Testimony of Peter Tyack, Biology Department, Woods Hole Oceanographic Institution

To the Subcommittee on Fisheries Conservation, Wildlife, and Ocean, of the Resources Committee of the U.S. House of Representatives

Thursday, 24 July 2003

Mr. Chair and distinguished members of the Committee, my name is Peter L. Tyack. I am a Senior Scientist and Walter A. and Hope Noyes Smith Chair in the Biology Department of the Woods Hole Oceanographic Institution in Woods Hole, Massachusetts. Thank you for the opportunity to provide my views on H.R. 2693, a bill to reauthorize the Marine Mammal Protection Act (MMPA).

I have been fascinated since I was a child with the social behavior of marine mammals and how they use sound to communicate and explore their environment. I have spent much of the last 25 years following these animals at sea, listening to their sounds and watching their behavior. As I started my career in basic research it never occurred to me that chasing my personal interests would ever become central to such an important policy issue.

In my testimony I address issues concerning section 13 of H.R. 2693 on the definition of harassment takes under the MMPA, especially those for scientific research and section 14 on incidental takings of marine mammals, with special reference to incidental effects of manmade noise. I would like to start my testimony by congratulating the House Resources Committee for correcting what I consider to be serious problems with the definition of harassment in H.R. 1835 and 1588 and for correcting problems with the authorization process for incidental takes. I still have some suggestions for improvements in both areas, but I believe that this bill corrects problems with the current MMPA and is much better than the changes proposed under HR 1835 and 1588.

Introduction

Three committees of the National Research Council (NRC) of the National Academy of Sciences have reviewed issues concerning low frequency sound and marine mammals. Each of these NRC committees has published a report:

National Research Council (NRC). 1994. Low-Frequency Sound and Marine Mammals: Current Knowledge and Research Needs. National Academy Press, Washington, D.C.

National Research Council (NRC). 2000. Marine Mammals and Low-Frequency Sound: Progress Since 1994. National Academy Press, Washington, D.C.

National Research Council (NRC). 2003. Ocean Noise and Marine Mammals. National Academy Press, Washington, D.C.

I was a member of the first two committees and reviewed for the NRC the report produced by the third committee. I would like to take this opportunity not only to give my personal views, but also to reiterate some of the repeated suggestions of the NRC committees for changes to the MMPA.

Suggested rewording of incidental take authorization for effects of noise.
When the MMPA was first written, it emphasized takes in commercial fisheries. Certainly no one at that time was thinking about whether the regulatory process would work for issues such as incidental harassment takes resulting from unintentional exposure to noise. Nor was there much experience with issues under NEPA of whether the impacts of entire activities needed to be evaluated together, or whether it was better to authorize each time a “take” was possible.

Since the MMPA was passed, many studies have demonstrated that marine mammals respond to ships, dredging, icebreaking and construction, and sound sources such as pingers, air guns, and sonars. Most of

these sound sources are currently unregulated simply because NMFS chooses not to enforce the prohibition against taking marine mammals by harassment. I doubt that many of these activities could find a regulatory procedure under the current wording of the Marine Mammal Protection Act that would allow activities with negligible impact while controlling those that might have an adverse impact. As has been pointed out by each of the three National Academy reports on this topic, the dominant source of manmade noise in the ocean is the propulsion sounds from ships. Yet this has not been regulated by NMFS. As the National Academy 2000 report Marine Mammals and Low-frequency Sound put it:

If the current interpretation of the law for level B harassment (detectable changes in behavior) were applied to shipping as strenuously as it is applied to scientific and naval activities, the result would be crippling regulation of nearly every motorized vessel operating in U.S. waters. (p. 69)

One response to this conundrum is for each activity to seek special exemptions if their activities become targets of regulation. However, the National Academy 1994 report Low-Frequency Sound and Marine Mammals discouraged that approach:

“However, it seems unreasonable that an exemption from the “take” prohibitions of the MMPA should be available for some human activities, including some that kill marine mammals, without being available for other human activities whose goal may include the acquisition of information of potential value for the conservation of marine mammals.” (p 38)

The first two reports of the National Academy of Sciences on Marine Mammals and Low Frequency Sound specifically suggest a broader solution to this problem: removing the requirements for small numbers of takes, while retaining a criterion of negligible impact:

Reword the incidental take authorization to delete references to “small” numbers of marine mammals, provided the effects are negligible. (p. 39)

Low frequency Sound and Marine Mammals (1994)

In addition to making the suggested change in the level B harassment definition, it would be desirable to remove the phrase “of small number” from MMPA section 1371(a)(5)(D)(i). If such a change is not made, it is conceivable under the current MMPA language there would be two tests for determining takes by harassment, small numbers first, and if that test were met, negligible impact from that take of small numbers. The suggested change would prevent the denial of research permits that might insignificantly harass large numbers of animals and would leave the “negligible impact” test intact. (p. 71)

Marine Mammals and Low-frequency Sound (2000)

My understanding of the judge’s preliminary ruling in the legal challenge to operation of the SURTASS LFA sonar, NRDC v Evans, is that the judge ruled against the interpretation followed by NMFS that “small” can be interpreted in terms of population size, and exactly following the fears of the National Academy panel, ruled that the current MMPA language does require both negligible impact and small numbers, where the meaning of the word small could not be interpreted in terms of size and status of populations.

