



RECORD OF DECISION  
FOR  
SURVEILLANCE TOWED ARRAY SENSOR  
SYSTEM LOW FREQUENCY ACTIVE  
(SURTASS LFA) SONAR



DEPARTMENT OF THE NAVY  
CHIEF OF NAVAL OPERATIONS

AUGUST 2012

DEPARTMENT OF DEFENSE

Department of the Navy

Record of Decision for Surveillance Towed Array Sensor  
System Low Frequency Active (SURTASS LFA) Sonar

AGENCY: Department of the Navy, DoD.

ACTION: Record of Decision.

**SUMMARY:** The Department of the Navy (DON), after carefully weighing the operational, scientific, technical, and environmental implications of the alternatives considered, announces its decision to employ up to four SURTASS LFA sonar systems with certain geographical restrictions and monitoring mitigation designed to reduce potential adverse effects on the marine environment. This decision, which pertains to the employment of up to four SURTASS LFA sonar systems (as originally analyzed in the 2001 Final Overseas Environmental Impact Statement and Environmental Impact Statement [FOEIS/EIS] for SURTASS LFA Sonar, augmented in the 2007 Final Supplemental Environmental Impact Statement

[FSEIS]), and further augmented in the 2012 Final Supplemental Environmental Impact Statement/Supplemental Overseas Environmental Impact Statement (FSEIS/SOEIS) implements the preferred alternative, Alternative 2, identified in the FSEIS/SOEIS for SURTASS LFA sonar.

Pursuant to 10 U.S.C. 5062, the Navy's primary mission is to maintain, train, equip, and operate combat-ready naval forces capable of accomplishing American strategic objectives, deterring maritime aggression, and assuring freedom of navigation in ocean areas. The Secretary of the Navy and Chief of Naval Operations (CNO) have continually validated that Anti-Submarine Warfare (ASW) is a critical part of that mission—a mission that requires unfettered access to both the high seas and littorals. In order to be prepared for all potential threats, the Navy must maintain ASW core competency through continual training and operations in open-ocean and littoral environments.

The challenges faced by the U.S. Navy today are very different from those faced at the end of the Cold War two decades ago. Since the early 1990s, U.S. Navy ASW strategy has had to shift from a known Soviet adversary to "uncertain potential adversaries" with less well understood and defined strategies and goals. The wide proliferation of diesel-electric submarines, a Chinese undersea force

that is growing in size and tactical capability, and a resurgent Russian submarine service mean that U.S. ASW capability must meet more technologically-capable threats in a wider range of ocean environments. Due to the advancement and use of quieting technologies in diesel-electric and nuclear submarines, undersea threats are becoming increasingly difficult to locate using the passive acoustic technologies that were effective during the Cold War. The range at which U.S. ASW assets are able to identify submarine threats is decreasing and, at the same time, improvements in torpedo design are extending the effective weapons range of those same threats.

Due to concerns raised during a second round of litigation over employment of the SURTASS LFA sonar system and to support issuance of a third five-year Rule under the Marine Mammal Protection Act (MMPA) for employment of SURTASS LFA sonar systems, the Deputy Assistant Secretary of the Navy for Environment (DASN(E)) determined on 14 November 2008 that the purposes of the National Environmental Policy Act (NEPA) and Executive Order (EO) 12114 would be furthered by the preparation of an additional supplemental analysis related to the employment of the systems. This analysis takes the form of a new SEIS/SOEIS under NEPA and Executive Order 12114. DASN(E)

directed that the new SEIS/SOEIS provide: 1) further analysis of potential additional offshore (greater than 22 kilometers [km] [12 nautical miles {nmi}]) biologically important areas (OBIA) in regions of the world where the Navy intends to use the SURTASS LFA sonar systems for routine training, testing, and military operations; 2) further analysis of whether using a greater coastal standoff distance where the continental shelf extends further than current standoff distance is practicable for SURTASS LFA sonar, at least in some locations; and 3) further analysis of cumulative impacts involving other active sonar sources. The information from these analyses will be used to assist the Navy in determining how to employ SURTASS LFA sonar, including the selection of operating areas that the Navy requires for routine training, testing, and military operations in annual requests for MMPA Letters of Authorization (LOA) submitted to the National Marine Fisheries Service (NMFS) of the Department of Commerce's (DoC's) National Oceanic and Atmospheric Administration (NOAA).

