DEPARTMENT OF COMMERCE

National Oceanic and Atmospheric Administration

50 CFR Part 216

[Docket No. 070703226–7226–01; I.D. 062206A]

RIN 0648–AT80

Taking and Importing Marine Mammals; Taking Marine Mammals Incidental to the U.S. Navy Operations of Surveillance Towed Array Sensor System Low Frequency Active Sonar

AGENCY: National Marine Fisheries Service (NMFS), National Oceanic and Atmospheric Administration (NOAA), Commerce.

ACTION: Proposed rule; request for comments.

SUMMARY: NMFS has received a request from the U.S. Navy for an authorization under the Marine Mammal Protection Act (MMPA) to take marine mammals, by harassment, incidental to conducting operations of Surveillance Towed Array Sensor System (SURTASS) Low Frequency Active (LFA) sonar from August 16, 2007, through August 15, 2012. By this document, NMFS is proposing regulations to govern that take. In order to issue Letters of Authorization (LOAs) and final regulations governing the take, NMFS must determine that the taking will have a negligible impact on the affected species or stocks of marine mammals. NMFS regulations must set forth the permissible methods of take and other means of effecting the least practicable adverse impact on the affected species or stocks of marine mammals and their habitat. NMFS invites comment on the proposed regulations and findings.

DATES: Comments and information must be received by July 24, 2007.

ADDRESSES: You may submit comments on the application and proposed rule, using the identifier 062206A, by any of the following methods:

- E-mail: *PR1.062306A@noaa.gov*.
- Federal e-Rulemaking Portal: *http://www.regulations.gov*.
- Hand-delivery or mailing of paper, disk, or CD-ROM comments should be addressed to: P. Michael Payne, Chief, Permits, Conservation and Education Division, Office of Protected Resources, National Marine Fisheries Service, 1315 East-West Highway, Silver Spring, MD 20910–3225.

A copy of the application, containing a list of references used in this document, and other documents cited herein, may be obtained by writing to the above address, by telephoning one of the contacts listed under **FOR FURTHER INFORMATION CONTACT**, or at: *http://www.nmfs.noaa.gov/pr/permits/incidental.htm*.

A copy of the Navy's Final Supplemental Environmental Impact Statement (Final SEIS) and the Final Environmental Impact Statement (Final EIS) can be downloaded at: *http://www.surtass-lfa-eis.com*. Documents cited in this proposed rule may also be viewed, by appointment, during regular business hours at this address.

FOR FURTHER INFORMATION CONTACT: Kenneth Hollingshead, NMFS, at 301–713–2289, ext 128.

SUPPLEMENTARY INFORMATION:

Background

Section 101(a)(5)(A) of the Marine Mammal Protection Act (16 U.S.C. 1361 *et seq.*) (MMPA) directs the Secretary of Commerce (Secretary) to allow, upon request, the incidental, but not intentional taking of marine mammals by U.S. citizens who engage in a military readiness activity if certain findings are made and regulations are issued.

An authorization may be granted for periods of 5 years or less if the Secretary finds that the total taking will have a negligible impact on the affected species or stock(s), will not have an unmitigable adverse impact on the availability of the species or stock(s) for certain subsistence uses. The Secretary must also issue regulations setting forth the permissible methods of taking and other means of effecting the least practicable adverse impact, including a consideration of personnel safety, the practicality of implementation of any mitigation, and the impact on the effectiveness of the subject military readiness activity, and the requirements pertaining to the monitoring and reporting of such taking. NMFS authorizes the incidental take through ''letters of authorization'' (LOAs) (50 CFR 216.106)

NMFS has defined ''negligible impact'' in 50 CFR 216.103 as ''an impact resulting from the specified activity that cannot be reasonably expected to, and is not reasonably likely to, adversely affect the species or stock through effects on annual rates of recruitment or survival.'' For the purposes of ''military readiness activities'' harassment is defined as:

(i) any act that injures or has the significant potential to injure a marine mammal or marine mammal stock in the wild [Level A harassment]; or (ii) any act that disturbs or is likely to disturb a marine mammal or marine mammal stock in the wild by causing disruption of natural behavioral 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 [Level B harassment].

The term ''military readiness activity'' is defined in Public Law 107–314 (16 U.S.C. 703 note) to include all training and operations of the Armed Forces that relate to combat; and the adequate and realistic testing of military equipment, vehicles, weapons and sensors for proper operation and suitability for combat use. The term expressly does not include the routine operation of installation operating support functions, such as military offices, military exchanges, commissaries, water treatment facilities, storage facilities, schools, housing, motor pools, laundries, morale, welfare and recreation activities, shops, and mess halls; the operation of industrial activities; or the construction or demolition of facilities used for a military readiness activity.

Summary of Request

On May 12, 2006, NMFS received an application from the U.S. Navy requesting an authorization under section 101(a)(5)(A) of the MMPA for the taking of marine mammals incidental to deploying the SURTASS LFA sonar system for military readiness activities to include training, testing and routine military operations within the world's oceans (except for Arctic and Antarctic waters, coastal regions as specified in this proposed rule, and offshore biologically important areas (OBIAs)) for a period of time not to exceed 5 years. According to the Navy application, SURTASS LFA sonar would operate a maximum of 4 ship systems in areas of the Pacific, Atlantic, and Indian oceans and the Mediterranean Sea in which SURTASS LFA sonar could potentially operate.

The purpose of SURTASS LFA sonar is to provide the Navy with a reliable and dependable system for long-range detection of quieter, harder-to-find submarines. Low-frequency (LF) sound travels in seawater for greater distances than higher frequency sound used by most other active sonars. According to the Navy, the SURTASS LFA sonar system would meet the Navy's need for improved detection and tracking of new-generation submarines at a longer range. This would maximize the opportunity for U.S. armed forces to safely react to, and defend against, potential submarine threats while remaining a safe distance beyond a submarine's effective weapons range.

NMFS and the Navy have determined that the Navy's SURTASS LFA sonar

testing and training operations constitute a military readiness activity because those activities constitute ''training and operations of the Armed Forces that relate to combat'' and constitute ''adequate and realistic testing of military equipment, vehicles, weapons and sensors for proper operation and suitability for combat use.''

NMFS' current regulations governing takings incidental to SURTASS LFA sonar activities and the current LOA expire on August 16, 2007.

On September 28, 2006 (71 FR 56965), NMFS published a Notice of Receipt of Application on the U.S. Navy application and invited interested persons to submit comments, information, and suggestions concerning the application and the structure and contents of regulations. These comments were considered in the development of this proposed rule.

Prior Litigation, Involving LFA Sonar

On August 7, 2002, the Natural Resources Defense Council, the U.S. Humane Society and four other plaintiffs filed suit against the Navy and NMFS over SURTASS LFA sonar use and permitting. The U.S. District Court for the Northern District of California (Court) issued its Opinion and Order on the parties' motions for summary judgment in the SURTASS LFA litigation on August 26, 2003. The Court found deficiencies in Navy and NMFS compliance with the MMPA, Endangered Species Act (ESA), and National Environmental Policy Act (NEPA). The Court determined that an injunction was warranted but did not order a complete ban on the use of SURTASS LFA sonar. Specifically, the Court found that a total ban on the employment of SURTASS LFA would interfere with the Navy's ability to ensure military readiness and to protect those serving in the military against the threat posed by hostile submarines. The Court directed the parties to meet and confer on the scope of a tailored permanent injunction, which would allow for continued operation of the system with additional mitigation measures. This mediation session occurred on September 25, 2003 in San Francisco. On October 14, 2003, the Court issued a Stipulation Regarding Permanent Injunction for the operations of SURTASS LFA sonar from both *R/V Cory Chouest* and USNS IMPECCABLE (T-AGOS 23) in stipulated portions of the Northwest Pacific/Philippine Sea, Sea of Japan, East China Sea, and South China Sea with certain year-round and seasonal restrictions. On July 7, 2005, the Court amended the injunction at Navy's request to expand the potential areas of operation based on real-world contingencies. The Navy's Final SEIS was prepared in response to the Court's ruling on the motion for preliminary injunction, addressing the concerns identified by the Court, to provide additional information regarding the environment that could potentially be affected by the SURTASS LFA sonar systems, and to provide additional information related to mitigation.

A detailed description of the operations is contained in the Navy's application (DON, 2006) and the Final SEIS (DON, 2007) which are available upon request (see ADDRESSES).

Description of the Activity

The SURTASS LFA sonar system is a long-range, LF sonar (between 100 and 500 Hertz (Hz)) that has both active and passive components. It does not have to rely on detection of noise generated by the target. The active component of the system is a set of up to 18 LF acoustic transmitting source elements (called projectors) suspended from a cable underneath a ship. The projectors are devices that transform electrical energy to mechanical energy by setting up vibrations, or pressure disturbances, with the water to produce the pulse or ping. The SURTASS LFA sonar acoustic transmission is an omnidirectional (full 360 degrees) beam in the horizontal. A narrow vertical beamwidth can be steered above or below the horizontal. The source level (SL) of an individual projector in the SURTASS LFA sonar array is approximately 215 decibels (dB), and because of the physics involved in beam forming and transmission loss processes, the array can never have a sound pressure level (SPL) higher than the SPL of an individual projector. The expected water depth at the center of the array is 400 ft (122 m) and the expected minimum water depth at which the SURTASS LFA vessel will operate is 200 m (656.2 ft).

The typical SURTASS LFA sonar signal is not a constant tone, but rather a transmission of various signal types that vary in frequency and duration (including continuous wave (CW) and frequency-modulated (FM) signals). A complete sequence of sound transmissions is referred to by the Navy as a ''ping'' and can last as short as 6 seconds (sec) to as long as 100 sec, normally with no more than 10 sec at any single frequency. The time between pings is typically from 6 to 15 minutes. Average duty cycle (ratio of sound ''on'' time to total time) is less than 20 percent; however, the duty cycle, based on historical operating parameters, is normally 7.5 percent.

The passive, or listening, component of the system is SURTASS, which detects returning echoes from submerged objects, such as submarines, through the use of hydrophones. The hydrophones are mounted on a horizontal array that is towed behind the ship. The SURTASS LFA sonar ship maintains a minimum speed of 3.0 knots (5.6 km/hr; 3.4 mi/hr) in order to keep the array deployed.

Because of uncertainties in the world's political climate, a detailed account of future operating locations and conditions cannot be predicted. However, for analytical purposes, a nominal annual deployment schedule and operational concept have been developed, based on current LFA operations since January 2003 and projected Fleet requirements. The Navy anticipates that a normal SURTASS LFA sonar deployment schedule for a single vessel would involve about 294 days/year at sea. A normal at-sea mission would occur over a 49–day period, with 40 days of operations and 9 days transit. Based on a 7.5–percent duty cycle, the system would actually be transmitting for a maximum of 72 hours per 49–day mission and 432 hours per year for each SURTASS LFA sonar system in operation. (In actuality however, the combined number of transmission hours for LFA sonar did not exceed 174 hours between August 16, 2002, and August 15, 2006 (Table 4 in the Navy's Comprehensive Report)).