The restriction in the MMPA authorizations for incidental takes to “a specified geographical region” may also rule out this authorization process for most impacts of noise. If “specified geographical region” is taken to mean areas small enough to involve the same assemblage of species and oceanographic conditions, then the requirements of the incidental take authorizations may be incompatible with the NEPA requirement to consider all cumulative uses of a system. Many kinds of sound sources are installed on a large number of vessels, each of which may cross the ocean in weeks. Many marine mammals also migrate thousands of miles through very different habitats. This makes it difficult to specify a geographical region for a whale that may be in the Caribbean one day, and off New England a few weeks later. Different marine mammal populations have boundaries that differ according to the ecology and migratory patterns of the species. This makes it impossible to identify a unique region that is homogeneous for all marine mammals, much less other aspects of the marine ecosystem. If the wording specifying a geographical region is to be reconciled with the potential numbers and movements of both the animals and the noise sources, then the region must be specified in terms of the scope of the activity, not homogeneity of the ecosystem.

The propulsion sounds of ships elevate the ambient noise over the world’s oceans, and this global impact is likely to reduce the ability of whales to detect calls at a distance. I see no process by which such takes

could be authorized under the current wording of the MMPA. Depth sounders and fish finders have sounds that do not carry as far, but they are used by tens of thousands of vessels. These sounds have the potential to disturb marine mammals, and therefore may take animals by harassment, but did Congress intend to require authorization for each user? How far could a vessel go before its takes move out of the "specified geographical region?" Oceanographic research, much of which uses motorized vessels and uses sound as a tool to explore the ocean, also has a global scope, and may be difficult if not impossible to authorize under the current regulatory procedures.

I support the changes proposed in H.R. 2693 to remove the conditions of "small numbers" and "specified geographical region" in the wording of the incidental take provisions of the MMPA. I believe that as long as a sharp focus is maintained on the issue of negligible impact, these changes would make the process work for effects of noise on marine mammals, while still protecting marine mammal populations from adverse impacts. Since millions of sound sources such as depth sounders and the propulsion noises of every motorized vessel could cause harassment takes under the current definition, I believe that it will be essential for the process to authorize general activities, rather than individual vessels or sound sources. This is incompatible with restricting the authorization to "small numbers," if this is taken literally to mean just a few individuals, or "specified geographical region," if this is taken to mean small areas.

Definition of harassment

The current definition of level B harassment in the MMPA is:

"has the potential to disturb a marine mammal or marine mammal stock in the wild by causing disruption of behavioral patterns, including, but not limited to, migration, breathing, nursing, breeding, feeding, or sheltering."

The 1994 NRC report on Low Frequency Sound and Marine Mammals succinctly reviewed the problem of how harassment has been interpreted under the MMPA:

Logically, the term harassment would refer to a human action that causes an adverse effect on the well-being of an individual animal or (potentially) a population of animals. However, "the term 'harass' has been interpreted through practice to include any action that results in an observable change in the behavior of a marine mammal …." (Swartz and Hofman, 1991). (p. 27)

The 1994 NRC report goes on to note that many minor and short-term behavioral responses of marine mammals to manmade stimuli are simply part of their normal behavioral repertoire. There is clearly a need for some standard of negligible effect, below which a change in behavior is not considered harassment.

The change in the definition of level B harassment proposed by the Administration and in H.R. 1835 is:

"disturbs or is likely to disturb a marine mammal or marine mammal stock in the wild by causing disruption of natural behavior patterns, including, but not limited to, migration, surfacing, nursing, breeding, feeding, or sheltering, to a point where such behavioral patterns are abandoned or significantly altered."

As a biologist who has studied the behavior of marine mammals for more than 25 years, I find this wording confusing, and I do not see how it addresses the problem identified by the NRC. The last phrase added to the definition does add a criterion of significant alteration. However the point of the NRC reports was biological significance, a disruption that could have an adverse impact. My dictionary defines significant as "likely to have influence or effect." The addition of the word "significant' in the new definition therefore does not give the same standard as suggested by the NRC. As our techniques to study marine mammals have grown in sophistication and sensitivity, it is now possible to demonstrate statistically significant alerting or orienting responses that in my opinion fall well below the negligible impact standard.