**FOR FURTHER INFORMATION CONTACT:** CDR R.A. Dempsey, USN, c/o SURTASS LFA Sonar SEIS/SOEIS Program Manager, 4100 Fairfax Drive, Suite 730, Arlington, VA 22203, E-Mail:

[eisteam@mindspring.com](mailto:eisteam@mindspring.com), Website: <http://surtass-lfa-eis.com/>

**SUPPLEMENTARY INFORMATION:** The Department of the Navy (DoN), pursuant to Section 102(2)(c) of the National Environmental Policy Act (NEPA) of 1969, 42 U.S.C. Sections 4321 et seq.; the regulations of the Council on Environmental Quality (CEQ) that implement NEPA procedures, 40 Code of Federal Regulations (CFR) Parts 1500-1508; DoN Regulations, 32 CFR Part 775; and Presidential Executive Order (EO) 12114 (Environmental Effects Abroad of Major Federal Actions), announces its decision to continue employment of SURTASS LFA sonar systems with certain geographical restrictions and monitoring mitigation designed to reduce potential adverse effects on the marine environment. This decision, which pertains to the employment of up to four SURTASS LFA sonar systems (as originally analyzed in the 2001 FOEIS/EIS for SURTASS LFA Sonar, augmented in the 2007 FSEIS, and further augmented in the 2012 FSEIS/SOEIS), implements the preferred alternative, Alternative 2, identified in the FSEIS/SOEIS for SURTASS LFA Sonar.

## **BACKGROUND AND ISSUES**

The United States and its military forces must have the ability to project power decisively throughout the world. A key factor in the realization of this goal is the protection of United States and allied forward-deployed naval units against the threat of opposing force submarines. Over 40 countries have operational submarines, and many are planning to increase the numbers in their naval fleets. When the FSEIS was completed in 2007, there were 470 submarines operational or being built. Since that time, the number of submarines has increased substantially to between 582 and 613 that are operational or being built. Of this number, 323-333 are diesel-powered submarines, many with air-independent propulsion (AIP). In recent years, the use of relatively inexpensive diesel-electric submarines has caused interest in submarine technology and undersea capability to increase dramatically. With the advent of AIP systems, these quiet, diesel-electric submarines can operate for much longer periods of time (several weeks to a month) underwater and are the primary ASW threat facing the U.S. military today.

Where once the Navy could detect hostile submarines before they could get close enough to launch their weapons, by the 1990's the response time of U.S. forces, against the

quietest threat, had shrunk to mere minutes. To regain the needed response time and thereby protect our forces, the Navy embarked on an extensive research program to develop new technologies to detect submarines at long ranges. Among the technologies investigated were radar, laser, magnetic, infrared, electronic, electric, hydrodynamic, biologic and sonar (high-, mid- and low frequency). These acoustic and non-acoustic technologies were evaluated in the 2001 FOEIS/EIS and re-evaluated in the 2012 FSEIS/SOEIS. It was concluded that even though no single technology investigated was effective during all tactical and environmental conditions, the low frequency active (LFA) sonar was the most effective and best available technology for reliable long-range detection during most weather conditions, day or night.

As stated in the 2001 FOEIS/EIS, 2007 FSEIS, and reiterated in the 2012 FSEIS/SOEIS, LFA sonar is an augmentation, or adjunct, to the passive (SURTASS) detection system and is planned for use when passive system performance is inadequate. LFA complements SURTASS passive operations by actively acquiring and tracking submarines when they are in quiet operating modes, measuring accurate target range, and re-acquiring lost contacts. Under certain, specific oceanic and target operating conditions,

passive sonar can provide the detection required. However, under environmental conditions found in many ocean areas (such as high ambient noise levels), passive sonar cannot detect quiet targets. Therefore, passive systems alone cannot detect quiet, harder-to-find submarines during all conditions, particularly at long ranges.

Due to concerns raised during a second round of litigation over employment of the SURTASS LFA sonar system and to support issuance of a third five-year Rule under the MMPA for employment of SURTASS LFA sonar systems, DASN(E) determined on 14 November 2008 that the purposes of NEPA and EO 12114 would be furthered by the preparation of an additional supplemental analysis related to the employment of the systems. This analysis takes the form of a new SEIS/SOEIS under NEPA and Executive Order 12114. DASN(E) directed that the new SEIS/SOEIS provide: 1) further analysis of potential additional offshore (greater than 22 km [12 nmi]) biologically important areas (OBIA) in regions of the world where the Navy intends to use the SURTASS LFA sonar systems for routine training, testing, and military operations; 2) further analysis of whether using a greater coastal standoff distance where the continental shelf extends further than current standoff distance is practicable for SURTASS LFA sonar, at least in some

locations; and 3) further analysis of cumulative impacts involving other active sonar sources. Once completed, information from these analyses will be used to assist the Navy in determining how to employ SURTASS LFA sonar, including the selection of operating areas that the Navy requires for routine training, testing, and military operations in annual requests for MMPA LOAs submitted to NMFS.

