has the potential to disturb a marine mammal ... by causing a disruption of behavioral patterns, including, but not limited to, migration ... nursing ...." EA at 3 *citing* 50 CFR §216.3.

The regulations state:

> The permit holder shall not **take** from the wild any marine mammal which at the time of taking is either unweaned or less than eight months old, or is part of a mother-calf/pup pair, unless such take is specifically authorized in the conditions of the special exception permit.

50 CFR 216.35(d) (emphasis added).

A strict construction of that regulatory provision would indicate that no take of a newborn is permitted unless specifically authorized by the permit. The applicant did not request such authorization and the EA does not consider such authorization.

If the high frequency sonar is within the hearing range of the newborns, if the newborns find that sound annoying, and if the newborns react to that annoyance in any manner that disrupts their migration or nursing, the highly vulnerable status of the newborns would clearly raise such a disruption to the level of a take forbidden without authorization.

On the other hand, the phrase in 216.35(d) "take from the wild" might be read to mean actual removal. The restrictions section begins with noting "taking, importation, export, or other permitted activity" as the subjects covered in the section, 216.35(a), so the use of the word "take" in provision (d) of the same section would seem to be the MMPA term as defined in 16 U.S.C. §1362(18)(A). If the phrase "take from the wild" is interpreted by NMFS to mean actual removal, there is still an issue to be considered.

If the sonar is within the hearing range of the newborns, if the newborns are annoyed by the sound, and if the newborns respond in a manner that disrupts their migrations or nursing, the highly vulnerable status of the newborns means that such disruption might lead to an increased likelihood of their being separated from their mother, failing to receive sufficient nourishment, taken by a predator, stranding, or otherwise perishing. An activity that results in the death of a newborn would certainly take the newborn from the wild and be subject to the prohibition without permission.

An application for permission to kill a newborn calf incidental to the pursuit of commercial gain or even pursuit of a whale-finding sonar would almost certainly be denied.

The failure of the applicant to acknowledge the presence of newborns in the southbound migration and the resulting failure to discuss the potential impact resulting from broadcasts within the hearing range of the newborns means that the application is incomplete and should be returned. 50 CFR §216.33(c)(4).

The minimal discussion in the EA of potential impact on mother-calf relationships omits any discussion of differential responses by the mothers and calves to the broadcasts. This issue should be discussed in a supplemental environmental assessment.

If a supplemental environmental assessment is prepared, that supplement should be made available for public comment prior to a decision being reached on issuance of the permit.

4.6 Comment 11

Observations of calves

The application states that "NMFS approved marine mammal visual observers will be in place to provide validation of the sonar performance and look for any avoidance reaction from the animals." Application at 21.

There will be observers at two locations on shore and additional observers on the research vessel. Application at 22-23.

First of all, the observers have two responsibilities: (1) to confirm the detection by the sonar of marine mammals within the 2 km range of detection goal and (2) observe whether any animals avoid the broadcasts.

Given the finding in the report prepared for NMFS cited above that "indicated that shore-based observers missed 62% of the calves with their viewing area," there is no reason to expect the dual-tasked observers involved in the proposed experiment will have any better success rate. The likelihood that the observers will not see a calf avoiding a broadcast, a differential in a mother and calf response to a broadcast, or any other impact on a calf is quite high.

The safeguards in the application are inadequate to ensure protection of newborn Gray Whales. The reliance on shore and ship observers to detect responses is arbitrary.

4.7 Comment 10

The Gray Whale population crash

The prior litigation also raised the issue of a major decline in the Gray Whale population.

The application states:

> The 1997/98 population estimate for [the Gray Whale] stock is 26,635 (Hobbs and Rugh 1999). The stock has been increasing over the past several decades, and it was delisted in 1994 from the list of endangered and threatened wildlife. The delisting was reviewed in 1999 by a NMFS workshop, and the recommendation was that the stock is not likely to become endangered within the foreseeable future.

Application at 7.

The use of population figures from five years ago is inappropriate when more recent figures are available.

More seriously, the use of the 1997/98 figures -- the highest count to date -- ignores the serious decline in the population that took place in the 1998-2002 period.

NMFS adopts the same approach as the applicant, while attempting to portray the information as more current.

> The minimum population estimate for the eastern stock of **gray whales** is 24,477 (Caretta et al., 2002).

EA at 22 (emphasis in original).

The reference to "minimum" population estimate attempts to portray the stock assessment number as conservative by using a number lower than the estimate used by the applicant.

The reference is to Caretta et al., 2002 U.S. Pacific Marine Mammal Stock Assessments. NOAA Tech. Memo. NOAA-TM-NMFS-SWFSC-346. EA at 56.

The report cited, however, does not contain population estimates for Gray Whales.

The reference should have been to the Alaska Marine Mammal Stock Assessment 2002. NOAA Technical Memorandum NMFS-AFSC-133, p. 143. Examination of that report reveals that the minimum estimate of 24,477 is also based on the 1997/1998 population estimate of 26,635. Id.

While the applicant's citation to outdated data may be attributable to ignorance, the NMFS is well aware of the significant drop in Gray Whale population in the 1998-2002 period.

The plaintiffs in the prior litigation submitted into evidence a paper with more current data.

> In 2000/01, the estimated number of whales passing during watch periods with good visibility (<5) was 5,229 (estimated CV = 10%). Correcting for whales that passed between watch periods and including a correction for higher travel rates at night results in a total of 18,761 whales (CV = 10%); 95% log-normal confidence interval) 15429 to 22,812.
>
> In 2001/02 approximately 5,261 whales (estimated CV = 10%) passed during watch periods, resulting in a total abundance estimate of 17,414 (CV = 10%, log = normal confidence interval = 14,322 to 21, 174).

Plaintiffs Declaration of Jane Suzanne Arnold, Exhibit 4 at 5 (A preliminary estimate of abundance of the Eastern North Pacific stock of gray whales in 2001/ and 2001/02 by Rugh et al.).

The paper presented did state that these numbers were provisional and subject to revision, "although data analysis procedures were essentially the same as those used in previous years ...." Ibid. at 1.

Dr. Rugh's later testimony on the population estimates for these subsequent years stated:

> Results from our census showed a large drop in abundance when we counted the whales in their next southward migration during the winter of 2000/01 and again in 2001/02 (no counts were done by NMFS between 1997/98 and 2000/01). Although point estimates from the counts from the latter year (2001/02) are lower than those from 2000/01, the difference is not statistical, and the abundances from these two years (approximately 17,000 to 18,000) are considered to be roughly the same. These estimates are also the same as an estimate made a decade before, in 1992/93, but lower than any other estimate from the 1990s.