Annually, each vessel will be expected to spend approximately 54 days in transit and 240 days performing active operations. Between missions, an estimated 71 days will be spent in port for upkeep and repair. The nominal SURTASS LFA Sonar annual and 49–day deployment schedule for a single ship can be seen in Table 2–1 of the Final SEIS.

The two existing operational LFA systems are installed on two SURTASS vessels: *R/V Cory Chouest* and USNS IMPECCABLE (T-AGOS 23). To meet future undersea warfare requirements, the Navy is working to develop and introduce a compact active system deployable from existing, smaller SURTASS Swath-P ships. This smaller system is known as Compact LFA, or CLFA. CLFA consists of smaller, lighter-weight source elements than the current LFA system, and will be compact enough to be installed on the existing SURTASS platforms, VICTORIOUS Class (T-AGOS 19) vessels. The Navy indicates that the operational characteristics of the compact system are comparable to the existing LFA

systems as presented in Subchapter 2.1 of the Final EIS and Final SEIS. Consequently, the potential impacts from CLFA will be similar to the effects from the existing SURTASS LFA systems. Three additional CLFA systems are planned for installation on T-AGOS 20, 21, and 22. With the *R/V Cory Chouest* retiring in FY 2008, the Navy estimates that there will be two systems in FY 2008 and FY 2009, 3 in FY 2010 and 4 systems in FY 2011 and FY 20012. At no point are there expected to be more than four systems in use, and thus this proposed rule analyzes the impacts on marine mammals due to the deployment of up to three LFA sonar systems through FY 2010 and four systems in FY 2011 and FY 2012.

The SURTASS LFA sonar vessel will operate independently of, or in conjunction with, other naval air, surface or submarine assets. The vessel will generally travel in straight lines or racetrack patterns depending on the operational scenario.

Description of Acoustic Propagation

The following is a very basic and generic description of the propagation of LFA sonar signals in the ocean and is provided to facilitate understanding of this action. However, because the actual physics governing the propagation of SURTASS LFA sound signals is extremely complex and dependent on numerous in-situ environmental factors, the following is for illustrative purposes only.

In actual SURTASS LFA sonar operations, the crew of the SURTASS LFA sonar platform will measure oceanic conditions (such as sea water temperature and salinity versus depth) prior to and during transmissions and at least every 12 hours, but more frequently when meteorological or oceanographic conditions change. These technicians will then use U.S. Navy sonar propagation models to predict and/or update sound propagation characteristics. The short time periods between actual environmental observations and the subsequent model runs further enhance the accuracy of these predictions. Fundamentally, these models are used to determine what path the LF signal will take as it travels through the ocean and how strong the sound signal will be at given ranges along a particular transmission path.

Accurately determining the speed at which sound travels through the water is critical to predicting the path that sound will take. The speed of sound in seawater varies directly with depth, temperature, and salinity. Thus, an increase in depth or temperature or, to a lesser degree, salinity, will increase the speed of sound in seawater. However, the oceans are not homogeneous, and the contribution of each of these individual factors is extremely complex and interrelated. The physical characteristics that determine sound speed change with depth, and in the case of temperature and salinity, season, geographic location, and locally, with time of day. After accurately measuring these factors, mathematical formulas or models can be used to generate a plot of sound speed versus water depth. This type of plot is generally referred to as a sound speed profile (SSP).

Near the surface (variable within the top 1000 ft (305 m)), ocean near-surface water mixing results in a fairly constant temperature and salinity. Below the mixed layer, sea temperature drops rapidly in an area referred to as the thermocline. In this region, temperature influences the SSP, and speed decreases with depth because of the large decrease in temperature (sound speed decreases with decreasing temperature). Finally, beneath the thermocline, the temperature becomes fairly uniform and increasing pressure causes the SSP to increase with depth.

One way to envision sound traveling though the sea is to think of the sound as ''rays.'' As these rays travel though the sea, their direction of travel changes as a result of speed changes, bending, or refracting, toward areas of lower speed and away from areas of higher speed. Depending on environmental conditions, refraction can either be toward or away from the surface. Additionally, the rays can be reflected or absorbed when they encounter the surface or the bottom. For example, under certain environmental conditions, near-surface sound rays can repeatedly be refracted upward and reflected off the surface and thus become trapped in a duct.

Some of the more prevalent acoustic propagation paths in the ocean include: acoustic ducting; convergence zone (CZ); bottom interaction; and shallow-water propagation.

Acoustic Ducting

There are two types of acoustic ducting: surface ducts and sound channels.

Surface Ducts

As previously discussed, the top layer of the ocean is normally well mixed and has relatively constant temperature and salinity. Because of the effect of depth (pressure), surface layers exhibit a slightly positive sound speed gradient (that is, sound speed increases with depth). Thus, sound transmitted within this layer is refracted upward toward the surface. If sufficient energy is subsequently reflected downward from the surface, the sound can become ''trapped'' by a series of repeated upward refractions and downward reflections. Under these conditions, a surface duct, or surface channel, is said to exist. Sound trapped in a surface duct can travel for relatively long distances with its maximum range of propagation dependent on the specifics of the SSP, the frequency of the sound, and the reflective characteristics of the surface. As a general rule, surface duct propagation will improve as the temperature uniformity and depth of the layer increase. For example, transmission is improved when cloudy, windy conditions create a well-mixed surface layer or in high-latitude midwinter conditions where the mixed layer extends to several hundred feet deep.

Sound Channels

Variation of sound speed, or velocity, with depth causes sound to travel in curved paths. A sound channel is a region in the water column where sound speed first decreases with depth to a minimum value, and then increases. Above the depth of minimum value, sound is refracted downward; below the depth of minimum value, sound is refracted upward. Thus, much of the sound starting in the channel is trapped, and any sound entering the channel from outside its boundaries is also trapped. This mode of propagation is called sound channel propagation. This propagation mode experiences the least transmission loss along the path, thus resulting in long-range transmission.

At low and middle latitudes, the deep sound channel axis varies from 1,970 to 3,940 ft (600 to 1,200 m) below the surface. It is deepest in the subtropics and comes to the surface in the high latitudes, where sound propagates in the surface layer. Because propagating sound waves do not interact with either the sea surface or seafloor, sound propagation in sound channels does not attenuate as rapidly as bottom- or surface-interacting paths. The most common sound channels used by SURTASS LFA sonar are convergence zones (CZs).

Convergence Zones

CZs are special cases of the sound-channel effect. When the surface layer is narrow or when sound rays are refracted downward, regions are created at or near the ocean surface where sound rays are focused, resulting in concentrated levels of high sounds. The existence of CZs depends on the SSP and the depth

of the water. Due to downward refraction at shorter ranges, sound rays leaving the near-surface region are refracted back to the surface because of the positive sound speed gradient produced by the greater pressure at deep ocean depths. These deep-refracted rays often become concentrated at or near the surface at some distance from the sound source through the combined effects of downward and upward refraction, thus causing a CZ. CZs may exist whenever the sound speed at the ocean bottom, or at a specific depth, exceeds the sound speed at the source depth. Depth excess, also called sound speed excess, is the difference between the bottom depth and the limiting, or critical depth.

CZs vary in range from approximately 18 to 36 nautical miles (nm) (33 to 67 km), depending upon the SSP. The width of the CZ is a result of complex interrelationships and cannot be correlated with any specific factor. In practice, however, the width of the CZ is usually on the order of 5 to 10 percent of the range. For optimum tactical performance, CZ propagation of SURTASS LFA signals is desired and expected in deep open ocean conditions.

Bottom Interaction

Reflections from the ocean bottom and refraction within the bottom can extend propagation ranges. For mid- to high-level frequency sonars (greater than 1,000 Hz), only minimal energy enters into the bottom; thus reflection is the predominant mechanism for energy return. However, at low frequencies, such as those used by the SURTASS LFA sonar source, significant sound energy can penetrate the ocean floor, and refraction within the seafloor, not reflection, dominates the energy return. Regardless of the actual transmission mode (reflection from the bottom or refraction within the bottom), this interaction is generally referred to as ''bottom-bounce'' transmission.

Major factors affecting bottom-bounce transmission include the sound frequency, water depth, angle of incidence, bottom composition, and bottom roughness. A flat ocean bottom produces the greatest accuracy in estimating range and bearing in the bottom-bounce mode.

For SURTASS LFA sonar transmissions between 100 and 500 Hz, bottom interaction would generally occur in areas of the ocean where depths are between approximately 200 m (660 ft) (average minimum water depth for SURTASS LFA sonar deployment) and 2,000 m (6,600 ft).

Shallow Water Propagation

In shallow water, propagation is usually characterized by multiple reflection paths off the sea floor and sea surface. Thus, most of the water column tends to become ensonified by these overlapping reflection paths. As LFA signals approach the shoreline, they will be affected by shoaling, experiencing high transmission losses through bottom and surface interactions. Therefore, LFA sonar would be less effective in shallow, coastal waters.

In summary, for the SURTASS LFA sonar signal in low- and mid-latitudes, the dominant propagation paths for LFA signals are CZ and bottom interaction (at depths <2000 m (6,600 ft)). In high-latitudes, surface ducting provides the best propagation. In most open ocean water, CZ propagation will be most prominent. The SURTASS LFA sonar signals will interact with the bottom, but due to high bottom and surface losses, SURTASS LFA sonar signals will not penetrate coastal waters with appreciable signal strengths.

Affected Marine Mammal Species

In its Final SEIS and Final EIS and application, the Navy excluded from incidental take consideration marine mammal species that do not inhabit the areas in which SURTASS LFA sonar would operate. Where data were not available or were insufficient for one species, comparable data for a related species were used. Because all species of baleen whales produce LF sounds, and anatomical evidence strongly suggests their inner ears are well adapted for LF hearing, all balaenopterid species are considered sensitive to LF sound and, therefore, at risk of harassment or injury from exposure to LF sounds. The twelve species of baleen whales that may be affected by SURTASS LFA sonar are blue, fin, minke, Bryde's, sei, humpback, North Atlantic right, North Pacific right, southern right, pygmy right, bowhead, and gray whales.

The odontocetes (toothed whales) that may be affected because they inhabit the deeper, offshore waters where SURTASS LFA sonar might operate include both the pelagic (oceanic) whales and dolphins and those coastal species that also occur in deep water including harbor porpoise, spectacled porpoise, beluga, *Stenella* spp., Risso's dolphin, rough-toothed dolphin, Fraser's dolphin, northern right-whale dolphin, southern right whale dolphin, short-beaked common dolphin, long-beaked common dolphin, very long-beaked common dolphin, *Lagenorhynchus* spp., *Cephalorhynchus* spp., bottlenose dolphin, Dall's porpoise, melon-headed whale, beaked whales (*Berardius* spp., *Hyperoodon* spp., *Mesoplodon* spp., Cuvier's beaked whale, Shepard's beaked whale, Longman's beaked whale), killer whale, false killer whale, pygmy killer whale , sperm whale, dwarf and pygmy sperm whales, and short-finned and long-finned pilot whales.