I find the addition of the word "abandoned" particularly confusing in the new definition. It certainly makes sense to add a criterion for abandonment of critical habitat, but what does this wording mean for behavior patterns? A sperm whale or elephant seal can dive for an hour or more, but any marine mammal that abandons surfacing behavior cannot breathe. If it abandons surfacing for more than a few hours, it is certainly dead. If a sperm whale group is sheltering a young calf from a killer whale attack, even a momentary abandonment of the behavior could be lethal. Calves may be able to survive for days or weeks if their mother abandons nursing, and many whales could survive for years without feeding, but what is the time period implied by "abandon." My understanding of "abandon" is that it means a permanent change. By

this definition, the “abandonment” wording turns level B harassment into a lethal take. Far from distinguishing negligible from potentially significant effects, it muddies the waters further.

Another problem with the use of the term “abandon” is that I take it to mean “giving up” -- a 100% cessation of an activity. Yet since the definition of harassment also applies to stocks, this definition is not conservative enough for actions that may affect a large portion of a stock. For example, suppose an activity caused a 50% reduction in foraging rates in a majority of the population, or caused animals to be 50% as effective in finding a mate for breeding. Such reductions would not “alter” the form of the behavior, nor would they meet an abandonment criterion, but few populations could sustain such changes on a long term basis.

I support the definition of harassment proposed for section 3(18)(A) (i) and (ii) in section 13 of H.R. 2693. The definition in section (ii) closely follows the NRC definition. The primary difference is the replacement of “meaningful” as a modifier for disruption with “biologically significant” and deleting the phrase “biologically significant” from the modifier for the kinds of activities. I believe that this follows closely the meaning of the definition written by the NRC committee.

I am however very concerned that the harassment definition proposed for section (iii) retains the problematic old harassment definition for activities directed at marine mammals, including scientific research directed at marine mammals. While there is a process to permit such research, retaining the old definition for activities directed at marine mammals will hold scientific research that enhances the survival or recovery of species or stocks to a stricter standard than activities that harm marine mammals and do not help them. This does not make sense. The only case that in my opinion justifies a lower level of regulation involves takes for scientific research that enhances the survival or recovery of species or stocks. The proposed changes in the definition of harassment for activities directed at marine mammals will perversely have the opposite effect.

NMFS has suggested retaining the old harassment definition for activities directed at marine mammals so that they can more easily prosecute cases against businesses such as those that charge tourists to swim with wild dolphins. I believe that any of the proposed harassment definitions fit very well these cases where people intentionally pursue marine mammals and annoy them with clear disruption of behavioral patterns. It is particularly strange that NMFS suggests retaining the old broad definition, when a senior NMFS enforcement attorney stated to the 2002 Annual Meeting of the Marine Mammal Commission “the potential to disrupt behavioral patterns, at one level, it is a great definition because you go out, you know, we can get whatever we want because it is a very broad definition, but when you get down to the prosecution level, it is too broad.” The real problem with harassment in my opinion is that NMFS has not shown the will to enforce the prohibition against harassment and to prosecute cases against growing industries based upon harassing marine mammals in the wild. It would be a tragedy for scientific research to be excluded from corrections in the definition of harassment as cover for NMFS’ unwillingness to enforce the prohibition against harassment. If the definition of harassment causes problems with prosecution against commercial activities directed at marine mammals, which I contest, then the solution should be limited to this narrow situation and should be worded so as not to impact research directed at marine mammals.

I would like to take this opportunity to reiterate the suggestion of the National Academy of Sciences second report (2000) on Marine Mammals and Low Frequency Sound on the definition of level B harassment:

“NMFS should promulgate uniform regulations based on their potential for a biologically significant impact on marine mammals. Thus, level B harassment should be redefined as follows:

Level B – has the potential to disturb a marine mammal or marine mammal stock in the wild by causing meaningful disruption of biologically significant activities, including, but not limited to, migration, breeding, care of young, predator avoidance or defense, and feeding.

The Committee suggests limiting the definition to functional categories of activity likely to influence survival or reproduction. Thus, the term “sheltering” that is included in the existing definition is both too vague and unmeasurable to be considered with these other functional categories.” (p 69)

This definition was written by scientists. Since “meaningful disruption” is not defined, and since “biologically significant” has a more specific meaning to biologists, I have no problem with the minor changes in wording proposed in H.R. 2693 to fit legal and legislative requirements.

The definition of harassment must take into account our lack of knowledge about the ways in which

behavioral changes may influence marine mammals. For example, prolonged or repeated harassment may lead to physiological changes that do not qualify as injury, but that may indicate the potential for adverse effects. Prolonged changes in behavior that are outside of the normal behavioral repertoire of a species may also trigger concern even if the effect on health is not immediately obvious. But if the definition of harassment is to be changed, the primary focus should be on biological significance in a way that clarifies the need for a negligible impact standard. I do not think that the changes proposed by the Administration, in H.R. 1588 and in H.R. 1835 for the definition of harassment succeed in this task, but I support the definition of harassment in (18)(A)(ii) of section 13 of H.R. 2963, which closely follows that suggested by the National Research Council in any amendments to the MMPA.