Declaration of David J. Rugh in Support of Defendants' Opposition to Plaintiffs' Motion for Preliminary Injunction, p. 3.

Using the figures in the Rugh et al. report cited above, the minimum population estimate in 2002 would be 14,322 or 10,000 less than the minimum estimate used by NMFS in the draft EA. The population estimate of 17,000 means the recovery over ten years is lost.

The court found that:

> There is evidence in the record that the total population of gray whales is now 17,414, which is significantly below the population of gray whales (21,942) in 1984 when the gray whales were removed from the list of endangered species.

Order at 24.

The NMFS minimum population estimate is based on the highest count ever recorded and fails to note the precipitous drop in subsequent years.

The only EA discussion that even approaches a discussion of the massive decline in population is limited to the following:

> "There was a brief period in the late 1990's when an unusually high number of dead gray whales were observed during the time of their northward migration. This unusual mortality event corresponded to a temporary reduction in food availability related to a natural fluctuation in ocean temperatures in their northern feeding grounds. Counts of migrating whales in subsequent years have yielded below average mortality rates and calf counts have rebounded to above average levels. As with any population at or near the carrying capacity of its environment, gray whale population numbers can now be expected to fluctuate over short time frames, while the overall trend remains stable.

EA at 23.

The statement omits the precipitous population decline in the 2000/01 and 2001/02 counts and attempts to portray a brief episode in the late 1990s with no lasting effect.

Furthermore, this discussion is preceded by the following:

> The best available information indicates that gray whale abundance has increased since the end of commercial whaling in the 1800s, and that increase may have been slowing through the 1980s and 1990s. This slowing rate of increase does not reflect a decline in the population. Rather, it most likely represents a natural stochastic response of a healthy population to the limitations (carrying capacity) of its environment. In fact, by the end of the 1990s, the abundance of gray whales in the North Pacific was likely close to levels prior to commercial whaling.

EA at 23.

The latter analysis seeks to portray the population as on a steady growth path with only a "slowing rate of increase" that "does not represent a decline in the population." The drastic reduction in the population in the 1998-2002 period is relegated to a tiny blip on the NMFS radar screen, rather than a major event requiring a reassessment of the fragility of the Gray Whale population as a whole. The blip is explained by the very amorphous term "carrying capacity," which is a facile explanation of what may well be a far more complex phenomena. See Plaintiffs' Exhibit 7 (Brownell and Weller, Is the "Carrying Capacity Hypothesis" A Plausible Explanation for the "Skinny" Gray Whale Phenomenon?, SC/53/BRG20)

The application should be returned or denied based on the failure to consider the population crash that took place in the 1998-2002 period and possible implications of that crash as a context for any interference in the migration.

Alternatively, the EA should be supplemented with an additional assessment to address the issue of potential impacts of the experiment in the context of a recent population crash.

If the EA is supplemented with such an assessment, that assessment should be subject to a public comment period.

4.8 Comment 11

The fragility of the Gray Whale population

The NMFS aversion to acknowledging the population crash leads to NMFS not considering the actual implications of that crash for the long term viability of the Gray Whales.

The most common explanation for the precipitous drop in population is a collapse in the food supply caused by a warming of the waters where the Gray Whales feed and melted pack ice impeding the Whales passage to the feeding ground. The warming is usually attributed to an El Niño at that time.

Gray Whales feed in the Bering Sea during the summer. The feeding sites are "restricted to specific shallow water sites that are only ice free during part of the year (Moore and DeMaster 1997)" Perryman et al., Annual Calf Production for the California Stock of Gray Whales and Environmental Correlates 1994-2000 SC/52/AS18, p. 7. This very site-specific food supply makes the Gray Whales vulnerable to any change that impedes their ability to access the site.

Whether the area is actually ice free depends upon various factors, including the Aleutian Low, the sign and scale of the Pacific Decadal Oscillation, and El Niño Southern Oscillation.

"Newly pregnant females are the first to return to these feeding grounds and they must store adequate fat to fast through the winter migration and to lactate in support of their rapidly growing calf. It seems reasonable that environmental changes that shortened this feeding season might affect the condition of these females and subsequently impact recruitment to the population." Id. The latter sentence means that an inability to feed might prevent the babies from reaching term.

Related to this concern is that the global climate change is happening with major melting of the polar ice caps and other changes that could recreate the same or similar conditions that caused the previous population collapse. Even without those changes, the El Niño Southern Oscillation is a recurring phenomenon.

What we have then is (1) a population once seriously depleted (2) with a very site-specific food supply (3) experiencing an event that is likely to be repeated (4) which reduced access to the food supply site and (5) caused the population to drop below the levels at which the species was on the endangered species list.

While the population crash is sufficient to raise serious concerns, the overall picture of Gray Whale survival requirements suggests a species that deserves special consideration and protection to ensure its survival.

Plaintiffs also submitted a declaration from an internationally recognized expert, who has worked for NMFS in the past, in which he stated that a loss of only 50 animals above the permitted whaling quotas would stop recovery and result in a slowly declining stock and above 100 could lead to extinction. That conclusion is based on a heuristic model taking into account the many variables that determine survival. A copy of the

declaration is sent as an attachment to these comments.

That one climatic change event could produce a major crash in a population which, considering multiple variables, could be at risk of extinction means that the Gray Whales should be treated as a fragile population, regardless of whether NMFS has seen fit to relist them as endangered or threatened.

The treatment of the Gray Whales as a species with a stable population by this application and NMFS only increases the likelihood that other experiments will also be targeted on this species.

Neither the application nor the EA made any attempt to evaluate the implications of the population crash.

The application should be returned or denied based on the applicant's failure to consider the implications of the precipitous decline in the Gray Whales population in the 1998-2002 period.

Alternatively, the Environmental Assessment should be supplemented with an additional assessment to address the issue of potential impacts of the experiment in the context of the implications to be drawn from the recent population crash.

If the EA is supplemented with such an assessment, that assessment should be subject to a public comment period.

4.9 Comment 12

Court identified issues

The EA prepared by NMFS does not follow the direction given by the court on subjects that should be considered.

The court found that the combination of two factors - high frequency overlap and dramatic population decline -- "suggests that Dr. Tyack's proposed experiments might inflict unacceptable levels of harm on gray whales." The court further stated that these issues "are precisely the type of issues that would have been discussed in an EA had one been performed." Opinion at 24 (emphasis added).

Yet NMFS avoided discussing either issue in the draft EA for the second application.

A final decision on the application should be deferred until NMFS follows the direction of the court and considers the issues identified by the court. Because following that direction would require supplementing the EA with additional analysis, the additional analysis should be subject to a public comment period.