Potentially affected pinnipeds include hooded seal, harbor seal, spotted seal, ribbon seal, gray seal, elephant seal, Hawaiian monk seal, Mediterranean monk seal, northern fur seal, southern fur seal (*Arctocephalus* spp.), harp seal, Galapagos sea lion, Japanese sea lion, Steller sea lion, California sea lion, Australian sea lion, New Zealand sea lion, and South American sea lion.

A description of affected marine mammal species, their biology, and the criteria used to determine those species that have the potential for being taken by incidental harassment are provided and explained in detail in the Navy application and Final SEIS and, although not repeated here, are considered part of the NMFS' administrative record for this action. Additional information is available at the following URL: *http://www.nmfs.noaa.gov/pr/sars/*. Please refer to these documents for specific information on marine mammal species.

Effects on Marine Mammals

To understand the effects of LF noise on marine mammals, one must understand the fundamentals of underwater sound and how the SURTASS LFA sonar operates in the marine environment. This description was provided earlier in this document and also by the Navy in Appendix B to the Final EIS.

The effects of underwater noise on marine mammals are highly variable, and have been categorized by Richardson *et al.* (1995) as follows: (1) The noise may be too weak to be heard at the location of the animal (i.e. lower than the prevailing ambient noise level, the hearing threshold of the animal at relevant frequencies, or both); (2) the noise may be audible but not strong enough to elicit any overt behavioral response; (3) the noise may elicit behavioral reactions of variable conspicuousness and variable relevance to the well-being of the animal; these can range from subtle effects on respiration or other behaviors (detectable only by statistical analysis) to active avoidance reactions; (4) upon repeated exposure, animals may exhibit diminishing responsiveness (called habituation), or disturbance effects may persist (most likely with sounds that are

highly variable in characteristics, unpredictable in occurrence, and associated with situations that the animal perceives as a threat); (5) any human-made noise that is strong enough to be heard has the potential to reduce (mask) the ability of marine mammals to hear natural sounds at similar frequencies, including calls from conspecifics, echolocation sounds of odontocetes, and environmental sounds such as surf noise; and (6) very strong sounds have the potential to cause temporary or permanent reduction in hearing sensitivity, also known as threshold shift. In terrestrial mammals, and presumably marine mammals, received sound levels must far exceed the animal's hearing threshold for there to be any temporary threshold shift (TTS) in its hearing ability. For transient sounds, the sound level necessary to cause TTS is inversely related to the duration of the sound. As described later in this document, received sound levels must be even higher for there to be risk of permanent hearing impairment, or permanent threshold shift (PTS). Finally, intense acoustic or explosive events (not relevant for this activity) may cause trauma to tissues associated with organs vital for hearing, sound production, respiration and other functions. This trauma may include minor to severe hemorrhage. Severe hemorrhage could lead to death.

The original analysis of potential impacts on marine mammals from SURTASS LFA sonar was developed by the Navy based on the results of a literature review; the Navy's Low Frequency Sound Scientific Research Program (LFS SRP) (described later in this document); and a complex, comprehensive program of underwater acoustical modeling.

To assess the potential impacts on marine mammals by the SURTASS LFA sonar source operating at a given site, it was necessary for the Navy to predict the sound field that a given marine mammal species could be exposed to over time. This is a multi-part process involving (1) the ability to measure or estimate an animal's location in space and time, (2) the ability to measure or estimate the three-dimensional sound field at these times and locations, (3) the integration of these two data sets into the Acoustic Integration Model (AIM) to estimate the total acoustic exposure for each animal in the modeled population, (4) beginning the post-AIM analysis, converting the resultant cumulative exposures for a modeled population into an estimate of the risk from a significant disturbance of a biologically important behavior, and (5) using a risk continuum to convert these estimates of behavioral risk into an assessment of risk in terms of the level of potential biological removal.

In the post-AIM analysis, as mentioned in numbers (4) and (5) above, a relationship was developed for converting the resultant cumulative exposures for a modeled population into an estimate of the risk to the entire population of a significant disruption of a biologically important behavior and of injury. This process assessed risk in relation to received level (RL) and repeated exposure. The resultant risk continuum is based on the assumption that the threshold of risk is variable and occurs over a range of conditions rather than at a single threshold. Taken together, the LFS SRP results, the acoustic propagation modeling, and the risk assessment provide an estimate of potential environmental impacts to marine mammals. The results of 4 years of monitoring (2002–2006) onboard the two SURTASS LFA sonar vessels support the use of this methodology.

The acoustic propagation modeling was accomplished using the Navy's standard acoustical performance prediction transmission loss model-Parabolic Equation (PE) version 3.4. The results of this model are the primary input to the AIM. AIM was used to estimate marine mammal sound exposures. It integrates simulated movements (including dive patterns) of marine mammals, a schedule of SURTASS LFA sonar transmissions, and the predicted sound field for each transmission to estimate acoustic exposure during a hypothetical SURTASS LFA sonar operation. Description of the PE and AIM models, including AIM input parameters for animal movement, diving behavior, and marine mammal distribution, abundance, and density, are described in detail in the original Navy application and the Final EIS (see box, page 4.2–11) and are not discussed further in this document.

The same analytical methodology utilized in the application for the first 5–year rule and LOAs was utilized to provide reasonable and realistic estimates of the potential effects to marine mammals specific to the potential mission areas as presented in the application. Information on how the density and stock/abundance estimates are derived for the selected mission sites is in the Navy's application. These data are derived from current, published source documentation, and provide general area information for each mission area with species-specific information on the animals that could occur in that area, including estimates for their stock abundance and density.

Although this proposed rule uses the same analysis that was used for the 2002–2007 rule, AIM is continuously updated with new marine mammal biological data (behavior, distribution, abundance and density) whenever new information becomes available. It was recently independently reviewed by a panel of experts in mathematics, modeling, acoustics, and marine mammalogy convened by NMFS' Center for Independent Experts (CIE). The task of the Panel was to evaluate whether AIM correctly implements the models and data on which it is based; whether animal movements are correctly implemented; and whether AIM meets the Council for Regulatory Environmental Monitoring (CREM) guidelines. As stated in their Report on AIM, the CIE Panel agreed that: (1) AIM appears to be correctly implemented; (2) the animal movement appears to be appropriately modeled; and (3) the principles of credible science had been addressed during the development of AIM and that AIM is a useful and credible tool for developing application models. A copy of the CIE report is available (see **ADDRESSES**).

During the analytical process in the Final EIS, the Navy developed 31 acoustic modeling scenarios for the major ocean regions. Locations were selected by the Navy to represent the greatest potential effects for each of the three major ocean acoustic regimes where SURTASS LFA sonar could potentially be used. These acoustic regimes were: (1) deep-water convergence zone propagation, (2) near surface duct propagation, and (3) shallow water bottom interaction propagation. These sites were selected to model the greatest potential for effects from the use of SURTASS LFA sonar incorporating the following factors: (1) closest plausible proximity to land (from SURTASS LFA sonar operations standpoint), and/or offshore biologically important areas (OBIAs) where biological densities are higher, particularly for animals most likely to be affected; (2) acoustic propagation conditions that allow minimum propagation loss, or transmission loss (TL) (i.e., longest acoustic transmission ranges); and (3) time of year selected for maximum animal abundance. These sites represent the upper bound of impacts (both in terms of possible acoustic propagation conditions, and in terms of marine mammal population and density) that can be expected from operation of the SURTASS LFA sonar system. Thus, if SURTASS LFA sonar operations are conducted in an area that was not acoustically modeled in the

Final EIS, the potential effects would most likely be less than those analyzed for the most similar site in the analyses. The assumptions of the Final EIS are still valid and there are no new data to contradict the conclusions made in the Potential Impacts on Marine Mammals (Chapter 4) in the Final EIS. The chapter on impacts to marine mammals was incorporated by reference into the Navy's Final SEIS.

LFS SRP

The goal of the 1997–1998 LFS SRP was to demonstrate the avoidance reaction of sensitive marine mammal species during critical biologically important behavior to the low frequency underwater sound produced by the LFA system. Testing was conducted in three phases as summarized here from Clark *et al.* (1999).

Phase I was conducted in September through October 1997. The objective of Phase I was to determine whether exposure to low frequency sounds elicited disturbance reactions from feeding blue and fin whales. The goal was to characterize how whale reactions to the sounds vary, depending on: (1) the received level of the sound; (2) changes in the received level; and (3) whether the system was operating at a relatively constant distance or approaching the whale. Full and reduced LFA source power transmissions were used. The highest received levels at the animals were estimated to be 148 to 155 dB. In 19 focal animal observations (4 blue and 15 fin whales), no overt behavioral responses were observed. No changes in whale distribution could be related to LFA sonar operations, and whale the distributions correlated with the distribution of food.

Phase II was conducted in January 1998. The objectives were to quantify responses of migrating gray whales to low frequency sound signals, compare whale responses to different RLs, determine whether whales respond more strongly to RL, sound gradient, or distance from the source, and to compare whale avoidance responses to an LF source in the center of the migration corridor versus in the offshore portion of the migration corridor. A single source was used to broadcast LFA sonar sounds up to 200 dB. Whales showed some avoidance responses when the source was moored 1 mi (1.8 km) offshore, in the migration path, but returned to their migration path when they were a few kilometers from the source. When the source was moored 2 mi (3.7 km) offshore, responses were much less, even when the source level was increased to 200 dB, to achieve the same RL for most whales in the middle of the migration corridor. Also, offshore whales did not seem to avoid the louder offshore source.

Phase III was conducted from February to March 1998. The objectives were to assess the potential effects of LFA sonar signals on behavior, vocalization and movement of humpback whales off the Kona coast in Hawaii. The maximum exposure levels in this phase were as high as 152 dB. Approximately half of the whales observed visually ceased their song during the transmissions, but many of them did so while joining a group of whales, which is the time that singing whales usually stop their songs naturally. All singers who interrupted their songs were observed to resume singing within tens of minutes. The analysis of one data set showed that whales increased their song lengths during LFA sonar transmissions, but a second analysis indicated that song length changes were more complicated and depended on the portion of the song that was overlapped by LFA transmissions. Overall patterns of singer and cow-calf abundance were the same throughout the experiments as they had been during several years of prior study.

Risk Analysis

To determine the potential impacts that exposure to LF sound from SURTASS LFA sonar operations could have on marine mammals, biological risk standards were defined by the Navy with associated measurement parameters. Based on the MMPA, the potential for biological risk was defined as the probability for injury (Level A) or behavioral (Level B) harassment of marine mammals. In this analysis, behavioral (Level B) harassment is defined as a significant disturbance in a biologically important behavior (also referred to as a biologically significant response). NMFS believes that this is equivalent to the MMPA definition of Level B harassment for military readiness activities. The potential for biological risk is a function of an animal's exposure to a sound that would potentially cause hearing, behavioral, psychological or physiological effects. The measurement parameters for determining exposure were RLs in dB, the pulse repetition interval (time between pings), and the number of pings received.