**Purpose of the SURTASS LFA Sonar FSEIS/SOEIS**

The proposed action herein is the Navy employment of up to four SURTASS LFA sonar systems for routine training, testing, and military operations in the oceanic areas of in the Pacific, Atlantic, and Indian Oceans, and the Mediterranean Sea, as presented in Figure 1-1 (Potential Areas of Operations for SURTASS LFA Sonar Systems) in the 2012 FSEIS/SOEIS for SURTASS LFA Sonar. To reduce adverse effects on the marine environment, areas would be excluded as necessary to prevent 180-decibel (dB) re 1 micro Pascal (Pa) root mean square (rms) sound pressure level (SPL) or greater within 22 km (12 nmi) of any coastline, in offshore biologically important areas (OBIA) during biologically important seasons, and in areas necessary to prevent greater than 145-dB re 1 micro Pa (rms) SPL at known recreational and commercial dive sites.

The purpose of the SURTASS LFA Sonar FSEIS/SOEIS is to:

- 1) address concerns of the U.S. District Court for the Northern District of California in its 6 February 2008 Opinion and Order in relation to compliance with NEPA and MMPA; 2) provide information necessary to support the proposed issuance of MMPA incidental take regulations, the 2012 LOAs, and future LOA as appropriate; and 3) provide additional information and analyses pertinent to the proposed action.

The FOEIS/EIS for SURTASS LFA sonar was completed in January 2001 by the Navy, with NMFS as a cooperating agency, in accordance with the requirements of NEPA and EO 12114. DASN(E) signed the ROD on 16 July 2002 (Federal Register (FR) (67 FR 48145)), authorizing the operational employment of SURTASS LFA sonar systems contingent upon issuance by NMFS of LOAs under the MMPA and incidental take statements (ITS) under ESA for each vessel. The 2001 FOEIS/EIS was augmented by the 2007 Final Supplemental Environmental Impact Statement (FSEIS), and further augmented in the 2012 Final Supplement Environmental Impact Statement/Overseas Environmental Impact Statement (FSEIS/SOEIS).

Additional 2012 FSEIS/SOEIS analyses include: 1) updated literature reviews, especially for fish, sea

turtles, and marine mammals; 2) new subchapter on protected habitats, including ESA Critical Habitat, Essential Fish Habitat, and Marine Protected Areas; 3) updated literature review on commercial fisheries, marine mammal strandings, cumulative effects from anthropogenic oceanic noise, cumulative effects on socioeconomic resources; and 4) mitigation measures, the result of which is an increased number of OBIAAs. Information from these analyses is used to assist the Navy in determining how to employ SURTASS LFA sonar, including the selection of operating areas that the Navy requires for routine training, testing, and military operations in requests for MMPA LOAs submitted to NMFS.

The information and analyses in the SURTASS LFA sonar 2001 FOEIS/EIS and 2007 FSEIS remain valid, except as noted or modified in the 2012 FSEIS/SOEIS. The contents of the 2001 FOEIS/EIS and 2007 FSEIS are incorporated into the 2012 FSEIS/SOEIS by reference, except as noted or modified.

#### SURTASS LFA Sonar System Description

SURTASS LFA sonar is a long-range sonar system that operates in the LF band between 100 and 500 Hertz (Hz). It has both active and passive components. The active component of the system, LFA, is a set of 18 low frequency (LF) acoustic transmitting source elements (called projectors) suspended by cable from underneath an