4.10 Comment 13

Inadequate NEPA analysis

While the draft EA does not contain a final determination of signficance, the specific elements discussed indicate that none of the elements resulted in finding significant impact.

Given that the analysis is made without considering the presence of newborn Gray

Whales in the migration or the recent crash in the Gray Whale population, any analysis of environmental significance is per se inadequate.

This omission is particularly relevant to the first consideration. The EA finds that the proposed action "is not likely to jeopardize the sustainability of any species that might be affected by the action." EA at 48.

Had the analysis included the presence of highly vulnerable newborns and the recent crisis in the Gray Whale total population and calving rate, that analysis could well have reached a different conclusion. In the prior litigation, plaintiffs submitted the declaration that projected a loss of 50 animals over the existing quota could stop the recovery of the Gray Whales and probably lead to a slowly declining stock and the loss of 100 above quota could lead to extinction. A copy of that declaration accompanies these comments.

In a related analysis, the fifth consideration states:

> The proposed action is not expected to result in cumulative adverse effects that could have a substantial effect on the target research species or non-target species. Since most if not all of the sound produced by the whale finder sonar would be inaudible to the gray whales, no significant adverse effects are anticipated for this species.

EA at 48.

Again, having omitted or minimized the presence of newborn Gray Whales, the EA could not reach an informed conclusions regarding whether the research will have a substantial effect on the target research species.

The ninth element analyzed concludes that the effects of the proposed action "are not considered to be highly controversial to the extent that the preparation of an EIS is necessary." EA at 49

It is not very difficult to imagine that an analysis examining the presence of highly vulnerable newborns exposed to large numbers of sound pulses within their hearing range could have provoked a great deal of controversy regarding the ethical nature of the experiment.

It is also not very difficult to imagine that an analysis examining the crash of the Gray Whale population and the implications of that crash, particularly in light of the heuristic model's conclusions, could have provoked a great deal of controversy over the selection of this species as the target species for validating a variation of a commercial product to achieve a purpose that other products already available can achieve.

The applicant did not mention the presence of unweaned newborns and/or mother-calf pairs.

NMFS first omitted that presence and then barely touched on the issue.

To phrase the NEPA questions: Would the broadcasting of high frequency signals, rapidly and repeatedly over a time period of hours, within the hearing range of newborn Gray Whales migrating with their mothers through open ocean, have a potential for disrupting the mother-calf pair and/or increasing the mortality of the newborns?

Do the benefits of possibly validating a sonar that can detect whales outweigh the risks imposed on the Gray Whale population, particularly given that such sonars already exist?

Given that the Gray Whale population is attempting to recover from a population

decline that dropped the total population below the level at which NMFS removed the species from the endangered and threatened list, should the southbound migration be disrupted in any way to test a commercial product variation of products already available?

Had these questions been asked and addressed in the application and a final EA, the NEPA determination of highly controversial would surely have prevented a finding of no significant impact.

The inappropriate omission of key issues during the scoping process lead to an inadequate analysis of environmental impacts and unreliable assessments of significance.

4.10 Comment 14

Unintentional takes

The Gray Whales are the only species specifically targeted for sonar exposure. The application and the draft EA acknowledge that there will be takes of species other than Gray Whales, including endangered and threatened species. App. at 6, 7-9; EA at 12-14. NMFS identified far more species affected than did the applicant. Id.

There is a threshold question raised by the selection of the Gray Whales, as opposed to another baleen species. The Application states that

> We have selected the gray whale as the primary subject of the new whale-finding sonar tests in order to avoid working with a listed species, while field testing the sonar with a large baleen whale.

App. at 7.

The fact that the applicant selected the Gray Whales as the target species would seem to be irrelevant to the analysis of impacts on the non-target species. Whether an impact is intentional or unintentional, analysis of the impact is required by law.

4.11 Comment 15

ESA Impacts

As far as the impacts on endangered or threatened species, the draft EA states the following under the heading "Compliance with ESA":

> This section **will** summarize conclusions of the Biological Opinion resulting from consultation as required under Section 7 of the ESA. **The consultation process will not be concluded until the close of the comment period** to ensure that no relevant issues or information were overlooked during the initial scoping process summarized in Chapter 1. **For the purpose of the consultation, the draft EA represents NOAA Fisheries assessment of the potential biological impacts.**

EA at 41.

As noted in Comment 3 above, NMFS adopted a procedure that is not permitted under the applicable regulations -- publishing notice of an application with a draft EA that does not reach a conclusion as to whether there are significant impacts.

At the same time, the draft EA claims to provide NOAA Fisheries assessment of

the potential biological impacts.

An examination of the discussion of species in the draft EA does not support that claim. For example, the Southern sea otter is listed as threatened pursuant to the ESA. EA at 14.

> In the discussion of marine mammals, the EA provides the following information:
> The small group of southen **sea otters** left at Big Sur in 1911 has grown to a population of about 2500 that ranges along the central California coast from Pigeon Point to Santa Cruz in San Mateo County, south to Purisma Point north of Point Conception in Santa Barbara County. Although they have been observed to forage in depths up to 330 feet, sea otters tend to feed in waters less than 120 feet depth. In California, most births occur from late February to early April.

EA at 27 (emphasis in original).

Based on this information, sea otters will be present during the sonar testing.

The application states the testing will take place from late December 2003 to early February 2004. App. at 22.

The EA states that "most" births occur beginning in late February.

The possibility exists and is not discussed that newborn sea otters will be present during the testing.

The environmental impact assessment for sea otters is limited to the following:

> The only effect anticipated from exposure to the whale finder sonar is short-term disturbance/avoidance behaviors by some small cetaceans and possibly some pinnipeds or sea otters very near the source.

EA at 34.

This minimal analysis apparently relies upon the rapid attenuation claimed by the Applicant and the EA. To determine the actual attenuation of the signal,

> One needs to know the velocities, densities and attenuation factors in the water column and in the upper strata below the seafloor to describe accurately the propagation of sound waves from the source to the animal some distance away.

(National Academies Press, Ocean Noise and Marine Mammals 2003 page 111 in chapter 4).

The generic discussion of attenuation, EA at 16-17 does not provide sufficient information to determine the actual attenuation in the action area. The presence of sound ducts and other factors will limit attenuation.

The minimal discussion related to sea otter impacts does not provide the level of information a Biological Opinion would provide.

4.11 Additional Comments

There are numerous other issues that could be raised regarding the inadequacy of the application and the EA. Such issues include the following:

4.11.1 The application does not specify the time frame of the permit. The application states:

> Although no other specific tests are planned at this time, this experiment might be repeated in other locations using dolphins, sea lions, and other non-endangered

species. We will conduct no more than five tests per year and all the above protocols will be maintained.