Before the biological risk standards could be applied to realistic SURTASS LFA sonar operational scenarios, two factors had to be considered by the Navy: (1) how does risk vary with repeated sound exposure? and (2) how does risk vary with RL? The Navy addressed these questions by developing a function that translates the history of repeated exposures (as calculated in the AIM) into an equivalent RL for a single exposure with a comparable risk. This dual-question method is similar to those adopted by previous studies of risk to human hearing (Richardson *et al.*, 1995; Crocker, 1997).

It is intuitive to assume that effects on marine mammals would be greater with repeated exposures than for a single ping. However, no published data on repeated exposures of LF sound on marine mammals exist. Based on discussions in Richardson *et al.* (1995) and consistent with Crocker (1997), the Navy determined that the best scientific information available is based on the potential for effects of repeated exposure on human models.

The formula L + 5 log10(N) (where L = ping level in dB and N is the number of pings) defines the single ping equivalent (SPE). This formula is considered appropriate for assessing the risk to a marine mammal of a significant disturbance of a biologically important behavior from LF sound like SURTASS LFA sonar transmissions.

Behavioral Harassment

For reasons explained in detail in the Final EIS (Section 4.2.5), the Navy interpreted the results of the LFS SRP support use of unlimited exposure to 119 dB during an LFA sonar mission as the lowest value for risk. Below this level, the risk of a biologically significant behavioral response from marine mammals approaches zero. It is important to note that risk varies with both received level and number of exposures.

Because the LFS SRP did not document a biologically significant response at maximum RLs up to 150 dB, the Navy determined there was a 2.5–percent risk of an animal incurring a disruption of biologically important behavior at a SPL of 150 dB, a 50–percent risk at 165 dB, and a 95–percent risk at 180 dB. For more detailed information, see Chapter 4.2.5 of the Final EIS and Navy's Technical Report #1 (Navy, 2001). The Navy used this risk continuum analysis as an alternative to an all-or-nothing use of standard thresholds for the onset of behavioral change or injury. NMFS has reviewed and agrees with this approach. The subsequent discussion of risk function emphasizes the advantages of using a smoothly varying model of biological risk in relation to sound exposure. These results are analogous to dose-response curves that are accepted as the best practice in disciplines such as

epidemiology, toxicology, and pharmacology.

Changes in Hearing Sensitivity

In the previous (2002–2007) rule, NMFS and the Navy based their estimate of take by injury or the significant potential for such take (Level A harassment) based on the criterion of 180 dB. NMFS continues to believe this is a scientifically supportable value for preventing auditory injury or the significant potential for such injury (Level A harassment) as it represents a value less than where the potential onset of a minor TTS in hearing might occur based on Schlundt *et al.* (2000) research (see Navy Final Comprehensive Report Tables 5 through 8). Also, an SPL of 180 dB is considered a scientifically supportable level for preventing auditory injury because there is general scientific agreement with NMFS' position that TTS is not an injury (i.e., does not result in tissue damage), but is temporary impairment to hearing (i.e., results in an increased elevation or decreased sensitivity in hearing) that may last for a few minutes to a few days, depending upon the level and duration of exposure. In addition, there is no evidence that TTS would occur in marine mammals at an SPL of 180 dB. In fact, Schlundt *et al.* (2000) indicates that onset TTS for at least some species occurs at significantly higher SPLs.

Schlundt *et al.*'s (2000) measurement with bottlenose dolphins and belugas at 1–second signal duration implies that the TTS threshold for a 100–second signal would be approximately 184 dB (Table 1–4, Final EIS). For the 400–Hz signal, Schlundt *et al.* found no TTS at 193 dB, the highest level of exposure. Therefore, NMFS believes that establishing onset TTS as the upper bound of Level B harassment, but using 180 dB as the beginning of the zone for establishing mitigation measures to prevent auditory injury, is warranted by the science.

With three levels of mitigation monitoring for detecting marine mammals (described later in this document), NMFS and the Navy believe it is unlikely that any marine mammal would be exposed to received levels of 180 dB before being detected and the SURTASS LFA sonar shut down. However, because the probability is not zero, the Navy has included Level A harassment in its authorization request.

Unlike with behavioral responses, an ''injury continuum'' is not necessary because of the very low numbers of individual marine mammals that could potentially experience high received sound levels, and the high level of effectiveness of the monitoring and shutdown protocols. For this action, all marine mammals exposed to an SPL of 180 dB or above are considered to be injured even though, the best scientific data available indicate a marine mammal would need to receive an SPL significantly higher than 180 dB to be injured.

When SURTASS LFA sonar transmits, there is a boundary that encloses a volume of water where received levels equal or exceed 180 dB, and a volume of water outside this boundary where received levels are below 180 dB. In this analysis, the 180–dB SPL boundary is emphasized because it represents a single-ping RL that is a scientifically supportable estimate for the potential onset of injury. Therefore, the level of risk for marine mammals depends on their location in relation to SURTASS LFA sonar and under this proposed rule, a marine mammal would have to receive one ping greater than or equal to 180 dB to be considered to have been injured or have the potential to incur an injury.

Although TTS is not considered Level A harassment, PTS is considered Level A harassment. The onset of PTS for marine mammals may be 15–20 dB above TTS levels. However, mitigation measures, such as mitigation zones and shutdown protocols, are proposed where there is the potential for a marine mammal to incur TTS so as to prevent an animal from incurring a PTS.

Potential for Non-Auditory Injury

Since the release of the Final EIS, an investigation by Cudahy and Ellison (2002) hypothesized that the threshold for in vivo tissue damage (including lung damage and hemorrhaging) from LF sound can be on the order of 180 to 190 dB. Balance and equilibrium could be affected, but may not result in injury. These effects are based on studies of humans. Vestibular (balance and equilibrium) function was investigated by the Navy during the Diver's Study and the results reported in LFS SRP Technical Report 3. Measurable performance decrements in vestibular function were observed for guinea pigs using 160 dB SPL signals at lung resonance and 190 dB SPL signals at 500 Hz. Because guinea pigs are not aquatic species, like humans, they are not as robust to pressure changes as marine mammals and, therefore, are likely more susceptible to injury at lower SPLs than marine mammals.

Presently, there is controversy among researchers over whether marine mammals can suffer from decompression sickness. It is theorized that this may be caused by diving and then surfacing too quickly, forcing nitrogen bubbles to form in the bloodstream and tissues. Cox *et al.* (2006) stated that gas-bubble disease, induced in supersaturated tissues by a behavioral response to acoustic exposure, is a plausible pathologic mechanism for the morbidity and mortality seen in cetaceans associated with sonar exposure. The authors also stated that it is premature to judge acoustically mediated bubble growth as a potential mechanism and recommended further studies to investigate the possibility.

As stated in Crum and Mao (1996) and as discussed in the Final EIS (page 10–137) and the Final SEIS (page 4–31), researchers hypothesized that RLs would have to exceed 190 dB for there to be the possibility of non-auditory trauma due to supersaturation of gases in the blood. Such non-auditory traumas are not expected to occur from sound exposure below SPLs of 180 dB.

In light of the high detection rate of the proposed high-frequency marine mammal monitoring (HF/M3) sonar, ensuring required SURTASS LFA sonar shutdown when any marine mammal approaches or enters the 180–dB isopleth from LFA sonar, the risks of these traumas to a marine mammal approach zero.

Additional research published in a peer-reviewed journal (Ultrasound in Medicine and Biology), supports the 180–dB criterion for injury as being a scientifically supportable level for assessing potential non-auditory injury to marine mammals. Laurer *et al.* (2002) from the Department of Neurosurgery, University of Pennsylvania School of Medicine, exposed rats to 5 minutes of continuous high intensity, low frequency (underwater) sound (HI-LFS) either at 180 dB SPL re 1 µPa at 150 Hz or 194 dB SPL re 1 µPa at 250 Hz, and found no overt histological damage in brains of any group. Also, blood gases, heart rate, and main arterial blood pressure were not significantly influenced by HI-LFS, suggesting that there was no pulmonary dysfunction due to exposure. This published paper was based on work performed in support of Technical Report #3 of the SURTASS LFA Sonar Final EIS.

Strandings

Marine mammal strandings are not a rare occurrence in nature. The Cetacean Stranding Database (*http://www.strandings.net*) registered over one hundred strandings worldwide in 2004. However, mass strandings, particularly multi-species mass strandings, are relatively rare. Acoustic systems are becoming increasingly implicated in marine mammal strandings. In

particular, a number of mass strandings have been linked to mid-frequency sonars (see, e.g. Joint Interim Report on the Bahamas Marine Mammal Stranding Event of 15–16 March 2000, DOC and DON, 2001). Many theories exist as to why noise may be a factor in marine mammal strandings. It is theorized that marine mammals become disoriented, or that the sound forces them to surface too quickly, which may cause symptoms similar to decompression sickness, or that they are physically injured by the sound pressure. The biological mechanisms for effects that lead to strandings must be determined through scientific research.

There is no record of SURTASS LFA sonar ever being implicated in any stranding event since LFA sonar prototype systems were first operated in the late 1980s. Moreover, the system acoustic characteristics differ between LF and mid-frequency (MF) sonars: LFA sonars use frequencies generally below 1,000 Hz, with relatively long signals (pulses) on the order of 60 sec; while MF sonars use frequencies greater than 1,000 Hz, with relatively short signals on the order of 1 sec. Cox *et al.* (2006) provided a summary of common features shared by the strandings events in Greece (1996), Bahamas (2000), and Canary Islands (2002). These included deep water close to land (such as offshore canyons), presence of an acoustic waveguide (surface duct conditions), and periodic sequences of transient pulses (i.e., rapid onset and decay times) generated at depths less than 10 m (32.8 ft) by sound sources moving at speeds of 2.6 m/s (5.1 knots) or more during sonar operations (D'Spain *et al.*, 2006). These features do not relate to LFA operations. First, the SURTASS LFA vessel operates with a horizontal line array of 1,500 m (4,921 ft) length at depths below 150 m (492 ft) and a vertical line array (LFA sonar source) at depths greater than 100 m (328 ft). Second, operations are limited by mitigation protocols to at least 22 km (12 nm) offshore. For these reasons, SURTASS LFA sonar cannot be operated in deep water that is close to land. Also, the LFA sonar signal is transmitted at depths well below 10 m (32.8 ft), and the vessel has a slow speed of advance of 1.5 m/s (3 knots).