oceanographic surveillance vessel, such as the USNS IMPECCABLE (T-AGOS 23) and the VICTORIOUS Class (T-AGOS 19 Class) ocean surveillance vessels. The source level of an individual projector is approximately 215 dB re 1 micro Pascal (Pa) at 1 meter (m) (rms) SPL). These projectors produce the active sonar signal or "ping." A "ping," or transmission, can last between 6 and 100 seconds. The time between transmissions is typically 6 to 15 minutes with an average transmission of 60 seconds. Average duty cycle (ratio of sound "on" time to total time) is less than 20 percent. The typical duty cycle, based on historical LFA operational parameters (2003 to 2011), is nominally 7.5 to 10 percent. The SURTASS LFA sonar signal is not a continuous tone, but rather a transmission of waveforms that vary in frequency and duration. The duration of each continuous frequency sound transmission is nominally 10 seconds or less. The signals are loud at the source, but levels diminish rapidly over the first kilometer. As future undersea warfare requirements continue to transition to littoral ocean regions, a compact active system deployable on SURTASS ships was needed for the smaller VICTORIOUS Class platforms (T-AGOS 19 Class). This system upgrade is known as Compact LFA, or CLFA. CLFA consists of smaller, lighter-weight source elements than the current

LFA system, and is compact enough to be installed on the VICTORIOUS Class platforms. The operational characteristics of the compact system are comparable to the existing LFA systems. Therefore, the potential impacts from CLFA are expected to be similar to, and not greater than, the effects from the existing SURTASS LFA sonar system. Hence, the term low frequency active, or LFA, refers to both the existing LFA system and/or the compact (CLFA) systems, unless otherwise specified.

The passive, or listening, component of the system is SURTASS, which detects returning echoes from submerged objects, such as threat submarines, through the use of hydrophones on a receiving array that is towed behind the ship. Advances in passive acoustic technology have led to the development of the SURTASS Twin-Line (TL-29A) horizontal line array (HLA), a shallow water variant of the single line SURTASS system with improved littoral capability. All SURTASS LFA/CLFA vessels have been outfitted with the newer SURTASS TL-29A passive towed array. The SURTASS LFA vessels maintain a minimum speed of 5.6 kilometers (km) per hour (kph) (3 knots) through the water to tow the TL-29A HLA.

## **SUMMARY OF PUBLIC INVOLVEMENT**

On 21 January 2009, the Navy, with NMFS as a cooperating agency, published a Notice of Intent (NOI) in the Federal Register to prepare a SEIS/SOEIS for the employment of SURTASS LFA sonar. The NOI described the decision of DASN(E) to further the purposes of NEPA, support the issuance of a new Final Rule under the MMPA for the taking of marine mammals incidental to operation of SURTASS LFA sonar systems, and to continue the Navy's commitment to environmental stewardship by preparing an additional supplemental analysis for operation of SURTASS LFA sonar. DASN(E) called for the additional supplemental analysis to focus on potential OBIAs in regions of the world's oceans where the sonar systems might be used for routine training, testing, and military operations, as well as the potential for cumulative impacts associated with the use of other active sonar systems, and the potential for a larger coastal standoff distance, where operationally practicable. In the NOI, the Navy and NMFS solicited scoping comments on the above topics to include OBIAs, greater coastal standoff, and cumulative effects. At the end of the 45-day scoping period, no comments were received.

The Navy prepared and filed with the U.S. Environmental Protection Agency (USEPA) a Draft Supplemental Environmental Impact Statement/Supplemental Overseas Environmental Impact Statement (DSEIS/SOEIS) to provide supplemental analyses for the Navy's employment of SURTASS LFA sonar systems. USEPA published their notice of availability (NOA) of the SURTASS LFA sonar DSEIS/SOEIS on 19 August 2011 (EIS No. 20110269) (76 FR 56407). Commencing with the filing of the SURTASS LFA Sonar DSEIS/SOEIS with USEPA, copies of the document were distributed to agencies and officials of Federal, state, and local governments, citizen groups and associations, and other interested parties.

A 60-day public review and comment period on the DSEIS/SOEIS commenced when the NOA was published in the Federal Register on 19 August 2011 and ended on 17 October 2011. Under NEPA regulations, no public hearings or meetings were scheduled by the Navy. There were no timely requests by the public for a meeting or hearing under NEPA regulations. There were no requests for an extension of the comment period. During the comment period, the Navy received a total of five comments from government agencies, organizations, and an individual.

Because of the small number of comments received, each set of comments has been addressed individually. Responses to these comments/questions were drafted and reviewed for scientific and technical accuracy and completeness. The Navy's and NMFS' responses also identify cases in which a specific comment generated a revision to the DSEIS/SOEIS. When existing text of the SURTASS LFA Sonar FSEIS/SOEIS, the 2007 FSEIS, and/or 2001 FOEIS/EIS was deemed an adequate response to a comment, the appropriate chapter, subchapter, and/or appendix was identified.