This appears to be a request for an open-ended permit for testing on other species in other locations without the need to file a new application for a permit. Such an open-ended permit would violate various provisions of the National Environmental Policy Act, including the requirement to provide for public comment. There is no ability to make such comments based on such a vague presentation of possible future activity.

50 CFR §216.33(d) requires the Office Director to publish notice of receipt and application review in the Federal Register to include "[t]he requested period of the permit." 50 CFR §216.33(d)(E) (emphasis added).

Despite the applicant failing to state a time period, the notice published in the Federal Register states that "a five-year scientific research permit would be issued ...." 68 Fed. Reg. 214, p. 62563-62564 (November 5, 2003).

While the applicant's failure to specify a time period is a minor omission, this omission forms part of a pattern of failing to provide adequate information that supports a decision to return the application as incomplete.

4.11.2 The MMPA requires that a scientific research permit be issued only for "bona fide research." 16 U.S.C. § 1362(22). Bona fide research is defined research having results which:

(A) likely would be accepted for publication in a referred scientific journal;

(B) are likely to contribute to the basic knowledge of marine mammal biology or ecology; or

(C) are likely to identify, evaluate, or resolve conservation problems.

The proposed research at issue here is not likely to produce any publication in a scientific journal.

The proposed research is not intended to provide any knowledge about marine mammal biology or ecology.

The characterization of the sonar as "whale finding sonar" is an attempt to place the research into the last category, i.e. being able to find whales in order to avoid harming them will resolve the conservation issue raised by activities that might harm whales nearby.

The need for the research is not clear. There is already a sonar that can detect whales, if the information provided by Dr. Stein and the Navy is to be believed. The HF/M3 is part of the SURTASS LFAS system and specifically represented as capable of detecting whales at a distance of 2 km.

The applicant proposes to test at least two different sonars -- the MMAST and the IMAPS. The MMAST is the functional equivalent of the HF/M3. Transcript, p. 144, l. 12 - 145, l. 1.

Given the existence of sonars capable of detecting whales, there is no clear need for the research proposed.

Given the conflict of interest, bias, and lack of qualifications of the Principle Investigator, there is some question whether the results of the sonar tests would have the credibility to resolve anything.

4.11.3 The Applicant and the draft EA repeatedly refer to the proposed sonar experiment as having little environmental effect because the sound pollution is very limited compared to the sounds from fish finders and other high frequency sources.

Either the fish finders find whales or they do not. If they do not, then there is some characteristic of the so called whale-finder sonar that is unique when compared to fish finders. Neither the Application nor the EA identify that unique characteristic. That characteristic may be precisely what causes the whale-finder sonar to have an environmental impact that would not be caused by the fish finders.

Conclusion

The numerous procedural and substantive deficiencies identified in these comments call for one of the following responses:

1. return of the application to the applicant based on the applicant's lack of qualifications, including his conflict of interest;

2. denial of the application for failure to consider numerous important matters, thereby demonstrating a lack of the required expertise; or

3. revising the environmental assessment to include the many items noted above as omitted or inadequately addressed and including a determination on the significance of the impacts and issuance of the revised environmental assessment and the biological opinions for public comment.

IN THE UNITED STATES DISTRICT COURT

FOR THE NORTHERN DISTRICT OF CALIFORNIA

HAWAI'I COUNTY GREEN PARTY, AUSTRALIANS FOR ANIMALS, STOP LFAS WORLD WIDE NETWORK, CHANNEL ISLANDS ANIMAL PROTECTION ASSOCIATION, ROBERT PUDICOMBE, AND SEA SANCTUARY, INC.,	
Plaintiffs	No. C-03-0078-SC
v.	
DONALD L. EVANS et at., Defendants	DECLARATION OF DR. MILANI CHALOUPKA

1. I, Milani Chaloupka, do hereby declare as follows:

2. I am a research consultant with Ecologica, University of Queensland, St Lucia, in the state of Queensland, Australia. I specialize in ecological modeling.

3. A full background of the professional qualifications I hold in my field of expertise including degrees, accomplishments, and publications is attached as Exhibit 1.

4. I am unable to attend the court hearing on Friday 17th January, 2003 as I have a meeting scheduled with my Ph.d candidates on Thursday, 16th January. This meeting cannot be re-scheduled.

5. On or around November, 1999, I began developing the heuristic model of the California gray whale which was commissioned by Sue Arnold on behalf of Australians for Animals Inc.

6. The model was developed to foster a better understanding of gray whale population dynamics and to assess the risk of sustained harvesting on stock viability.

7. The model is both age and sex structured with time-varying, density-dependent

and stochastic demographic processes that were parameterized using the best available information on gray whale demography, catch and stranding history and the productivity of the benthos amphipod food stock subject to environmental fluctuations.

8. In order to explain these scientific terms, I have provided the following definitions:-

    a) sex- structure - Counts of both males and females. (A lot of models only account for females). This model takes sexual bias into account.

    b) age-structure- the analysis of California Whales is based on age classes comprising 1 year olds to a 16 year old plus age class

    c) time varying - Things change over time, there is more than one measure of survivorship, these measures are highly variable.

    d) density-dependent. As the population gets bigger, there will be negative effects, fewer breeding animals for example

    e) Stochastic - the model takes into account environmentally varying conditions such as ENSO (El Nino Southern Oscillation) events and the variability of the amphipods on which the whale depends. It also takes into account variables in the environment which drive reproduction in whales.

    f) Paramaterised. Model parameters are based on scientific information or are readily changed to assess the effect of parameter variability on model output

9. In November 2000, I chaired a Scientific Gray Whale Workshop in Santa Cruz, which was organized by Australians for Animals Inc. and Sea Sanctuary Inc. and attended by scientists from Mexico, Canada and the USA with expertise on climate change, benthos amphipods, gray whale populations and gray whale migration.

10. The heuristic model was the focus of that workshop.

11. From time to time, the model is updated with the most current data.

12. I have been provided with a copy of the paper containing the latest abundance estimates of the Gray Whale entitled a preliminary estimate of abundance of the Eastern North Pacific stock of gray whales in 2000/01 and 2001/02. David J. Rugh et al. Exhibit 2.

13. I note that the authors of this paper are from National Marine Fisheries Service and Woods Hole Oceangraphic Institute.

14. I understand this paper was submitted to the IWC Scientific Committee at a

meeting of the International Whaling Commission, which took place in Japan, May 2002.