Problems with permitting scientific research on marine mammals.

As a biologist personally concerned with protecting marine life, I believe that double standards in the MMPA have led to a particularly counterproductive situation for permitting scientific research designed to protect marine mammals. The permitting process was created to allow an exemption for scientific research from the MMPA prohibition on taking marine mammals. The dirty secret of the MMPA is that the prohibition on unintentional takes is ignored more often than it is regulated and enforced. For example, ships regularly collide with marine mammals and often kill them. So many highly endangered right whales are killed by vessel collision, that population models predict this additional mortality may drive the species to extinction. Yet there is no regulation of this risk, nor to my knowledge has any ship been prosecuted for striking a whale and killing it. It is ironic that far from exempting research from an effective prohibition, NMFS has grown an elaborate process for permitting negligible harassment takes by researchers, while ignoring widespread and predictable lethal takes caused by activities that do not benefit marine mammals.

As early as 1985, NMFS stated in its Annual Report on the MMPA that “one of the most extensive administrative programs in NMFS is the permit system that authorizes the taking of marine mammals for scientific research and public display.” I understand that today the NMFS Permit Office has 7 personnel devoted to research permits, but only two devoted to all other authorizations for incidental taking. From my perspective, this is backwards. Scarce regulatory resources should only be devoted to minor harassment takes for research after the much more significant takes of activities that do not benefit marine mammals are controlled by regulations that are effectively enforced.

It has been recognized for over a decade that the regulatory focus on research activities is interfering with research needed to obtain critical information to evaluate risk factors for noise exposure in the sea. As the 1994 National Academy report on Low-frequency Sound and Marine Mammals put it:

Scientists who propose to conduct research directed toward marine mammals are aware of the permitting requirements of the MMPA and of the Endangered Species Act (ESA) and the associated regulations. Most of their research can be conducted under the scientific permitting process. They routinely apply for and obtain such scientific research permits. However, the lengthy and unpredictable duration of this process can create serious difficulties for research…. In addition to permit delays, certain types of research that are considered “invasive” or “controversial” either are not allowed under the current permitting process or may require an Environmental Assessment or even an Environmental Impact Statement under the National Environmental Protection Act (NEPA). Such a regulatory burden actively discourages researchers from pursuing those lines of study. (p 29)

The committee strongly agrees with the objective of marine mammal conservation, but it believes that the present emphasis on regulation of research is unnecessarily restrictive. Not only is research hampered, but the process of training and employing scientists with suitable skills is impeded when research projects cannot go forward. Experienced researchers are the ultimate source for expanding our knowledge of marine mammals. A policy that interferes with the development of this resource appears to be self-defeating. (p 30)

Things were bad in 1994, but they have recently become much worse. The delays for permitting have become much longer, over 21 months in some cases. Ironically, the more serious the conservation problem addressed by a research project, the more likely the project is to be delayed. In addition, the judge in a recent court case involving my research permit ruled that all acoustic research on marine mammals is controversial. This led him to rule that any permit for acoustic research requires an accompanying Environmental Assessment or Environmental Impact Statement. This decision means that all of the research that can help resolve the marine mammal issues raised by the National Academy reports is subject to much more regulatory burden than before. Unless Congress changes the regulatory process or provides new funds to the NMFS Office of Protected Resources to conduct the analyses required under NEPA, the

permitting process will not only discourage research, but may make it almost impossible to conduct some research that has negligible effects and is urgently needed for conservation biology.

Let me illustrate with an example from the research of Scott Kraus, a biologist at the New England Aquarium who has studied North Atlantic right whales for decades under a series of research permits from NMFS. In August of 2001, he applied for a new permit, as his old one was set to expire 31 December 2001. In November 2001, after the end of the public comment period, the Permit Division received a letter from a self-styled “environmental warrior” claiming, incorrectly in my belief, that the research would harm right whales. In early December 2001, operating under his old permit, Kraus started aerial surveys to keep ships from hitting whales, and he was told the biological opinion for the new permit was almost done. Kraus never received his permit by the time his old one expired, and on 24 January 2002, NMFS informed him that they would defer decisions on a permit until an Environmental Assessment was conducted following NEPA rules. This was a complete surprise for Kraus, who had to cancel a research program designed to develop whale-safe lines for fishing gear. During 2002, at least eight right whales entangled in fishing gear, and six were thought to have died. It is now July 2003. Kraus had to cancel another attempt to repeat the whale-safe fishing line project in 2003, and he still has no prediction from the NMFS Permit Division as to when his permit will be issued. There may be a new determination of a need under NEPA for an Environmental Impact Statement for his permit, not just an Environmental Assessment.