In May 2012, copies of the FSEIS/SOEIS were distributed to agencies and officials of Federal, state, and local governments, citizen groups and associations, and other interested parties. On 8 June 2012, USEPA published the NOA for the 2012 SURTASS LFA Sonar FSEIS/SOEIS in the Federal Register (77 FR 34041). The 2012 FSEIS/SOEIS was also made available for review at 16 public libraries located in many coastal states, including Hawaii.

The SURTASS LFA Sonar FSEIS/SOEIS is available on the SURTASS LFA Internet website (<http://www.surtass-lfa-eis.com>) for information purposes and will remain so for at least 60 days after publication of the notice of decision and availability of the ROD in the Federal Register.

## **ALTERNATIVES CONSIDERED**

In preparing the 2012 FSEIS/SOEIS, the Navy considered three alternatives, including alternatives that addressed NEPA issues identified in the District Court's 6 February 2008 opinion. In addition to the No Action Alternative, these alternatives took into account the additional analysis contained in the FSEIS/SOEIS on the issues of OBIA and coastal standoff ranges. The alternatives considered in the FSEIS/SOEIS are: 1) No Action Alternative; 2) Alternative 1—Same as the 2007 FSEIS Preferred Alternative; and 3) Alternative 2—Alternative 1 with updated OBIA list.

**No Action Alternative:** Under this alternative, operational deployment of the active component (LFA/CLFA) of SURTASS LFA sonar will not occur. The No Action Alternative is the same as the No Action Alternative presented the 2001 FOEIS/EIS and the 2007 FSEIS.

**Alternative 1:** This alternative is the same as the 2007 FSEIS Alternative 2. It proposes the employment of SURTASS LFA sonar technology with geographical restrictions, to include maintaining SURTASS LFA sonar received levels below 180 dB re 1 micro Pa (rms) SPL within 22 km (12 nmi) of any coastline and within the designated OBIA's (see Table 2-4 of the FSEIS and the Final Rule (50 CFR §216.184(f), 2007) that are outside of 22 km (12 nmi)).

Restrictions for OBIAs are year-round or seasonal, as dictated by the relevant criteria related to marine mammals. SURTASS LFA sonar sound fields will not exceed received levels of 145 dB re 1 micro Pa (rms) SPL within known recreational and commercial dive sites. Monitoring mitigation includes visual, passive acoustic, and active acoustic (High Frequency Marine Mammal Monitoring [HF/M3] sonar) to prevent injury to marine animals when employing SURTASS LFA sonar by providing methods to detect these animals within the LFA mitigation zone and delay/suspend transmissions accordingly.

Alternative 2 (Navy's Preferred Alternative): This alternative is the same as Alternative 1 but with a comprehensive update of the OBIAs. OBIAs are listed in Table 4.26 of the FSEIS/SOEIS and Final Rule (50 CFR 218.234(f)). As noted in the Final Rule there are a total of 22 OBIAs.

The Navy has included an adaptive management component within the framework of the scientific underpinning of this FSEIS/SOEIS that also resides within the rulemaking under the MMPA, which includes the process for modification to mitigation measures based on new scientific data and continuous review of pertinent updates to those data. The Navy, in concert with NMFS, will consider on a case-by-case

basis, new/revised, peer-reviewed, and published scientific data and information from qualified and recognized sources within academia, industry, and government/non-government organizations to determine (with input regarding practicability) whether SURTASS LFA sonar mitigation, monitoring, or reporting measures should be modified (including additions or deletions), if new scientific data indicate that such modifications would be appropriate.

Under the adaptive management process presented in the FSEIS/SOEIS, Alternative 2 proposes that during the annual LOA process under the new MMPA rule the Navy will evaluate potential OBIAs within the proposed operating areas for each ship and incorporate restrictions, as required, into the LOA applications for NMFS' review and action.

#### Evaluation of Alternatives

Each alternative was evaluated and compared against the others in terms of fulfillment of the Navy's validated need for reliable detection of quieter and harder-to-find underwater submarines at long range, and the potential for environmental impacts. The word "employment" as used in this context means the use of SURTASS LFA sonar during routine training and testing, as well as the use of the system during military operations, and constitutes a military readiness activity as defined in the NDAA.

"Employment" does not apply to the use of the system in armed conflict, direct combat support operations, or during periods of heightened threat conditions as determined by the National Command Authorities.