15. This paper demonstrates a collapse in the Gray Whale abundance estimates from approximately 26,000 to just over 17,000. I have entered the relevant data into the model.

16. I have provided Australians for Animals Inc. with a copy of Figure 1 (which is attached) from the heuristic model which demonstrates the expected California Gray Whale stock abundance derived from a stochastic sex and age-class structured simulation model that includes both environmental and demographic stochasticity as well as density dependent compensatory and depensatory processes. Exhibit 3.

17. The current IWC quota for killing gray whales is 150 whales per year.

18. A loss of 50 whales per year in addition to the IWC quota (total 200) would stop the recovery of the gray whale and probably result in a slowly declining stock.

19. A loss of 100 whales per year in addition to the IWC quota (total 250) than the current IWC quota would most likely result in a stock well on the way to extinction.

20. There is a great deal of uncertainty in terms of knowledge of the Gray Whale. We do not know the true survivorship of any classes; the approximate age of reproduction, or mortality.

21. The basic ecology of the Gray Whale is not known. Because of the seriously uncertain data available with regard to the whale, prudence is the only course of action as well as a strict application of the Precautionary Principle.

22. A whale stock takes years to recover. As far as we know, a Gray Whale takes at least five to six years to reach maturity which means at least a decade or more needs to pass before any improvement in the population will be secured.

23. Without this basic ecological information and aware of an obvious uncertainty in population trends and eco-parameters, in my opinion the prudent course of action is to ensure that the Gray Whales are not subjected to any action which could lead to harassment, injury or other forms of harm.

24. There is every reason why the whales should be undisturbed on their migration.

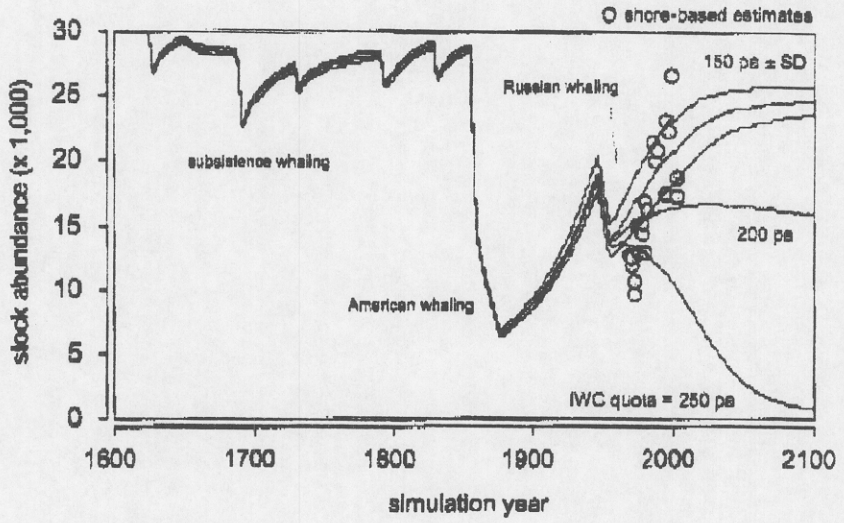

Figure 1 Expected California gray whale stock abundance derived from a stochastic sex- and ageclass structured simulation model that includes both environmental and demographic stochasticity as well as density-dependent compensatory and depensatory processes. Model based on best available scientific information regrding gray whale ecology and demographic processes. Simulated gray whale stock was subject to a low level of indigenous whaling from 1600–1800 followed by the American whaling period from 1846–1874, the Russian whaling period from 1933-1946 and then by the IWC subsistence quota period from 1947- present. The fluctuations in the expected abundance evident during the subsistence whaling period (prior to the 1800s) result from the stock response to major ENSO events and the affect of such events on the major gray whale food stock (amphipod) abundance in the Bering Sea. ENSO = El Nino-Southern Oscillation, which relates to a major recurrent climate-ocean anomaly in the Pacific that can have a profound effect on marine ecological processes. The model suggests that both the American and Russian takes were grossly under-reported. Filled circles = shore-based stock abundance estimates. Three IWC quota scenarios shown with either a 150, 200 or 250 post-yearling take per annum (predominately larger females). The curves show the expected stock abundance from 1000 Monte Carlo trials. The 150 pa scenario also includes the expected ± 1 standard deviation curves — not shown for the 2 other scenarios to avoid visual clutter. Given model assumptions, it is apparent that the current IWC quota of 150 whales pa would slow recovery. On the other hand, a take of 200 pa (i.,e 50 more than the current quota of 150) would stop the recovery and probably result in a slowly declining stock while a take of 250 pa (or 100 more than the current quota) would most likely result in a stock well on the way to extinction.

Prepared January 10, 2003 for Australians for Animals by:

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December 2, 2003

Steven Leathery
Permits
Conservation and Education Division
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National Marine Fisheries Service
1315 East-West Highway, Room 13705
Silver Spring, Maryland 20910
By FAX: (301) 713-0376

Re: **APPLICATION OF SCIENTIFIC SOLUTIONS, INC.**
FOR SCIENTIFIC RESEARCH AND ENHANCEMENT PERMIT
FILE NO. 1048-1717

Dear Mr. Leathery,

On the matter of an extension of time, I did want to call one additional matter to your attention that I discovered last night.

50 CFR §216.33(d)(5) states: "If the Office Director deems it advisable, the Office Director may hold a public hearing within 60 days of publication of the notice of receipt in the Federal Register."

In this case, the notice of receipt appeared on November 5, 2003 in the Federal Register.

On November 10, you determined that a public hearing would be advisable and issued a notice for such a hearing. That notice appeared in the Federal Register on November 17, 2003. 68 Fed. Reg. 221 at 64865.

The notice stated that a public hearing would be held in Silver Spring, Maryland on November 20, 2003.

50 CFR §216.33(d)(5) further states: "Notice of the date, time, and place of the public hearing will be published in the Federal Register **not less than 15 days in advance of the public hearing.**" (emphasis added)

Obviously, November 17 is only three days in advance of November 20. The notice of

public hearing, therefore, did not satisfy the legal requirements for such notice. The meeting itself cannot be considered as satisfying the determination by the Office Director that such a hearing is advisable.

The lack of adequate notice improperly limited access by the public to the hearing. The holding of the hearing in Silver Spring, rather than California, limited access by the individuals and organizations expressing concern about this experiment in the past, including the individuals and organizations filing suit.

To correct the regulatory violation related to the notice of this hearing, I request that NMFS schedule a public hearing with at least 15 days notice in California and that the comment period be extended to at least one week after the date of that hearing.

I look forward to your reply.