While there was a LF component in the Greek stranding in 1996, only mid-frequency components were present in the strandings in the Bahamas in 2000, Madeira 2000, and Canaries in 2002. This supports the conclusion that the LF component in the Greek stranding was not causative (ICES, 2005; Cox *et al.*, 2006). In its discussion of the Bahamas stranding, Cox *et al.* (2006) stated: ''The event raised the question of whether the mid-frequency component of the sonar in Greece in 1996 was implicated in the stranding, rather than the low-frequency component proposed by Frantzis (1998).'' The ICES in its ''Report of the Ad-Hoc Group on the Impacts of Sonar on Cetaceans and Fish'' raised the same issues as Cox *et al.*, stating that the consistent association of MF sonar in the Bahamas, Madeira, and Canary Islands strandings suggest that it was the MF component, not the LF component, in the NATO sonar that triggered the Greek stranding of 1996 (ICES, 2005). The ICES (2005) report concluded that no strandings, injury, or major behavioral change have been associated with the exclusive use of LF sonar.

Beaked whales have been the subject of particular concern in connection with strandings. Like most odontocetes, they have relatively sharply deceasing hearing sensitivity below 2 kHz (Cook *et al.* (2006), Richardson *et al.* (1995) and Finneran *et al.* (2002)). The SURTASS LFA sonar source frequency is below 500 Hz. If a cetacean cannot hear a sound or hears it poorly, the sound is unlikely to have a significant behavioral impact (Ketten, 2001). Therefore, it is unlikely that LF transmissions from LFA sonar would induce behavioral reactions from animals that have poor LF hearing. Though highly unlikely, the sounds could damage tissues even if the animal does not hear the sound, but this would have to be within 1,000 m (3.280 ft) of the array, where detection would be very likely, triggering shutdown.

Estimates of Potential Effects on Marine Mammals

The effects on marine mammals from operation of SURTASS LFA sonar will not be the lethal removal of animals. In addition, while possible, Level A harassment, if it occurs at all, is expected to be so minimal as to have no effect on rates of reproduction and survival of affected marine mammal species. Based on AIM modeling results, the primary effects would be the potential for Level B harassment. The Final SEIS Subchapter 4.4 provides the risk assessment methodology applied to SURTASS LFA sonar operations for the annual LOA applications for proposed operational areas.

Tables 4.4–2 through 4.4–10 in the Final SEIS provide, through a case study based on the results of the Navy's 4th LOA, estimates of the percentage of stocks potentially affected for SURTASS LFA sonar operations and are based on reasonable and realistic estimates of the potential effects to marine mammals stocks specific to the potential mission areas. Also, Tables 5 through 8 in the Navy's Final Comprehensive Report for the 2002–2007 rule provides annual total estimates of percentages of marine mammal stocks potentially affected annually during the four years of LFA sonar operations, based on actual operations during the period of the LOAs.

The scenarios chosen by the Navy are not the only possible combinations of areas where the SURTASS LFA sonar will operate. The potential effects from other scenarios can be estimated by making a best prediction of the areas in which the Navy would conduct SURTASS LFA sonar operations annually in each oceanic basin area, determining from Tables 4.4–2 through 4.4–10 in the Final SEIS the percentage of each stock that may potentially be affected, and adding those percentages together for each affected stock. Tables 5–8 in the Navy's Comprehensive Report indicate that annually Level B harassment may affect 0–6 percent for most marine mammal stocks, rising to just over 11 percent annually for other species (e.g., common dolphins (6.4 percent), Risso's dolphins (6–8 percent), short-finned pilot whales (6–9 percent), false killer whales (5–10 percent), Pacific white-sided dolphins (6–11 percent) and melon-headed whales (11.2 percent)).

Also, using updated modeling where appropriate, the Navy will rerun AIM when planning missions and, if necessary, modify annual LOA requests with an analysis of take estimates prior to any mission in a new/different area. For this proposed rule, NMFS is preliminarily adopting the Navy estimates shown in Final SEIS (Tables 4.4–2 through 4.4–10) as the best scientific information currently available.

Proposed Mitigation for Marine Mammals

NMFS proposes to require the same visual, passive acoustic, and active acoustic monitoring of the area surrounding the SURTASS LFA sonar array, as required for the current 2002–2007 rule and LOAs, to prevent the incidental injury of marine mammals that might enter the 180–dB isopleth from the SURTASS LFA sonar. These three monitoring systems are described in the next section of this document. NMFS also proposes the same protocols as in the 2002–2007 rule. Prior to each active sonar exercise, the distance from the SURTASS LFA sonar source to the 180–dB isopleth will be determined. If, through monitoring, a marine mammal is detected within the 180–dB isopleth, the Navy proposes to shut down or

immediately suspend SURTASS LFA sonar transmissions. Transmissions may commence/resume 15 minutes after the marine mammal has left the area of the 180–dB isopleth or there is no further detection of the animal within the 180–dB isopleth. The protocol established by the Navy for implementing this temporary shut-down is described in the application. As an added safety measure, NMFS again proposes to require a ''buffer zone'' extending an additional 1 km (0.54 nm) beyond the 180–dB isopleth. This coincides with the detection range of the HF/M3 sonar. This 180- dB plus 1 km (0.54 nm) distance will be the established mitigation zone for that exercise. Therefore, if a marine mammal is detected by the HF/M3 sonar, the SURTASS LFA sonar will be either turned off or not turned on. This is a effective mitigation measure since testing of the HF/M3 sonar indicates effective levels of detection up to 2 km (1.1 nm). At 2 km (1.1 nm), the SPL from the SURTASS LFA sonar will be approximately 173 dB, significantly below the 180 dB threshold for estimating onset of injury. SURTASS LFA sonar operators would be required to estimate SPLs before and during each operation to provide the information necessary to modify the operation, including delay or suspension of transmissions, so as not to exceed the mitigation sound field criteria.

In addition to establishing a mitigation zone at 180 dB plus 1 km (0.54 nm) to protect marine mammals, the Navy has established a mitigation zone for human divers at 145 dB re 1 microPa(rms) around all known human commercial and recreational diving sites. Although this geographic restriction is intended to protect human divers, it will also reduce the LF sound levels received by marine mammals located in the vicinity of known dive sites.

The Navy also recommended establishing OBIAs for marine mammal protection in its Final EIS and SEIS. The Navy evaluated nine sites in its Final EIS and SEIS and concluded that marine animals of concern (marine animals listed under the ESA and other marine mammals) congregate in these areas to carry out biologically important activities.

Based on the Navy's evaluation, NMFS proposes to designate these nine sites as OBIAs for LFA sonar. The nine areas are: (1) the North American East Coast between 28° N. and 50° N. from west of 40° W. to the 200–m (656–ft) isobath year-round; (2) the Antarctic Convergence Zone, from 30° E. to 80° E. to 45° S., from 80° E. to 150° E. to 55° S., from 150° E. to 50° W. to 60° S., from 50° W to 30° E. to 55° S. from October through March; (3) the Costa Rica Dome, centered at 9° N. and 88° W., year-round; (4) Hawaiian Islands Humpback Whale National Marine Sanctuary-Penguin Bank, centered at 21° N. and 157° 30′ W. from November 1 through May 1; (5) Cordell Bank National Marine Sanctuary, boundaries in accordance 15 CFR 922.110 year-round; (6) Gulf of the Farallones National Marine Sanctuary, boundaries in accordance 15 CFR 922.80 year-round; (7) Monterey Bay National Marine Sanctuary, boundaries in accordance with 15 CFR 922.30 year-round; (8) Olympic Coast National Marine Sanctuary, boundaries within 23 nm of the coast from 47°07′ N. to 48°30′ N. latitude in December, January, March, and May; and (9) Flower Garden Banks National Marine Sanctuary, boundaries in accordance with 15 CFR 922.120 year-round.

NMFS also proposes to designate an additional OBIA that was recommended by several commenters on the Draft SEIS: The Gully with boundaries at 44° 13′ N., 59° 06′ W. to 43° 47′ N., 58° 35′ W. to 43° 35′ N., 58° 35′ W. to 43° 35′ N., 59° 08′ W. to 44° 06′ N., 59° 20′ W., year round. NMFS believes this area is biologically important for marine mammals, based on its importance as habitat for several species of marine mammals, particularly the northern bottlenose whale, and its designation as a Canadian marine protected area.

NMFS is also evaluating whether to designate certain areas in the Northwestern Hawaiian Islands as OBIAs and solicits public comments and information on marine mammal distribution, densities, and the specific biologically important activities that take place in these areas. Any additional OBIA designations would be made through a separate rulemaking process. NMFS proposes to continue the system established in the 2002–2007 rule for expanding the number of OBIAs, as described later in this document. While retaining the requirement to provide notice and an opportunity to comment, the current proposal would eliminate the specific length of time for public comment on proposed OBIAs.

OBIAs are not intended to apply to other Navy activities and sonar operations, but rather as a mitigation measure to reduce incidental takings by SURTASS LFA sonar. The regulations propose, as in the 2002–2007 rule, that the holder of a LOA would not operate the SURTASS LFA sonar within any OBIA such that the SURTASS LFA sonar field exceeds 180 dB (re 1 microPa(rms)).

Proposed Marine Mammal Monitoring

In order to minimize risks to marine mammals that may be present in waters surrounding SURTASS LFA sonar, the Navy will: (1) conduct visual monitoring from the ship's bridge during daylight hours, (2) use passive SURTASS sonar to listen for vocalizing marine mammals; and (3) use high frequency active sonar (i.e., similar to a commercial fish finder) to monitor/locate/track marine mammals in relation to the SURTASS LFA sonar vessel and the sound field produced by the SURTASS LFA sonar source array.

Through observation, acoustic tracking and implementation of shut-down criteria, the Navy will ensure, to the greatest extent practicable, that no marine mammals approach the SURTASS LFA sonar source close enough to be subjected to potentially injurious sound levels (inside the 180–dB sound field; approximately 1 km (0.54 nm) from the source). In the Navy's Final EIS, as reanalyzed in the Final Comprehensive Report for SURTASS LFA sonar, the Navy assessed mitigation effectiveness. The overall effectiveness of detecting a marine mammal approaching the 180–dB sound field of the source array by at least one of these monitoring methods is above 95 percent. This value is supported by analyses of field data in a sampling of 6 missions between June 2004 and February 2006 (see the Navy's Comprehensive Report for LFA sonar).

The results of the visual, passive, and active monitoring for each LOA are discussed in the Annual Reports (most recently, Annual Report 5, 2007, Chapter 4). Mitigation effectiveness is described in Chapter 4 for the Final Comprehensive Report (2007) and in the Annual Reports.

Visual monitoring consists of daylight observations for marine mammals from the vessel. Daylight is defined as 30 minutes before sunrise until 30 minutes after sunset. Visual monitoring would begin 30 minutes before sunrise or 30 minutes before the SURTASS LFA sonar is deployed. Monitoring would continue until 30 minutes after sunset or until the SURTASS LFA sonar is recovered. Observations will be made by personnel trained in detecting and identifying marine mammals. Marine mammal biologists qualified in conducting at-sea marine mammal visual monitoring from surface vessels train and qualify designated ship personnel to conduct at-sea visual monitoring. The objective of these observations is to maintain a track of marine mammals observed and to ensure that none approach the source close enough to enter the LFA sonar

mitigation zone (including the buffer zone).