Let me recap. The survival of right whales in the North Atlantic is threatened because so many are killed from entanglement in fishing gear and from vessel collision. Unlike any airline, as a scientist, Kraus needs a permit to fly over right whales, in case the whales might hear the plane and somehow be disturbed. Delays in permitting endanger his ability to fly surveys designed to warn ships of the presence of whales. The ships that regularly kill whales are subject to no regulation, and travel wherever they please at any speed through critical habitats of the most endangered whale in US waters. In spite of some fisheries regulations, whales are dying in fishing gear at alarming rates. Fishermen can continue to place lethal fishing gear where it can kill whales, but Kraus cannot test new ideas for whale-safe fishing gear, because the environmental paperwork for his research is not sufficient, even after 23 months of delay. Is there something wrong with this picture?

I have also personally had experience with the mad world in which Federal actions block the research needed to protect marine mammals from poorly regulated impacts of human activities. We cannot protect marine life from intense underwater noises until we get better at detecting when a marine mammal or sea turtle is in the danger zone. Recently, there have been promising developments for whalefinding sonars. These are high frequency sonars that work like fish finders to detect echoes from animals close enough to be harmed by unintentional exposure to intense sounds. When these whalefinding sonars reached the point in their design process where they were ready to be tested at sea, I submitted an application to amend my research permit to test how well a whalefinding sonar could detect migrating gray whales. We know how migrating gray whales respond to noise, and I expected little if any behavioral response to the whalefinding sonar. The study was designed with very sensitive methods to detect whether whales avoided the sound source by a hundred meters or so, and I requested permission to “take” the whales by harassment.

The Permit Division of NMFS issued the amendment to my permit in a timely fashion, but only after deciding that the amendment did not require a new environmental assessment. The environmental assessment conducted by NMFS for my original permit had already covered testing a whalefinding sonar on whales. The wording allowing “takes” of gray whales alarmed an animal rights advocate in Australia, who gathered a few small fringe groups in the U.S. to request an injunction against the research the day before the study was to begin. The study was delayed by a temporary restraining order and the entire field team and one of the research vessels in our national oceanographic fleet were tied up for most of the month planned for the research. In the end, the judge ruled that the amendment to my permit was invalid because the NMFS Permit Division had not prepared a new Environmental Assessment under NEPA not just for my original permit, but for each major amendment to the permit. Hundreds of thousands of taxpayer dollars were wasted and we are a year behind in developing more effective methods for monitoring marine mammals.

The NMFS Permit Division of the Office of Protected Resources has just nine personnel and is increasingly inundated. In 2001 they advised scientists applying for a permit to expect processing times of at least 90 days for most marine mammal permits with an additional 135 days for permits affecting endangered species. However, some permits have been subject to greater delays. NMFS currently advises scientists to allow at least 6 months for processing a permit, longer for research involving endangered species. In the cases of my and Kraus’ permits, it appears that last minute complaints by a fringe extremist could trigger a “public controversy” condition requiring exhaustive environmental assessments. Given these precedents, I

consider that only permits backed by environmental analyses acceptable under NEPA are solid enough to protect research from nuisance lawsuits. Due to the increasing number of scientific research permits, and the renewed emphasis on NEPA analysis, some permit applications may be delayed much beyond 6 months, with dramatic increases in the burden on the Permit Division and on the applicants. I can personally attest to the heroic efforts of the staff of the Permit Division to cope with this disastrous situation, but the Division requires additional support and staff to keep the permitting process afloat.

Congress has in the past few years taken strong steps to fund research on urgent conservation problems such as declining populations of Steller sea lions, or the threat of extinction for the North Atlantic right whale, and I applaud these actions. Yet both of these research efforts were delayed by more than a year because of delays in the permitting process for scientific research. If Congress wants to support critically needed conservation research, it is not enough to fund the science. Congress will also have to authorize significant increases in funding to the Permit Division.

The time required to obtain a research permit has swelled from 3 months to 6 months to 21 months and counting. A very important change suggested by the NRC would be for Congress to specify a fixed maximum time for NMFS to process permits and authorizations. The 1994 NRC report suggested 10 days for initial processing, 30 days for the public comment period, and 10 days to issue or deny a permit for scientific research. The Permit Division used to use a more liberal 30 days for initial review, 30 days for the public comment period and a concurrent 45 days for review by the Marine Mammal Commission, and 30 days to issue or deny the permit. This totals to 105 days. I urge Congress to follow the recommendation of the NRC and set deadlines of 3-4 months for issuing a permit for scientific research.