Aloha,

Lanny Sinkin

NRDC
THE EARTH'S BEST DEFENSE

NATURAL RESOURCES DEFENSE COUNCIL

12/10/03 Loyed

RECEIVED
DEC 10 2003
By DS

By Regular Mail and Facsimile

December 5, 2003

Mr. Stephen L. Leathery
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National Marine Fisheries Service
1315 East-West Highway, Room 13705
Silver Spring, MD 20910
FAX: (301) 713-0376

Re: Application for Scientific Research Permit, File No. 1048-1717

Dear Mr. Leathery:

On behalf of the Natural Resources Defense Council ("NRDC") The Humane Society of the United States ("HSUS"), and Cetacean Society International ("CSI"), and our over 8 million members and constituents, we are writing to submit comments on a request, filed this year by Peter J. Stein of New Hampshire, for a permit to take marine mammals pursuant to acoustic research. 68 Fed. Reg. 62563 (Nov. 5, 2003). In particular, we wish to comment on NMFS' review of the present request in light of recent adverse changes in the law.

As you are aware, the request has had a tortured history. When it was first submitted, through a different applicant, in 2002, some members of the public expressed grave concern about the underlying research due to the relatively high received levels that the investigators intended to employ and the numbers of gray whales that could potentially have been exposed. A lawsuit was filed and the research enjoined, for violations of the National Environmental Policy Act. Hawaii Cty. Green Party v. Evans, No. C-03-0078-SC, slip op. (N.D. Cal. Jan. 24, 2003). Last month, a rider was attached to a defense authorization bill altering the core definition of "harassment" in the Marine Mammal Protection Act ("MMPA"), both for military readiness activities and for certain types of scientific research. Pub. L. No. 108-136, § 319(a) (2003).

Whatever the merits of Dr. Stein's research, and whatever its potential to harm marine mammals, it should be evident that the new definition of harassment does not apply in the present case. The new definition embraces a discrete category of scientific research activities: those that are "conducted by or on behalf of the Federal Government consistent with § 104(c)(3) [of the Act]." Pub. L. No. 108-136, § 319(a). Whether or not Dr. Stein's work, focused as it is on marine mammals, may qualify as bona fide

scientific research within the meaning of § 104(c)(3),[1] there is no indication in the publicly available record that it is being conducted "by or on behalf of" – rather than being merely funded or partially funded by – the federal government. On the contrary, the work is being undertaken on behalf of Scientific Solutions, Inc., a commercial entity, which hopes eventually to offer the technology tested here for both military and industrial use. See, e.g., P.J. Stein, Application for a Permit for Scientific Research under the Marine Mammal Protection Act at 5 (May 15, 2003).[2] NMFS must therefore review the present application according to the established definition of harassment, which, indeed, is what the agency has proceeded to do. NMFS, Draft Environmental Assessment at 3 n.2 (Nov. 2003).

To speak more generally, however, we remain deeply concerned that the new statutory language and its associated legislative history – even for the narrow category of research to which they pertain – fail to provide adequate protection for marine mammals. We can have little confidence in any permit review conducted under their terms or in any determination regarding potential risk to marine mammals that the agency might reach on the basis of that standard. Regrettably, therefore, in the absence of a regulatory interpretation providing a basis for confidence that marine mammals will be protected, NRDC, The HSUS, and CSI cannot in good conscience support any permit for scientific research to which the new definition is applied.

Very truly yours,

Joel Reynolds
Senior Attorney, NRDC

Michael Jasny
Principal, Cetus Consulting

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[1] The term "bona fide research," as referenced in § 104(c)(3) of the MMPA, is defined to mean "scientific research on marine mammals, the results of which (A) likely would be accepted for publication in a refereed scientific journal; (B) are likely to contribute to the basic knowledge of marine mammal biology or ecology; or (c) are likely to identify, evaluate, or resolve conservation problems." 16 U.S.C. § 1362(22).

[2] We note in passing that the financial interest of Scientific Solutions, Inc., in the outcome of this research raises concerns about potential conflict of interest or appearance of conflict. (The original application was submitted by an academic researchers and acknowledged expert in marine mammal behavior.) To alleviate this concern and to ensure that the research meets the standards of scientific integrity set forth at 16 U.S.C. § 1362(22), it is incumbent on NMFS, should it issue the permit, to consider the potential for conflict and provide additional oversight of the field work to address it.

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By DJ

TO: NATIONAL MARINE FISHERIES
OFFICE OF PROTECTED RESOURCES

FAX: 301-713-0376

RE: FILE NO. 1048-1717

FROM: AMERICAN CETACEAN SOCIETY

DATE: 12/05/03

PAGES: 5 INCLUDING THIS ONE

AMERICAN CETACEAN SOCIETY

December 5, 2003

Permits
Conservation and Education Division
Office of Protected Resources
National Marine Fisheries Service
1315 East-West Highway, Room 13705
Silver Spring, Maryland 20910

VIA FAX: (301) 713-0376

Re: APPLICATION OF SCIENTIFIC SOLUTIONS, INC.
FOR SCIENTIFIC RESEARCH AND ENHANCEMENT PERMIT
FILE NO. 1048-1717

Dear Madam or Sir:

Thank you for the opportunity to comment on the above application from Dr. Peter J. Stein of Scientific Solutions, Inc. We understand that this application for a small-take permit is for the same study that was the subject of litigation earlier this year, and that that study's permit and its three amendments were revoked (Hawai`i County Green Party v. Evans, C-03-0078-SC, United States District Court, Northern District of California) for lack of an Environmental Assessment, among other things. The American Cetacean Society (ACS) did not comment on the previous study's amended permit application because we support the pursuit of scientific research per se, but we do not support research that does not comply with all necessary environmental laws prior to that research being conducted.

Pacific Gray Whale Population

The Pacific gray whale is the target species for this study. The EA states this species was chosen "because they are not listed as threatened or endangered" and "their population is healthy." While the former point is true under the law, we would like to draw NMFS's attention to the fact that the latest population estimate for this species is now well below what it was when it was removed from the Endangered Species list in 1994. Current estimates by NMFS (Gray Whale Census 2001/2002, Abstract, by David Rugh; http://nmml.afsc.noaa.gov/CetaceanAssessment/GrayWhale/GrayCensus01-02.htm) indicate a "preliminary abundance estimate" of 17,414, a figure "below the estimate made for the 2000/01 counts (18,761) and well below estimates made in 1997/98 (26,635)." Yet the EA refers to the outdated 1997/98 figure as the basis on which it claims this stock is healthy and increasing. Elsewhere in the EA, the applicant refers to a NMFS Technical Memo #346 (Caretta et al, 2002) that reportedly states the "minimum population for the eastern North Pacific stock of gray whales is 24,477." Which NMFS document is correct? The one by Rugh or the one by Caretta? As NMFS did not conduct a Stock Assessment for gray whales in 2002, to what does this Technical Memo refer?