The following conclusions are supported by the analyses addressing the operations of up to four SURTASS LFA sonar systems in the 2001 FOEIS/EIS and 2007 FSEIS, which are incorporated by reference herein except as noted or modified; and the supplementary analyses undertaken in the FSEIS/SOEIS, which also encompass the at-sea operations of up to four systems.

No Action Alternative: Under the No Action Alternative, the SURTASS LFA sonar systems would not be deployed. While the No Action Alternative would avoid environmental effects of employment of SURTASS LFA sonar, the Navy's stated priority ASW need for long-range underwater threat detection would not be realized. The implementation of this alternative would allow potentially hostile submarines to clandestinely threaten U.S. Fleet assets and land-based targets. Without the SURTASS LFA sonar long-range surveillance capability, the reaction times to enemy submarine threats would be greatly reduced and the effectiveness of close-in, tactical systems to neutralize threats would be seriously, if not fatally,

compromised. Because the Navy would not conduct SURTASS LFA sonar operations, marine mammals present in the Atlantic, Pacific, and Indian Ocean, and the Mediterranean Sea would not be incidentally harassed by SURTASS LFA sonar. This alternative would eliminate any potential risk to the environment from the proposed activities.

Alternative 1: Under Alternative 1, the potential impact on any stock of marine mammals from injury is considered to be negligible, and the potential effect on the stock of any marine mammals from significant change in a biologically important behavior is considered to be minimal. Any momentary behavioral responses and possible indirect effects to marine mammals due to potential impacts on prey species are considered not to be biologically significant effects. Any auditory masking in mysticetes, odontocetes, or pinnipeds is expected to be temporary and not severe. Further, the potential impact on any stock of fish or sea turtles from injury is also considered to be negligible, and the effect on the stock of any fish or sea turtles from significant change in a biologically important behavior is considered to be negligible to minimal. Any auditory masking in fish or sea turtles is expected to be temporary in duration and of minimal significance.

Alternative 2 (Navy's Preferred Alternative): Under Alternative 2, the Navy would implement additional geographic restrictions on SURTASS LFA sonar operations through the inclusion of more LFA marine mammal OBIAs. The conclusions relative to Alternative 1 regarding the potential for injury to a marine animal or significant change in a biologically important behavior of a marine animal from the operation of SURTASS LFA sonar would also apply to this alternative. Potential effects to marine animals from SURTASS LFA sonar operations under this alternative would be expected to be less when compared to Alternative 1 conclusions due to the more restricted geographic area available for operations of SURTASS LFA.

#### **ENVIRONMENTAL IMPACTS**

In the SURTASS LFA Sonar FSEIS/SOEIS, the Navy analyzed the potential impacts of the employment of up to four SURTASS LFA sonar systems, with certain geographical restrictions and monitoring mitigation designed to reduce potential adverse effects on the marine environment, in several resource areas. Among the resource areas covered were potential impacts on marine mammals, fish, sea turtles, human divers and swimmers, commercial and recreational fishing, subsistence use, whale watching,

marine mammal research, and exploration activities. This ROD summarizes the potentially significant, but mitigable impacts associated with the decision and the implementation of the selected alternative.

The types of potential effects on marine animals from SURTASS LFA sonar operations can be broken down into several categories:

**Non-auditory injury:** This includes the potential for resonance of the lungs/organs, tissue damage, and mortality from direct acoustic impacts on tissue, indirect acoustic impact on tissue surrounding a structure, and acoustically mediated bubble growth within tissues from supersaturated dissolved nitrogen gas. This constitutes Level A "harassment" under the MMPA.

**Permanent threshold shift (PTS):** A severe situation that occurs when underwater sound intensity is very high or of such long duration that the result is a permanent hearing loss on the part of the listener, which is referred to as PTS. This constitutes Level A "harassment" under the MMPA, as does any injury to a marine mammal. The intensity and duration of an underwater sound that will cause PTS varies across species and even among individual animals.

PTS results in a permanent elevation in hearing threshold—  
an unrecoverable reduction in hearing sensitivity.

Temporary threshold shift (TTS): Underwater sounds of sufficient loudness can cause a temporary condition known as TTS in which an animal's hearing is impaired for a period of time. After termination of the sound, normal hearing ability returns over a period that may range anywhere from minutes to days, depending on many factors, including the intensity and duration of exposure to the sound. Hair cells may be temporarily affected by exposure to the sound, but they are not permanently damaged or killed. Thus, TTS is not considered an injury, although during a period of TTS, animals may be at some disadvantage in terms of detecting predators or prey.