These personnel would maintain a topside watch and marine mammal observation log during operations that employ SURTASS LFA sonar in the active mode. The numbers and identification of marine mammals sighted, as well as any unusual behavior, will be entered into the log. A designated ship's officer will monitor the conduct of the visual watches and periodically review the log entries. There are two potential visual monitoring scenarios.

First, if a marine mammal is sighted outside of the LFA sonar mitigation zone, the observer will notify the Officer-in-Charge (OIC). The OIC then notifies the HF/M3 sonar operator to determine the range and projected track of the animal. If it is determined the animal will enter the LFA sonar mitigation zone, the OIC will order the delay or suspension of SURTASS LFA sonar transmissions when the animal enters the LFA sonar mitigation zone. If the animal is visually observed within the mitigation zone, the OIC will order the immediate delay or suspension of SURTASS LFA sonar transmissions. The observer will continue visual monitoring/recording until the animal is no longer seen.

Second, if the animal is sighted anywhere within the LFA mitigation zone, the observer will notify the OIC who will promptly order the immediate delay or suspension of SURTASS LFA sonar transmissions.

Passive acoustic monitoring is conducted when SURTASS is deployed, using the SURTASS towed horizontal line array to listen for vocalizing marine mammals as an indicator of their presence. If the sound is estimated to be from a marine mammal that may be in the SURTASS LFA sonar mitigation zone, the technician will notify the OIC who will alert the HF/M3 sonar operator and visual observers. If a marine mammal is detected within or approaching the mitigation zone prior to or during transmissions, the OIC will order the delay or suspension of SURTASS LFA sonar transmissions.

HF-active acoustic monitoring uses the HF/M3 sonar to detect, locate, and track marine mammals that could pass close enough to the SURTASS LFA sonar array to enter the LFA mitigation zone. HF acoustic monitoring will begin 30 minutes before the first SURTASS LFA sonar transmission of a given mission is scheduled to commence and continue until transmissions are terminated. Prior to full-power operations, the HF/M3 sonar power level is ramped up over a period of 5 min from 180 dB SL in 10–dB increments until full power (if required) is attained to ensure that there are no inadvertent exposures of local animals to RLs ≤ 180 dB from the HF/M3 sonar. There are two potential scenarios for mitigation via active acoustic monitoring.

First, if a ''contact'' is detected outside the LFA mitigation zone, the HF/M3 sonar operator determines the range and projected track of the animal. If it is determined that the animal will enter the LFA mitigation zone, the sonar operator notifies the OIC. The OIC then orders the delay or suspension of transmissions when the animal is predicted to enter the LFA mitigation zone. If a contact is detected by the HF/M3 sonar within the LFA mitigation zone, the observer notifies the OIC who promptly orders the immediate delay or suspension of transmissions.

All contacts will be recorded in the log and provided as part of the Long-Term Monitoring (LTM) Program to monitor for potential long-term environmental effects.

Research

The Navy spends approximately $10–14 million annually on marine mammal research programs. These research programs provide a means of learning about potential effects of anthropogenic underwater sound on marine mammals (including long-term) and ways to mitigate potential effects. As a result, the Navy is well positioned to have the most current scientific data on how marine mammals are affected by Navy sonar. During the first 4 years of LFA sonar operations, the Navy conducted research on several of these research areas. Table 9 in the Navy's Comprehensive Report for SURTASS LFA sonar provides the status of the research that is planned or underway.

NMFS proposes to require that the Navy continue researching the impacts of LF sounds on marine mammals to supplement its monitoring and increase knowledge of the species, and coordinate with others on additional research opportunities and activities. This would include cumulative impact analyses of the annual takes of marine mammals over the next 5 years and the continuation of scientific data collection during SURTASS LFA sonar operations.

NMFS recommends that the Navy conduct, or continue to conduct, the following research regarding SURTASS LFA sonar over the second 5–year authorization period:

1. Systematically observe SURTASS LFA sonar training exercises for injured or disabled marine mammals. Past correlations between military operations and the stranding of beaked whales call for closer observation of all sonar operations.

2. Compare the effectiveness of the three forms of mitigation (visual, passive acoustic, HF/M3 sonar).

3. Conduct research on the responses of deep-diving odontocete whales to LF-sonar signals. These species are believed to be less sensitive to LF-sonar sounds than the species studied prior to the LFS SRP. However, enough questions exist that these species should be studied further. The Navy has applied for a Scientific Research Permit under section 104 of the MMPA to conduct a behavioral response study on deep-diving cetacean species exposed to natural and artificial underwater sounds and quantify exposure conditions associated with various effects (72 FR 19181, April 17, 2007).

4. Conduct research on the habitat preferences of beaked whales.

5. Conduct passive acoustic monitoring using bottom-mounted hydrophones before, during, and after LF sonar operations for the possible silencing of calls of large whales.

6. Continue to evaluate the HF/M3 mitigation sonar. This is the primary means of mitigation, and its efficacy must continue to be demonstrated.

7. Continue to evaluate improvements in passive sonar capabilities.

Proposed Reporting

During routine operations of SURTASS LFA sonar, technical and environmental data would be collected and recorded, which, along with research, are part of the Navy's LTM Program. These would include data from visual and acoustic monitoring, ocean environmental measurements, and technical operational inputs.

First, a mission report would be provided to NMFS on a quarterly basis with the report including all active-mode missions completed 30 days or more prior to the date of the deadline for the report. Second, the Navy would submit an annual report no later than 45 days after expiration of an LOA. Third, the Navy would submit a Comprehensive Report at least 240 days prior to expiration of these regulations. These reports are summarized here.

Quarterly Report – On a quarterly basis, the Navy would provide NMFS with a classified report that includes all active-mode missions completed 30 days or more prior to the date of the deadline for the report. Specifically, these reports will include dates/times of exercises, location of vessel, LOA province (as set forth in Longhurst (1998)), location of the mitigation zone in relation to the LFA sonar array,

marine mammal observations, and records of any delays or suspensions of operations. Marine mammal observations would include animal type and/or species, number of animals sighted by species, date and time of observations, type of detection (visual, passive acoustic, HF/M3 sonar), the animal's bearing and range from vessel, behavior, and remarks/narrative (as necessary). The report would include the Navy's analysis of whether any Level A and/or Level B taking occurred within the SURTASS LFA sonar mitigation zone and, if so, estimates of the percentage of marine mammal stocks affected (both for the quarter and cumulatively (to date) for the year covered by the LOA) by SURTASS LFA sonar operations. This analysis would include estimates for both within and outside the mitigation zone, using predictive modeling based on operating locations, dates/times of operations, system characteristics, oceanographic environmental conditions, and animal demographics. In the event that no SURTASS LFA missions are completed during a quarter, a report of negative activity would be provided.

Annual Report – The annual report would provide NMFS with an unclassified summary of the year's quarterly reports and will include the Navy's analysis of whether any Level A and/or Level B taking occurred within the SURTASS LFA mitigation zones and, if so, estimates of the percentage of marine mammal stocks affected by SURTASS LFA sonar operations. This analysis would include estimates for both within and outside the mitigation zone, using predictive modeling based on operating locations, dates/times of operations, system characteristics, oceanographic environmental conditions, and animal demographics.

The annual report would also include: (1) analysis of the effectiveness of the mitigation measures with recommendations for improvements where applicable; (2) assessment of any long-term effects from SURTASS LFA sonar operations; and (3) any discernible or estimated cumulative impacts from SURTASS LFA sonar operations.

Comprehensive Report – NMFS proposes to require the Navy to provide NMFS and the public with a final comprehensive report analyzing the impacts of SURTASS LFA sonar on marine mammal species and stocks. This report, which is due at least 240 days prior to expiration of these regulations, would include an in-depth analysis of all monitoring and Navy-funded research pertinent to SURTASS LFA sonar conducted during the 5–year period of these regulations, a scientific assessment of cumulative impacts on marine mammal stocks, and an analysis on the advancement of alternative (passive) technologies as a replacement for LFA sonar. This report would be a key document for NMFS' review and assessment of impacts for any future rulemaking.

Annual reports and the Comprehensive Report would be posted on the NMFS homepage (see **ADDRESSES**).

Modification to Mitigation Measures

Any substantial modifications to NMFS' mitigation, monitoring, and reporting requirements will be proposed in the **Federal Register** with an opportunity for public comment prior to implementation (unless an emergency exists and modifications are necessary for the protection of marine mammals).

Designation of Offshore Biologically Important Areas for Marine Mammals

In addition to NMFS designating OBIAs independently, this proposed rule would continue a system for members of the public to petition NMFS to consider adding an area to the list of OBIAs for marine mammals. To qualify for designation, an area must be of particular importance for marine mammals as an area for feeding, breeding, calving, or migration, and not simply an area occupied by marine mammals. The proposed area should also not be within a previously designated OBIA or other 180–dB exclusion area. In order for NMFS to begin a rulemaking process for designating areas of biological importance for marine mammals, proponents must petition NMFS and submit the information described in 50 CFR 216.191(a). If NMFS makes a preliminary determination that the area is biologically important for marine mammals, NMFS will publish a **Federal Register** document proposing to add the recommended area as an OBIA. After review of public comments and information, NMFS will make a final decision on whether to designate the area as an OBIA and publish a **Federal Register** document of its decision. Proposals for designation of areas will not affect the status of LOAs while the rulemaking is in process.

Preliminary Determinations

Based on the scientific analyses detailed in the Navy application and further supported by information and data contained in the Navy's Final SEIS and Final EIS for SURTASS LFA sonar operations and summarized in this proposed rule, NMFS has preliminarily determined that the incidental taking of marine mammals resulting from SURTASS LFA sonar operations would have a negligible impact on the affected marine mammal species or stocks over the 5–year period of LFA sonar operations covered by these proposed regulations. That assessment is based on a number of factors: (1) the best information available indicates that effects from SPLs less than 180 dB will be limited to short-term Level B behavioral harassment averaging less than 10 percent annually for most affected species; (2) the proposed mitigation and monitoring is highly effective in preventing exposures of 180 dB or greater; (3) the results of monitoring as described in the Navy's Comprehensive Report supports the conclusion that takings will be limited to Level B harassment and not have more than a negligible impact on affected species or stocks of marine mammals; (4) the small number of SURTASS LFA sonar systems (two systems in FY 2008 and FY 2009 (totaling 864 hours of operation annually), 3 in FY 2010 (totaling 1296 hours of operation annually), and 4 systems in FY 2011 and FY 20012 (totaling 1728 hours of operation annually)) that would be operating world-wide; (5) that the LFA sonar vessel must be underway while transmitting (in order to keep the receiver array deployed), limiting the duration of exposure for marine mammals to those few minutes when the SURTASS LFA sound energy is moving through that part of the water column inhabited by marine mammals; (6) for convergence zone (CZ) propagation, the characteristics of the acoustic sound path, which deflect the sound below the water depth inhabited by marine mammals for much of the sound propagation (see illustration 67 FR page 46715 (July 16, 2002); (7) the findings of the SRP on LF sounds on marine mammals indicated no significant change in biologically important behavior from exposure to sound levels up to 155 dB; and (8) during the 40 LFA sonar missions between 2002 and 2006, there were only three visual observations of marine mammals and only 71 detections by the HF/M3 sonar, which all resulted in mitigation protocol suspensions in operations. These measures all indicate that while marine mammals will potentially be affected by the SURTASS LFA sonar sounds, these impacts will be short-term behavioral effects and are not likely to adversely affect marine mammal species or stocks through

effects on annual rates of reproduction or survival.