The EA further makes the statement that "by the end of the 1990s, the abundance of gray whales in the North Pacific was likely close to levels prior to commercial whaling." There is no citation given. On what basis did the Applicant make this assertion? The EA also states that, "As with any population at or near the carrying capacity of its environment, gray whale population numbers can now be expected to fluctuate over short time frames, while the overall trend remains stable." Again, what is the citation for this highly speculative prognostication? The longest-running census and behavior study for this species is one that has been conducted by ACS and has been running since 1979 -- less than half the lifetime of a gray whale -- and while it could be argued that this is not an "official" census, our data have been used by NMFS and our census director invited to NMFS workshops on this species. Even we would be hard pressed to predict with any level of confidence what "can now be expected" with regard to this species' population or viability.

Finally, the EA goes to great lengths to avoid discussing the impacts of high-frequency sonar on gray whale calves born during migration. It equally fails to address pregnant females. Considering that calf counts during migration have only started increasing from all-time lows over the past three migratory seasons, targeting this stock for potentially injurious experimentation is reckless. If the Pacific gray whale is somehow more important than other cetacean species for studies of this type, we would suggest conducting these experiments on their summer feeding grounds where the potential for disturbing nursing cow-calf pairs is virtually nil and a more equal number of adult males and females can be studied.

Number of Individuals Exposed

On page 12 of the EA, the "maximum number of individuals exposed" indicated for gray whales is "1200" with the footnote that this is a "per year" figure of the number of individuals estimated to be "within the action area." The Permit Application on page 6, however, shows the number of "intentional takes per year" for gray whales as "3600." If we assume that the applicant equates "exposed" with "take" under the MMPA definition of harassment -- and we should -- which of these figures is correct? Will 1200 or 3600 animals be ensonified annually?

Additionally, the EA characterizes "1200" as "5% of the gray whale population," but this is based on the erroneous use of outdated population data. "1200" translates to 7% of the most current census of 17,414, and a whopping 21% if the "3600" per year figure is correct. This hardly constitutes a "small take" of any species, listed or not.

Sanctuaries, Parks, Historic Sites, etc./Essential Fish Habitat

The EA states that the proposed action will not take place within the boundaries of any marine sanctuary, park or historic site. However, NMFS should be aware that there *is* a proposed Marine Protected Area -- Pt. Buchon State Marine Conservation Area -- that is scheduled to be submitted to the California Fish & Game Commission no later than January 1, 2005. The rationale for this area being recommended as a SMCA is due to its "heavy utilization by the recreational and commercial fishing industries" and the need to limit those activities in the interests of habitat and species recovery.

The "action area" described in the EA is immediately adjacent to if not within this proposed SMCA, yet there is no mention of any contingency plans to move the study should this SMCA be created within the 5-year study period. Even if this SMCA is not created within the timeframe of the Permit, responsible scientific behavior dictates that this is an area where further stress should not be introduced. While the EA dismisses any possibility of impacts to "essential fish habitat" and that the proposed action "may not elicit any response from any fish species," the scientific literature indicates otherwise. Of the more than 25,000 extant species of fish, there have been very few studied for the effects of anthropogenic sound, regardless of frequency range. That the EA chooses to select a handful of species whose hearing is well below or well above the playback frequencies doesn't mean that there aren't species that may very well be affected by the ranges proposed for use by the Applicant. To further count on the "ramp-up procedures" to scare fish away from the sound source also flies in the face of the literature, which frequently shows fish freezing in place as a "fright response" to unknown sound, thus keeping them in the ensonified area and subject to injury if not death.

Impact of Whale-Finder Sonars

Based on Figure 10 on page 18 of the Permit Application, the current "whale-finding sonar" is within the same range and source level as commercial fishing industry's fish finders, sidescan sonars and depth sounders. It says, "Current research indicates that there will be little or no effect from SSI's whalefinder sonars on a marine mammal." We would like to see the research referred to that shows there is no effect on "a marine mammal." None is cited. Were commercial fishing boat operators interviewed to determine how marine mammals, especially baleen whales, react to fish finders? And specifically those commercial operators who conduct gray whale watching trips during the annual migration?

The following excerpt is from "Gray Whales: A Bird's-Eye View. A field guide for boat skippers and whalewatchers" by Larry E. Mebust (1992. Offshore Publishing. ISBN 0-9635485-0-6), a spotter pilot for a commercial fishing boat who for several years contracted with the Los Angeles area commercial whalewatching fleet during gray whale migration off the southern California coastline (December-April). His thousands of hours in the air observing gray whales interact with everything from ocean-going freighters to jetskis gave him a unique perspective on this species' behaviors. For example:

"Grays seem to have very sensitive hearing. The fact that they navigate specific fathom lines leads to the conclusion that they can hear or otherwise sense changes in the bottom and that they use this capability to stay on course.

"From time to time, a whale will stop swimming for no apparent reason and act as if it is confused. I have come to associate this behavior with the use of electronic depth sounding devices by boats within a half-mile of the whale. Several times, when whales have acted this way, I would ask the boats if someone had the sonar on and would receive an affirmative reply. When the depth sounder was turned off, the whale began acting normally almost at once.

"Unlike the instance with the seismic sounding device described above, depth sounders do not seem to produce a fear reaction, only confusion. The obvious conclusion is not to use sonar and/or depth sounders when within a half-mile of whales."

While we freely acknowledge that this is technically an anecdotal citation, it is not based on speculation but on direct observation by an experienced, professional, whale spotter pilot. I can also personally attest to being in many a wheelhouse when the captain would radio another nearby boat to turn off its own "whale-finding sonar" because it was having the opposite desired effect on the whales.

Proposed Actions

We are disturbed that the EA attempts to coerce commenters with the implied threat that "No Action does not mean that there will be no environmental consequences...from not implementing an action that would otherwise have mitigated or minimized impacts from other human actions." And that "...the human acoustic activities thought to pose the greatest acoustic risk to marine mammals would continue to rely upon less accurate visual and passive acoustic methods for detection of marine mammals." It is specious to imply that the only thing standing between whales and certain injury or death is a sonar that has the capability to inflict both.