Behavioral change: Various vertebrate species are affected by the presence of intense underwater sounds in their environment. Behavioral responses to these sounds vary from subtle changes in surfacing and breathing patterns, to cessation of vocalization, to active avoidance or escape from regions of high sound levels. For military readiness activities, such as the use of SURTASS LFA sonar, Level B "harassment" under the MMPA is defined as any act that disturbs or is likely to disturb a marine mammal by

causing disruption of natural behavioral patterns to a point where the patterns are abandoned or significantly altered. Behaviors include migration, surfacing, nursing, breeding, feeding, and sheltering. In a 2005 report the National Research Council (NRC) discusses biologically significant behaviors and possible effects. It states that an action or activity becomes biologically significant to an individual animal when it affects the ability of the animal to grow, survive, and reproduce. These are the effects on individuals that can have population-level consequences and affect the viability of the species. While sea turtles and fish do not fall under MMPA harassment definitions, like marine mammals, it is possible that loud sounds could disturb the behavior of fish and sea turtles, resulting in similar consequences as for marine mammals.

Masking and Impaired Communications: The presence of intense underwater sounds in the environment can potentially interfere with an animal's ability to hear sounds of relevance to it and reduce acoustic information essential to conspecific communications. This effect, known as "auditory masking," could interfere with the animal's ability to detect biologically-relevant sounds, such as those produced by predators or prey, thus increasing the

likelihood of the animal not finding food or being preyed upon.

Stress: NRC (2003) discussed acoustically-induced stress in marine mammals and stated that sounds resulting from one-time exposure are less likely to have population-level effects than sounds that animals are exposed to repeatedly over extended periods of time. Because of the intermittent nature of LFA transmissions, the potential for acoustically-induced stress from SURTASS LFA sonar is not a reasonably foreseeable significant adverse impact on marine animals.

#### Environmental Impact Criteria

Initially, it was determined there was potential for injurious effects within short ranges from the SURTASS LFA sonar. This area was designated as the LFA Mitigation Zone and covers a volume of water ensonified to a level at or above 180 dB re 1 micro Pa (rms) SPL by the SURTASS LFA sonar transmit array. Under normal operating conditions, this zone will normally vary between the ranges of 0.75 to 1.0 km (0.40 to 0.54 nmi) from the source array, ranging over a depth of approximately 87 to 157 m (285 to 515 ft) with the center of the array at a typical depth of 122 m (400 ft).

For the purposes of the SURTASS LFA sonar analyses presented in the 2012 FSEIS/SOEIS, all marine animals exposed to underwater sound at or above 180 dB re 1 micro Pa (rms) SPL received level (RL) are evaluated as if they are injured, which includes non-acoustic injury and permanent hearing loss. Based on recent scientific literature as presented in the FSEIS/SOEIS, actual injury would not occur unless animals were exposed to sound at a received level significantly greater than 180 dB re 1 micro Pa (rms) SPL. However, the analysis in the 2012 FSEIS/SOEIS continued to define LFA's injury level as 180 dB re 1 micro Pa (rms) RL or greater. This value was used to maintain consistency in the analytical methodologies previously utilized in the 2001 FOEIS/EIS and 2007 FSEIS, in incidental take applications under the MMPA, and in consultations under the ESA. This should be viewed as a conservative value. The probability of an injury occurring is negligible because of the tripartite monitoring (visual, passive acoustic and active acoustic) and delay/suspension protocols for active transmissions that will be used whenever SURTASS LFA sonar is transmitting. (See "Mitigation" below for further details.)

This FSEIS/SOEIS is the third NEPA analysis of the potential impacts of the employment of SURTASS LFA sonar.

These analyses have determined that the potential impact on any stock of marine mammal from injury is considered to be negligible, and the effect on the stock of any marine mammal from significant change in a biologically important behavior is considered to be minimal. Any momentary behavioral responses and possible indirect impacts to marine mammals due to potential impacts on prey species are not considered as biologically significant effects. Any auditory masking in mysticetes, odontocetes, or pinnipeds is not expected to be severe and would be temporary. Further, the potential impact on any stock of fish or sea turtles from injury is also considered to be negligible, and the effect on the stock of any fish or sea turtles from significant change in a biologically important behavior is considered to be negligible to minimal. Any auditory masking in fish or sea turtles is expected to be of minimal significance and, if occurring, would be temporary.