The failure of NMFS to prevail in recent challenges to their attempts to exempt the permitting process from further environmental review under NEPA suggests the need for Environmental Assessments or Environmental Impact Statements for each activity that may be permitted or authorized. I cannot imagine that even a newly invigorated Permit Office could perform these analyses for every project. The only way for the permitting process to proceed in a timely fashion given the requirements for environmental analyses under NEPA will be for the Permit Division to conduct programmatic environmental analyses for most typical research activities well before applicants request a permit. My understanding is that it typically takes several months and $50,000-$100,000 to produce an Environmental Assessment, and $500,000-$1,000,000 and 1-2 years to produce an Environmental Impact Statement. This additional workload must be met while the ongoing flow of permit applications is expedited. If NMFS is to issue timely and legally defensible permits, the permit division and other supporting divisions in the Office of Protected Resources will need additional program staff, with specialists in many areas such as environmental law, NEPA, marine mammal population biology, acoustics, animal health and welfare. Congress will also have to authorize significant increases in funding for the Office of Protected Resources to hire contract personnel or to outsource the analyses required under NEPA and the ESA.

In order for research not to be over-regulated compared to activities with adverse impacts and no benefit to marine mammals, these kinds of programmatic environmental analyses are urgently needed for setting regulatory priorities not just for research, but for all incidental taking. The suit against my test of a whalefinder sonar shows how important it could be to researchers for non-research activities to undergo similar NEPA review. The whalefinding sonar has a frequency range and source level similar to many depthsounding and fishfinding sonars. If these other sonars had undergone programmatic NEPA analyses, these would have shown that the whalefinder would have even less impact because of the way it was operated.

One suggestion for reducing the regulatory burden on scientific research involves including scientific research under the definition of harassment for military readiness. This is not helpful for research on marine mammals, and could create new problems for marine mammalogists. The US Office of Naval Research is the primary funding agency for basic marine mammal research in the US. In spite of the excellent reputation of ONR as a science agency, the location of this agency in the Navy has led to controversy about whether the Navy biases the research effort or compromises the integrity of the scientists it funds. Fringe groups have even tried to drum up support by conjuring up conspiracy theories claiming that critical conservation biology projects are secret Navy projects to target marine mammals. If Congress were to change the wording of the MMPA to lump scientific research under military activities, this would increase concern about the relationship between the military and marine mammal research, and could accelerate the attacks by anti-research animal rights groups.

I must emphasize that many of the most serious problems with marine mammal research permits have not been MMPA problems as much as NEPA problems. Changing the definition of harassment will not affect the need for marine mammal researchers to obtain permits for their scientific research. Whatever the definition of harassment, I would apply for a permit for my research on marine mammals. Most scientific journals require permits as a condition of publication. The details of the definition of harassment are not the main problem for research permits; the problems I face as a scientist involve the significant cost of preparing permit applications, the uncertain delays of the permitting process, and the vulnerability of the permits to procedural challenges. As I mentioned above, the Office of Protected Resources will require a considerable injection of funds and highly skilled personnel to be able to issue permits in a timely fashion while overseeing the timely production of the NEPA documentation required to back up research permits.

Special exemptions are not the solution to problems with the MMPA

During the past several years, there have been efforts to address very real problems with the MMPA. Congress today is attempting to fix demonstrated problems with authorization under the MMPA of incidental takes, especially harassment takes. One way to deal with this problem is to tailor special exemptions for groups that have regulatory problems. From 1972-2002, this process has created a complex tangle of different authorizations for taking marine mammals under the MMPA. The basic goals of the Act clearly have not been well served by this proliferation of different standards for regulating takes for different activities. As the NRC said in 1994, “it is difficult to understand applying different, and less stringent, rules to activities that kill marine mammals than to activities that are known to benefit them or to have negligible effects on them.”

I do not think that complicating the Act by creating yet another harassment definition for military readiness is the best answer. I strongly urge Congress to respond to the problems highlighted by DOD by trying to fix the underlying flaws in the regulatory procedures of the MMPA for all activities before granting a special exemption that does nothing for marine mammal conservation and leaves many other producers of sound in the sea with no way to meet the regulatory requirements. If Congress restricts this year’s solution to military readiness, next year they will be likely to have to respond to similar requests from some other group such as the seismic or shipping industries. I believe that it would be much better if Congress rejects the special exemption approach, and instead corrects the deficiencies in the MMPA so that one or two simple regulatory processes for authorizing incidental takes could be applied evenly to all seafaring activities.

If done correctly, the regulations might be able to include all activities in a streamlined regulatory approach that focuses attention on those situations that pose the most risk to marine mammal populations. I believe that the provisions of sections 13 and 14 of H.R. 2693 go a long way to addressing the problems that have been identified in the MMPA. These provisions are much closer to the recommendations of the NRC than the provisions of H.R. 1588. I applaud the Resources Committee for resisting the drive to add special exemptions to the MMPA for specific activities, but instead for considering more general modifications that correct problems for regulating harassment and incidental takes.

Regulations to protect marine mammals need to be drawn to focus scarce regulatory resources on situations where “takes” are most likely to risk adverse impacts to marine mammals.