"No Action" means that no additional stresses will be placed on this currently declining population of whales from this particular study. By supporting a "No Action" alternative, we are not stating that further study on the effects of anthropogenic sound in the marine environment is not warranted. What we are stating is that this EA is inadequate for the purposes for which it was intended, it does not address the District Court's concerns, and that the inconsistencies in data used, the lack of citation for any number of speculations, only a few of which we've enumerated here, and the targeting of pregnant and/or nursing migrating animals are grounds for NMFS rejecting this Permit Application.

Sincerely,

Katy Penland
American Cetacean Society
National Conservation Committee
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San Pedro, CA 90733-1391
310-548-6279

cc: Mark Delaplaine, California Coastal Commission

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5th December 2003

Dear Mr Leathery

WDCS comment on the permit application File No. 1048-1717

WDCS has reviewed the permit application and draft Environmental Assessment (EA) that relates to exposure of gray whales, *Eschrichtius robustus,* to an experimental 'whale-finder sonar system'.

It is our understanding that the whale-finder sonar system is a new form of mitigation device that is currently being assessed for introduction into the marine environment to protect cetaceans from intense noise pollution. Its use clearly has the potential to expand rapidly if it is determined to be a more effective mitigation device than currently available (and consisting primarily of visual observations and passive acoustics - both of which have their limitations). We appreciate the potential value of any new and innovative approach that can provide us with more certainty of the whereabouts of cetaceans within the immediate vicinity of activities involving intense noise pollution. However, we would like to explore the full implications of operation of such a device including its potential environmental impact.

Application of the device

Our primary concern with the proposed use of the whale-finder sonar system is that it is clear from the permit application that the whale-finder sonar system is intended to primarily be a mitigation solution for military sonar systems. However, it appears that its operation is also intended for mitigation during the operation of air-gun arrays used in seismic surveys; commercial shipping; detonation of explosives for the removal of offshore structures, shock testing, and excavation; and research using underwater sound. The whale-finder sonar system is, therefore, clearly intended to be broad scale in use, covering many activities as well as coastal and offshore environments. Most importantly in terms of its wide use, it involves introducing more noise into the marine environment, and potentially considerably more noise. In fact, such is the source level of the proposed mitigation device, that we note that it has its own mitigation procedures that must be applied before it can be used, including widely employed measures such as 'ramp-up'.

Other species

Although the current permit application is to begin tests on the gray whale, if the application of the whale-finder sonar system is to be so diverse, then it undoubtedly would not make sense to limit tests of its use to the gray whale. Many intended activities, including the operation of LFAS type systems, are excluded from coastal waters and, therefore, testing in coastal waters on a species that favours these conditions may not give us a representative response of other species that are just as likely to be exposed to the device. In which case, these studies will undoubtedly lead to others. We would like to know why in this case, these have not been applied for also.

The permit application states that the '*whale-finder sonar system might elicit an avoidance reaction from toothed whales, including sperm whales, dolphins and porpoises. However, unless they get within about 30m of the sonar head there will not even be a temporary threshold shift in their hearing.*' The application later states on page 20 that '*Although the system might annoy the odontocetes, unless they come much closer than 100 m they will not suffer any hearing damage'*. We are concerned that the device intended to mitigate the original impact may also have an impact on some species, and especially odontocetes. In particular, sperm whales and beaked whale species may be those cetaceans most likely to come up from directly below the device because of their deep diving abilities, and they may be the species that are the most vulnerable to the impacts of noise pollution.

Complexity of the issue

We have some concerns about some of the comments in the permit application and the draft Environmental Assessment:

[Permit application, page 20] The permit application states that the '*sound levels the animals generate themselves would yield a tissue exposure greater than 180 dB re 1μPa'*. This argument is unsubstantiated and has been consistently refuted by experts in the field. Vocalisation levels in marine mammals are frequently cited as indicating high tolerance for intense sounds (Ketten, 1998). It must be borne in mind that animals, including humans, commonly produce sounds which would produce discomfort if they were received at the ear at levels equal to levels at the production site, and arguments that marine mammals, simply by the nature of their size and tissue densities, can tolerate higher intensities are not persuasive. First, mammal ears are protected from self-generated sounds not only by intervening tissues but also active mechanisms, which do not necessarily provide equal protection from externally generated sounds largely because the impact is not anticipated as it is in self-generated sounds (Ketten, 1998). Ketten (1998) adds that source level calculations for vocalizations recorded in the wild should not be viewed as reliable sensitivity measures.

[EA, page 37] '*Studies suggest that many toothed whales are capable of modifying both the frequency and source level of their echolocation pulses so that they can be detected over ambient noise.*'

[EA, page 38] '*the zone of audibility would be so small that any marine mammal whose communication or other sound were being masked could quickly move out of the range of the sound'.*

These comments do not reflect the complexity or the value of the marine environment. Cetaceans may not be able to simply move from an area if it fulfils critical habitat needs. We do not know what energetic costs are associated with modification of its own use of sound in order to compete with whale-finder sonar system, as well as the original source of noise that the whale-finder sonar system is mitigating.

Testing locations
Possible locations for testing include the North Pacific, Gulf of Mexico, North Atlantic or Mediterranean Sea. Should these tests proceed, we believe that the relevant authorities in all these regions should be involved in the planning and coordination of such activities, including full and transparent consultation with the scientific and environmental communities.

Monitoring impacts
Finally, although the proponents state that they do not expect the proposed activity to cause stress, pain or suffering we are not aware of how these important biological concerns might be monitored, as they may not be detectable through visual observations.

The draft EA examined among other things, '*the potential impacts of the proposed action on the human environment, including whether issuance of the permit in the proposed action would, in conjunction with other related actions, result in cumulatively significant effects'*. The EA does not discuss in any detail the combined impact of the use of the whale-finder sonar system with the original noise source that the whale-finder sonar system is intended to mitigate.

Although animals may have to be very close to the whale-finder sonar system to become injured or harassed, we are also concerned that it may also increase ambient noise levels out to 15 to 33 km from the source. Should the use of the device become standard as a mitigation technique, the consequences of introducing considerably more noise into the marine environment should be considered.

Finally, we do not believe that it is a fair reflection to state that the proposed activities are '*excited by the more radical environmental groups with help from the media. It is not likely to be controversial by those that would be considered experts in the field of sound and its effects on marine mammals*'. This comment is not constructive. There are many scientists with appropriate expertise that are concerned about the potential impact of introducing further sound into the marine environment. This comment fails to recognise the scientific unknowns about this important subject and the level of concern and interest amongst the scientific community and the general public.

Yours sincerely

Sarah Dolman

Sarah Dolman

Ketten, D. R. 1998. Marine mammal auditory systems: A summary of audiometric and anatomical data and its implications for underwater acoustic impacts. NOAA Technical Memorandum. NOAA-TM-NMFS-SWFSC-256.