Finally, because SURTASS LFA sonar operations will not take place in Arctic waters, it would not have an unmitigable adverse impact on the availability of marine mammals for subsistence uses identified in MMPA section 101(a)(5)(A)(i), 16 USC 1371(a)(5)(A)(i).

NEPA

On November 10, 2005 (70 FR 68443), the Environmental Protection Agency (EPA) announced receipt of a Draft SEIS from the U.S. Navy on the deployment of SURTASS LFA sonar. This Final SEIS incorporated by reference the Navy's Final EIS on SURTASS LFA sonar deployment. The public comment period on the Draft SEIS ended on February 10, 2006. On May 4, 2007 (72 FR 25302), EPA announced receipt of a Final SEIS from the U.S. Navy on the deployment of SURTASS LFA sonar. NMFS is a cooperating agency, as defined by the Council on Environmental Quality (40 CFR 1501.6), in the preparation of these documents. NMFS is currently reviewing the Navy's Final SEIS and will either adopt it or prepare its own NEPA document before making a determination on the issuance of a final rule and LOAs thereunder. The Navy's Final SEIS is available at: *http://www.surtass-lfa-eis.com*

ESA

On October 4, 1999, the Navy submitted a Biological Assessment to NMFS to initiate consultation under section 7 of the ESA for its SURTASS LFA sonar activities. NMFS concluded consultation with the Navy on this action on May 30, 2002. The conclusion of that consultation was that operation of the SURTASS LFA sonar system for testing, training and military operations and the issuance by NMFS of incidental take authorizations for this activity are not likely to jeopardize the continued existence of any endangered or threatened species under the jurisdiction of NMFS. Additional consultations were conducted prior to issuance of annual LOAs.

On June 9, 2006, the Navy submitted a Biological Assessment to NMFS to initiate consultation under section 7 of the ESA for the 2007–2012 SURTASS LFA sonar activities. The consultation, which will also include this proposed rule, will be concluded prior to issuance of a final rule.

Classification

This action has been determined to be significant for purposes of Executive Order 12866.

The Chief Counsel for Regulation of the Department of Commerce has certified to the Chief Counsel for Advocacy of the Small Business Administration that this action would not have a significant economic impact on a substantial number of small entities within the meaning of the Regulatory Flexibility Act. If implemented, this proposed rule would affect only the U.S. Navy which, by definition, is not a small business. Because of this certification, a regulatory flexibility analysis is not required.

List of Subjects in 50 CFR Part 216

Exports, Fish, Imports, Indians, Labeling, Marine mammals, Penalties, Reporting and recordkeeping requirements, Seafood, Transportation.

Dated: July 5, 2007.

John Oliver,

Deputy Assistant Administrator for Operations, National Marine Fisheries Service.

For reasons set forth in the preamble, 50 CFR part 216 is proposed to be amended as follows:

PART 216—REGULATIONS GOVERNING THE TAKING AND IMPORTING OF MARINE MAMMALS

1. The authority citation for part 216 continues to read as follows:

Authority: 16 U.S.C. 1361 *et seq.*, unless otherwise noted.

2. Subpart Q is added to part 216 to read as follows:

Subpart Q—Taking of Marine Mammals Incidental to Navy Operations of Surveillance Towed Array Sensor System Low Frequency Active (SURTASS LFA) Sonar

Sec.

216.180 Specified activity.
216.181 Effective dates.
216.182 Permissible methods of taking.
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216.191 Designation of Biologically Important Marine Mammal Areas.

Subpart Q—Taking of Marine Mammals Incidental to Navy Operations of Surveillance Towed Array Sensor System Low Frequency Active (SURTASS LFA) Sonar

§ 216.180 Specified activity.

Regulations in this subpart apply only to the incidental taking of those marine mammal species specified in paragraph (b) of this section by the U.S. Navy, Department of Defense, while engaged in the operation of no more than four SURTASS LFA sonar systems conducting active sonar operations, in areas specified in paragraph (a) of this section. The authorized activities, as specified in a Letter of Authorization issued under §§ 216.106 and 216.188, include the transmission of low frequency sounds from the SURTASS LFA sonar and the transmission of high frequency sounds from the mitigation sonar described in § 216.185 during training, testing, and routine military operations of SURTASS LFA sonar.

(a) With the exception of those areas specified in § 216.183(d), the incidental taking by harassment may be authorized in the areas (biomes, provinces, and subprovinces) described in Longhurst (1998), as specified in a Letter of Authorization.

(b) The incidental take, by Level A and Level B harassment, of marine mammals from the activity identified in this section is limited to the following species and species groups:

(1) Mysticete whales—blue (*Balaenoptera musculus*), fin (*Balaenoptera physalus*), minke (*Balaenoptera acutorostrata*), Bryde's (*Balaenoptera edeni*), sei (*Balaenoptera borealis*), humpback (*Megaptera novaeangliae*), North Atlantic right (*Eubalaena glacialis*), North Pacific right (*Eubalena japonica*) southern right (*Eubalaena australis*), pygmy right (*Capera marginata*), bowhead (*Balaena mysticetus*), and gray (*Eschrichtius robustus*) whales.

(2) Odontocete whales—harbor porpoise (*Phocoena phocoena*), spectacled porpoise (*Phocoena dioptrica*), beluga (*Dephinapterus leucas*), *Stenella* spp., Risso's dolphin (*Grampus griseus*), rough-toothed dolphin (*Steno bredanensis*), Fraser's dolphin (*Lagenodelphis hosei*), northern right-whale dolphin (*Lissodelphis borealis*), southern right whale dolphin (*Lissodelphis peronii*), short-beaked common dolphin (*Delphius delphis*), long-beaked common dolphin (*Delphinus capensis*), very long-beaked common dolphin (*Delphinus tropicalis*), *Lagenorhynchus* spp., *Cephalorhynchus* spp., bottlenose dolphin (*Tursiops truncatus*), Dall's porpoise

(*Phocoenoides dalli*), melon-headed whale (*Peponocephala* spp.), beaked whales (*Berardius* spp., *Hyperoodon* spp., *Mesoplodon* spp., Cuvier's beaked whale (*Ziphius cavirostris*), Shepard's beaked whale (*Tasmacetus shepherdi*), Longman's beaked whale (*Indopacetus pacificus*), killer whale (*Orcinus orca*), false killer whale (*Pseudorca crassidens*), pygmy killer whale (*Feresa attenuata*), sperm whale (*Physeter macrocephalus*), dwarf and pygmy sperm whales (*Kogia simus* and *K. breviceps*), and short-finned and long-finned pilot whales (*Globicephala macrorhynchus* and *G. melas*).

(3) Pinnipeds—hooded seal (*Cystophora cristata*), harbor seal (*Phoca vitulina*), spotted seal (*P. largha*), ribbon seal (*P. fasciata*), gray seal (*Halichoerus grypus*), elephant seal (*Mirounga angustirostris* and *M. leonina*), Hawaiian monk seal (*Monachus schauinslandi*), Mediterranean monk seal (*Monachus monachus*), northern fur seal (*Callorhinus ursinus*), southern fur seal (*Arctocephalus* spp.), harp seal (*Phoca groenlandica*), Galapagos sea lion (*Zalophus californianus wollebaeki*), Japanese sea lion (*Zalophus californianus japonicus*), Steller sea lion (*Eumetopias jubatus*), California sea lion (*Zalophus californianus*), Australian sea lion (*Neophoca cinerea*), New Zealand sea lion (*Phocarctos hookeri*), and South American sea lion (*Otaria flavescens*).

§ 216.181 Effective dates.

Regulations in this subpart are effective from August 16, 2007 through August 15, 2012.

§ 216.182 Permissible methods of taking.

(a) Under Letters of Authorization issued pursuant to §§ 216.106 and 216.188, the Holder of the Letter of Authorization may incidentally, but not intentionally, take marine mammals by Level A and Level B harassment within the areas described in § 216.180(a), provided the activity is in compliance with all terms, conditions, and requirements of these regulations and the appropriate Letter of Authorization.

(b) The activities identified in § 216.180 must be conducted in a manner that minimizes, to the greatest extent practicable, any adverse impacts on marine mammals and their habitat.

§ 216.183 Prohibitions.

No person in connection with the activities described in § 216.180 shall:

(a) Take any marine mammal not specified in § 216.180(b);

(b) Take any marine mammal specified in § 216.180(b) other than by incidental, unintentional Level A and Level B harassment;

(c) Take a marine mammal specified in § 216.180(b) if such taking results in more than a negligible impact on the species or stocks of such marine mammal; or

(d) Violate, or fail to comply with, the terms, conditions, and requirements of the regulations in this subpart or any Letter of Authorization issued under §§ 216.106 and 216.188.

§ 216.184 Mitigation.

The activity identified in § 216.180(a) must be conducted in a manner that minimizes, to the greatest extent practicable, adverse impacts on marine mammals and their habitats. When conducting operations identified in § 216.180, the mitigation measures described in this section and in any Letter of Authorization issued under §§ 216.106 and 216.188 must be implemented.

(a) Through monitoring described under § 216.185, the Holder of a Letter of Authorization must act to ensure, to the greatest extent practicable, that no marine mammal is subjected to a sound pressure level of 180 dB or greater.

(b) If a marine mammal is detected within or about to enter the mitigation zone (the area subjected to sound pressure levels of 180 dB or greater plus the 1 km (0.5 nm) buffer zone extending beyond the 180–dB zone), SURTASS LFA sonar transmissions will be immediately delayed or suspended. Transmissions will not resume earlier than 15 minutes after:

(1) All marine mammals have left the area of the mitigation and buffer zones; and

(2) There is no further detection of any marine mammal within the mitigation and buffer zones as determined by the visual and/or passive or active acoustic monitoring described in § 216.185.

(c) The high-frequency marine mammal monitoring sonar (HF/M3) described in § 216.185 will be ramped-up slowly to operating levels over a period of no less than 5 minutes:

(1) At least 30 minutes prior to any SURTASS LFA sonar transmissions;

(2) Prior to any SURTASS LFA sonar calibrations or testings that are not part of regular SURTASS LFA sonar transmissions described in paragraph (c)(1) of this section; and

(3) Anytime after the HF/M3 source has been powered down for more than 2 minutes.

(d) The HF/M3 sound pressure level will not be increased once a marine mammal is detected; ramp-up may resume once marine mammals are no longer detected.