One of the most important suggestions of the NRC reports on marine mammals and ocean noise is to regulate harassment in the same way for all activities, allocating regulatory effort where harassment takes are most likely to risk adverse impacts to marine mammals. Currently we are far from this goal. For commercial fisheries, section 118 of the MMPA allows incidental taking of marine mammals as long as there is negligible impact from incidental mortality and serious injury. NMFS interprets this as an exemption for commercial fisheries from the prohibition of harassment. Harassment takes are also ignored for effects of propulsion noise from vessels, which accounts for more than 90% of the acoustic energy humans put into the sea. Many other users of sound in the sea, from the Navy to geophysical contractors to academic oceanographers, find themselves in a no-man’s land, where the appropriate regulatory process for incidental harassment takes is obscure. So far the solutions of the regulatory agencies have fared poorly in court.

In my opinion, the best way to direct NMFS to allocate its regulatory efforts to the most significant problems is to require evaluation of the potential impacts of all seafaring activities on marine mammals. A consultation process is needed to tier all sea-faring activities into categories for potential harassment: activities unlikely to take, activities with takes of negligible impact, and activities where the takes might have more than negligible impact in some settings. As I discussed in the section on scientific research above, this kind of NEPA analysis is required to protect activities from nuisance litigation. I believe that in the current climate,

even harmless activities are vulnerable to legal challenge unless covered by this kind of NEPA analysis and MMPA authorization. The provisions of H.R. 2693 could be improved by adding a requirement that all activities that might take marine mammals should consult with NMFS, so that all potential takes to be accounted for.

The provisions of H.R. 2693 are well suited to creating a simple streamlined process for authorizing low impact activities, with increased regulation scaling with increased probability of impact. Each kind of sea-faring activity that might take marine mammals by harassment should be required to consult with NMFS to perform an environmental assessment to evaluate the potential for taking, and if there are takes, their impact on the population. NMFS should issue rules indicating which activities have a remote enough likelihood of takes not to require any regulation. A general authorization process is essential for activities that may take marine mammals, but that would have negligible impacts. Activities that are not eligible for this general authorization would need to go through an incidental take authorization process on a case-by-case basis. For activities that might cause harassment takes beyond the range of detection of the vessel, a monitoring program could be established to study animals at different ranges from the activity in order to better estimate the number of harassment takes. As long as the restrictions on “small numbers” and “specified geographic region” are removed from the existing incidental take authorizations, as proposed under H.R. 2693, I believe that these existing procedures would work for this kind of case-by-case authorization.

I applaud the House Resources committee for its efforts to establish this kind of streamlined general authorization process in section 14 of H.R. 2693. My primary concern about this proposal is that I doubt the rapid response mandated for the authorization would be possible without prior programmatic analyses under NEPA to determine negligible impact. I believe that this general authorization procedure would work best after earlier consultation and programmatic environmental review of the potential for different kinds of activities to cause adverse impacts.

I urge Congress to develop a consultation process to require NMFS to tier activities by expected impact with a streamlined process for general authorization of activities with negligible impact and a requirement for regulatory effort to be directed to cases with the highest expected adverse impact. The NMFS Office of Protected Resources will require a considerable injection of funds and skilled personnel to participate in these broad NEPA analyses.

Suggested unified procedure for authorizing incidental takes under the MMPA

The consultation and authorization procedure I have just outlined bears similarities with the incidental take provisions of the MMPA for commercial fisheries. This regime for regulating fishery takes that may kill animals has been quite successful in highlighting situations where populations are threatened by fishing. NMFS is required to categorize fisheries as to whether they have frequent, occasional, or remote likelihood of causing mortality or serious injury. Each fishing vessel receives an authorization for incidental takes subject to conditions. As long as a fisher registers with this authorization process, complies with the conditions, and reports any takes, s/he is exempt from the prohibition against taking. Fishers in low impact fisheries have a simple and streamlined regulatory process that protects them from prosecution in case of an unlikely accident, and regulation ramps up corresponding to the threat, up to closing down fisheries that threaten the survival of marine mammal populations.

The 1994 National Academy Report on Low-frequency Sound and Marine Mammals approves of the way this regime sets priorities for regulation:

The proposed regime is designed to redirect regulation to focus on human activities with the largest impact on marine mammal populations, scaling the extent of regulation to the risk the activity poses to populations. (p 35)

However, the regime for regulating lethal takes or serious injury under section 118 of the MMPA has a flaw that may prove fatal to some marine mammal populations, such as right whales, where significant incidental mortality stems from activities other than fishing. The solution to this problem suggested by the NRC 2000 report is to broaden this regime to include other activities that might kill or seriously injure marine mammals. Obvious examples include vessel collision, underwater explosions, and spills of toxic compounds. The MMPA as currently written specifies a process to reduce takes from fisheries whose lethal take exceeds PBR, but it is silent as to how to regulate incidental lethal takes from activities other than fishing. If there are situations where non-fishery takes may be as significant as takes by fisheries, the MMPA must be modified

to clarify how to regulate all lethal takes and serious injury, whether from fisheries or other sources. When vessels strike and kill whales, for example, this mortality must either be subtracted from the PBR or these non-fishing activities must be incorporated into a process for allocating takes.

Section 118 of the MMPA includes a comprehensive program to monitor takes from fisheries, but there is no such program to guarantee that stock assessments accurately estimate mortality from non-fishery activities. If mortality caused by these non-fishing activities is not included in the PBR regime, then the regime will not work properly to protect marine mammal populations. The strict monitoring requirements for fisheries will not protect populations from the effect of non-fishery mortality unless these sources of mortality are as well documented as mortality from fisheries.

Keeping the MMPA up to date with the threats to marine mammals of the 21st century

The impacts of pervasive and subtle human influences such as contaminants and noise are much more difficult to identify than death by harpoon or injury in nets. As these impacts become more important compared to whaling and bycatch, the MMPA must be adjusted to deal with these forms of habitat degradation that cannot always be easily or effectively regulated under the prohibition on taking. The PBR process limits lethal takes to a number small enough not to threaten the population. It is more difficult to set a limit on harassment takes, since these may vary greatly in impact, and since the effect on population growth may be difficult to predict. Exposure to contaminants is even more difficult to treat as a take. Ultimately, the significance to the population of any take is the effect on the demography of the population, the ability of the population to grow or remain a healthy size.

I strongly encourage Congress to adopt wording requiring NMFS to account for harassment or effects of contaminants conservatively in terms of demographic effects on growth, survival or reproduction of individuals and populations. As I discussed in the section of my testimony on the definition of harassment, the best way to do this is to define harassment in terms of biological significance of the take. This is currently a challenging scientific problem, but the correct wording should stimulate the appropriate science, while focusing attention on the critical issue of keeping marine mammal populations healthy. Ultimately a demographic accounting of harassment takes or other threats would require population modeling that relates the dosage of exposure to population parameters. There has been great progress in this kind of population modeling in the past decade. However, right now the critical analyses could not be performed for harassment takes because we know so little about the extent of the exposure or its impact.

The criteria for harassment takes need to acknowledge our ignorance of the scope of exposure to harassing stimuli, and our ignorance of many of the effects harassment may have on individuals and populations. If we wait until the population has measurable declines, it is too late. Therefore it is important to include indicators of adverse impact in the criteria. These indicators may be physiological, behavioral, or ecological, but must be linked to potential to affect demography.

Before we can estimate the impacts of subtle threats to marine mammals, we must understand the extent of exposure, and the relationship between exposure and impact. A critical aspect of the PBR regime is that it exempts registered fishers from the prohibition on taking as long as they accurately and fully report any takes. A similar clause for all vessels that may be involved in harassment would ultimately give scientists data needed to estimate exposures that may cause harassment. A timely reporting requirement might also make it easier to prosecute cases of intentional harassment, as failure to report would violate the terms of the authorization.

Understanding the relationship between exposure to threats and adverse impacts caused by the exposures will require a concerted research program. I urge that Congress help streamline the regulatory obstacles to this kind of research, and also to carefully consider the best way to fund and organize this kind of research effort. This must include a mechanism to encourage young scientists to become involved in this critical area.

This kind of program would allow NMFS to identify situations where

A stock was at risk from a particularly high number of takes.
An area or activity caused a high number of takes for a variety of species.
There were particular hot spots of takes.
The cumulative takes pose a risk to the population

Where the sum of takes, lethal, injury, or harassment, pose a risk to a population, this regime should require

something like the take reduction plans used to reduce the problem of fisheries takes. This kind of regulatory regime would reduce the burden on activities that pose little risk, while focusing attention on species, areas, or activities that pose the greatest risk to the most endangered populations.

Some may be concerned that the regulatory process I sketch out would lead to reduced protection. It would certainly streamline the regulatory process and make it more predictable for most activities, but I agree with the National Academy (2000) report on Marine Mammals and Low-frequency Noise that such a change would, if done correctly, increase protection from the status quo. The current MMPA has unbalanced criteria for authorization, allowing some fisheries to kill animals with no requirement beyond reporting, while having no procedure available to other activities to authorize more than a small number of insignificant harassment takes. This does not meet the conservation goals of the Act.

Conclusion

Mr. Chair, I sincerely appreciate your attention to this difficult and complex issue. There are real problems with current implementation of the MMPA in our changing environment. I believe that H.R. 2963 goes a long way to fixing these problems, and I am convinced that Congress and the responsible federal agencies can make real progress to create permitting and authorization processes that are more predictable and efficient, while improving the protection for marine mammals from adverse impacts of human activities.

Thank you, and I look forward to your questions.