(e) The Holder of a Letter of Authorization will not operate the SURTASS LFA sonar, such that the SURTASS LFA sonar sound field exceeds 180 dB (re 1 microPa(rms)):

(1) At a distance less than 12 nautical miles (nm) (22 kilometers (km)) from any coastline, including offshore islands;

(2) Within any offshore area that has been designated as biologically important for marine mammals under § 216.185(f), during the biologically important season for that particular area.

(f) The following areas have been designated by NMFS as Offshore Biologically Important Areas (OBIAs) for marine mammals (by season if appropriate):

Name of Area	Location of Area	Months of Importance
(1) 200-m isobath North American East Coast	From 28° N. to 50° N., west of 40° W.	Year round
(2) Antarctic Convergence Zone	30° E. to 80° E. to 45°; 80° E. to 150° E. to 55°; S.150° E. to 50° W. to 60° S.; 50° W. to 30° E. to 50° S.	October 1-March 31
(3) Costa Rica Dome	Centered at 9° N. and 88° W.	Year round
(4) Hawaiian Islands Humpback Whale National Marine Sanctuary Penguin Bank	Centered at 21° N. and 157° 30' W.	November 1 through May 1
(5) Cordell Bank National Marine Sanctuary	Boundaries in accordance with 15 CFR 922.110	Year-round

Name of Area	Location of Area	Months of Importance
(6) Gulf of the Farallones National Marine Sanctuary	Boundaries in accordance with 15 CFR 922.80	Year-round
(7) Monterey Bay National Marine Sanctuary	Boundaries in accordance with 15 CFR 922.30	Year-round
(8) Olympic Coast National Marine Sanctuary	Boundaries within 23 nm of the coast from 47°07' N. to 48°30' N. latitude	December, January, March and May
(9) Flower Garden Banks National Marine Sanctuary	Boundaries in accordance with 15 CFR 922.120	Year-round
(10) The Gully	44° 13' N., 59° 06' W. to 43° 47' N.; 58° 35' W. to 43° 35' N.; 58° 35' W. to 43° 35' N.; 59° 08' W. to 44° 06' N.; 59° 20' W	Year-round

§ 216.185 Requirements for monitoring.

(a) In order to mitigate the taking of marine mammals by SURTASS LFA sonar to the greatest extent practicable, the Holder of a Letter of Authorization issued pursuant to §§ 216.106 and 216.188 must:

(1) Conduct visual monitoring from the ship's bridge during all daylight hours (30 minutes before sunrise until 30 minutes after sunset);

(2) Use low frequency passive SURTASS sonar to listen for vocalizing marine mammals; and

(3) Use the HF/M3 (high frequency) sonar developed to locate and track marine mammals in relation to the SURTASS LFA sonar vessel and the sound field produced by the SURTASS LFA sonar source array.

(b) Monitoring under paragraph (a) of this section must:

(1) Commence at least 30 minutes before the first SURTASS LFA sonar transmission;

(2) Continue between transmission pings; and

(3) Continue either for at least 15 minutes after completion of the SURTASS LFA sonar transmission exercise, or, if marine mammals are exhibiting unusual changes in behavioral patterns, for a period of time until behavior patterns return to normal or conditions prevent continued observations;

(c) Holders of Letters of Authorization for activities described in § 216.180 are required to cooperate with the National Marine Fisheries Service and any other federal agency for monitoring the impacts of the activity on marine mammals.

(d) Holders of Letters of Authorization must designate qualified on-site individuals to conduct the mitigation, monitoring and reporting activities specified in the Letter of Authorization.

(e) Holders of Letters of Authorization must conduct all monitoring required under the Letter of Authorization.

§ 216.186 Requirements for reporting.

(a) The Holder of the Letter of Authorization must submit quarterly mission reports to the Director, Office of Protected Resources, NMFS, no later than 30 days after the end of each quarter beginning on the date of effectiveness of a Letter of Authorization or as specified in the appropriate Letter of Authorization. Each quarterly mission report will include all active-mode missions completed during that quarter. At a minimum, each classified mission report must contain the following information:

(1) Dates, times, and location of each vessel during each mission;

(2) Information on sonar transmissions during each mission;

(3) Results of the marine mammal monitoring program specified in the Letter of Authorization; and

(4) Estimates of the percentages of marine mammal species and stocks affected (both for the quarter and cumulatively for the year) covered by the Letter of Authorization.

(b) The Holder of a Letter of Authorization must submit an annual report to the Director, Office of Protected Resources, NMFS, no later than 45 days after the expiration of a Letter of Authorization. This report must contain all the information required by the Letter of Authorization.

(c) A final comprehensive report must be submitted to the Director, Office of Protected Resources, NMFS at least 240 days prior to expiration of these regulations. In addition to containing all the information required by any final year Letter of Authorization, this report must contain an unclassified analysis of new passive sonar technologies and an assessment of whether such a system is feasible as an alternative to SURTASS LFA sonar.

§ 216.187 Applications for Letters of Authorization.

(a) To incidentally take marine mammals pursuant to these regulations, the U.S. Navy authority conducting the activity identified in § 216.180 must apply for and obtain a Letter of Authorization in accordance with § 216.106.

(b) The application for a Letter of Authorization must be submitted to the Director, Office of Protected Resources, NMFS, at least 60 days before the date that either the vessel is scheduled to begin conducting SURTASS LFA sonar operations or the previous Letter of Authorization is scheduled to expire.

(c) All applications for a Letter of Authorization must include the following information:

(1) The date(s), duration, and the area(s) where the vessel's activity will occur;

(2) The species and/or stock(s) of marine mammals likely to be found within each area;

(3) The type of incidental taking authorization requested (i.e., take by Level A and/or Level B harassment);

(4) The estimated percentage of marine mammal species/stocks potentially affected in each area for the 12–month period of effectiveness of the Letter of Authorization; and

(5) The means of accomplishing the necessary monitoring and reporting that will result in increased knowledge of the species and the level of taking or impacts on marine mammal populations.

(d) The National Marine Fisheries Service will review an application for a Letter of Authorization in accordance with § 216.104(b) and, if adequate and complete, issue a Letter of Authorization.

§ 216.188 Letters of Authorization.

(a) A Letter of Authorization, unless suspended or revoked will be valid for a period of time not to exceed one year,

but may be renewed annually subject to annual renewal conditions in § 216.189.

(b) Each Letter of Authorization will set forth:

(1) Permissible methods of incidental taking;

(2) Authorized geographic areas for incidental takings;

(3) Means of effecting the least practicable adverse impact on the species of marine mammals authorized for taking, their habitat, and the availability of the species for subsistence uses; and

(4) Requirements for monitoring and reporting incidental takes.

(c) Issuance of each Letter of Authorization will be based on a determination that the total number of marine mammals taken by the activity specified in § 216.180 as a whole will have no more than a negligible impact on the species or stocks of affected marine mammal(s), and that the total taking will not have an unmitigable adverse impact on the availability of species or stocks of marine mammals for taking for subsistence uses.

(d) Notice of issuance or denial of an application for a Letter of Authorization will be published in the **Federal Register** within 30 days of a determination.

§ 216.189 Renewal of Letters of Authorization.

(a) A Letter of Authorization issued for the activity identified in § 216.180 may be renewed annually upon:

(1) Notification to NMFS that the activity described in the application submitted under § 216.187 will be undertaken and that there will not be a substantial modification to the described activity, mitigation or monitoring undertaken during the upcoming season;

(2) Notification to NMFS of the information identified in § 216.187(c), including the planned geographic area(s), and anticipated duration of each SURTASS LFA sonar operation;

(3) Timely receipt of the monitoring reports required under § 216.185, which have been reviewed by NMFS and determined to be acceptable;

(4) A determination by NMFS that the mitigation, monitoring and reporting measures required under §§ 216.184 and 216.185 and the previous Letter of Authorization were undertaken and will be undertaken during the upcoming annual period of validity of a renewed Letter of Authorization; and

(5) A determination by NMFS that the number of marine mammals taken by the activity as a whole will have no more than a negligible impact on the species or stock of affected marine mammal(s), and that the total taking will not have an unmitigable adverse impact on the availability of species or stocks of marine mammals for taking for subsistence uses.

(b) If a request for a renewal of a Letter of Authorization indicates that a substantial modification to the described work, mitigation or monitoring will occur, or if NMFS proposes a substantial modification to the Letter of Authorization, NMFS will provide a period of 30 days for public review and comment on the proposed modification. Amending the areas for upcoming SURTASS LFA sonar operations is not considered a substantial modification to the Letter of Authorization.

(c) A notice of issuance or denial of a renewal of a Letter of Authorization will be published in the **Federal Register** within 30 days of a determination.

§ 216.190 Modifications to Letters of Authorization.

(a) Except as provided in paragraph (b) of this section, no substantial modification (including withdrawal or suspension) to a Letter of Authorization subject to the provisions of this subpart shall be made by NMFS until after notification and an opportunity for public comment has been provided. For purposes of this paragraph, a renewal of a Letter of Authorization, without modification, except for the period of validity and a listing of planned operating areas, or for moving the authorized SURTASS LFA sonar system from one ship to another, is not considered a substantial modification.

(b) If the National Marine Fisheries Service determines that an emergency exists that poses a significant risk to the well-being of the species or stocks of marine mammals specified in § 216.180(b), a Letter of Authorization may be substantially modified without prior notice and opportunity for public comment. Notification will be published in the **Federal Register** within 30 days of the action.

§ 216.191 Designation of Offshore Biologically Important Marine Mammal Areas.

(a) Offshore biologically important areas for marine mammals may be nominated under this paragraph by the National Marine Fisheries Service or by members of the public.

(b) Proponents must petition NMFS by requesting an area be added to the list of offshore biologically important areas in § 216.184(f) and submitting the following information:

(1) Geographic region proposed for consideration (including geographic boundaries);

(2) A list of marine mammal species or stocks within the proposed geographic region;

(3) Whether the proposal is for year-round designation or seasonal, and if seasonal, months of years for proposed designation;

(4) Detailed information on the biology of marine mammals within the area, including estimated population size, distribution, density, status, and the principal biological activity during the proposed period of designation sufficient for NMFS to make a preliminary determination that the area is biologically important for marine mammals; and

(5) Detailed information on the area with regard to its importance for feeding, breeding, or migration for those species of marine mammals that have the potential to be affected by low frequency sounds;

(c) Areas within 12 nm (22 km) of any coastline, including offshore islands, or within non-operating areas for SURTASS LFA sonar are not eligible for consideration.

(d) If a petition does not contain sufficient information for the National Marine Fisheries Service to proceed, NMFS will determine whether the nominated area warrants further study. If so, NMFS will begin a scientific review of the area.

(e)(1) If through a petition or independently, NMFS makes a preliminary determination that an offshore area is biologically important for marine mammals and is not located within a previously designated area, NMFS will publish a **Federal Register** notice proposing to add the area to § 216.184(f) and solicit public comment.

(2) The National Marine Fisheries Service will publish its final determination in the **Federal Register**.

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