During the first two analyses in the 2001 FOEIS/EIS and 2007 FSEIS, the U.S. Navy sponsored independent scientific research on the potential effects of SURTASS LFA sonar on human divers, marine mammals, and fish. The Naval Submarine Medical Research Laboratory conducted a series of in-water tests and laboratory experiments that determined the damage risk threshold for Navy divers was a received level of 160

dB re 1 micro Pa (rms) SPL and a safe exposure limit for recreational and commercial divers was 145 dB re 1 micro Pa (rms) SPL. The Low Frequency Sound Scientific Research Program (LFS SRP) field research in 1997-98 provided important results on and insights into the types of responses of whales to SURTASS LFA sonar signals. The results of the LFS SRP confirmed that some portion of the whales exposed to the SURTASS LFA sonar responded behaviorally by changing their vocal activity, moving away from the source vessel, or both, but the responses were short-lived. Scientific results from fish controlled exposure experiments (CEE) with LFA signals indicate that the opportunity for a fish or a school of fish to be exposed to sound pressure levels from SURTASS LFA sonar transmissions that could cause injury is negligible.

Under the selected alternative, the potential impact on any stock of marine mammals from injury is considered negligible, and the potential effect on the stock of any marine mammal from significant change in a biologically important behavior is considered minimal. However, because incidental takes are anticipated, the Navy is requesting LOAs from NMFS under the MMPA, for each SURTASS LFA sonar system for the taking of marine mammals incidental to the employment of SURTASS LFA sonar during routine training and

testing and during military operations, which constitute military readiness activities. The Final Rule and regulations governing the issuance of the LOAs authorizing the taking of marine mammals incidental to SURTASS LFA sonar (Docket No. 110808485-2148-02) were approved on 13 August 2012, effective from 15 August 2012 through 15 August 2017. In the Final Rule, NMFS determined that the incidental taking of marine mammals resulting from SURTASS LFA sonar operations described by Alternative 2 of the 2012 FSEIS/FOEIS and implemented by this ROD would have a negligible impact on the affected marine mammal species or stocks over the 5-year period of LFA sonar operations covered by the Final Rule and would not have an unmitigable adverse impact on the availability of such marine mammals for subsistence uses as identified in MMPA section 101(a) (5) (A) (i), 16 USC 1371(a) (5) (A) (i).

The Navy has also consulted with NMFS under Section 7 of the ESA concerning the possible incidental taking of listed species, including marine mammals, sea turtles, and fish. In a Biological Opinion dated 13 August 2012, NMFS concluded that employment of the SURTASS LFA sonar as described by Alternative 2 of the 2012 FSEIS/FOEIS and implemented by this ROD is not likely to jeopardize the continued existence of potentially affected endangered and

threatened species, or to destroy or adversely modify critical habitat designated for those species.

#### Potential Impacts on Fish

There have been several studies on the effects of both Navy sonar and seismic airguns that are relevant to potential effects of SURTASS LFA sonar on Osteichthyes (bony fish). In the most pertinent of these, the Navy funded independent scientists to analyze the effects of SURTASS LFA sonar on fish. Results from this study were originally presented in the FSEIS. The findings from this study have been presented at conferences, peer-reviewed and published in scientific journals. These results have now been updated with a published study that examined in detail the effects of SURTASS LFA sonar on fish physiology. Several other studies have assessed the effects of seismic airguns on fish. While most research before 2001 studied the effects of sounds using pure tones of much longer duration than the SURTASS LFA sonar signals, many of the more recent studies provide insight into the potential impact of each of these sounds on fish. With the caveat that only a few species have been examined in these studies, the investigations found little or no effect of high intensity sounds on a number of taxonomically and morphologically diverse species of fish.

The Navy-funded study on the effects of SURTASS LFA sonar sounds on three species of fish (rainbow trout, channel catfish, and hybrid sunfish), also examined long-term effects on sensory hair cells of the ear. In all species, even up to 96 hours post-exposure, there were no indications of damage to sensory cells. There was no mortality as a result of sound exposure, even when fish were maintained for days post-exposure.

SURTASS LFA sonar operations are geographically restricted such that SURTASS LFA sonar RLs are less than 180 dB re 1 micro Pa (rms) SPL within 22 km (12 nmi) from coastlines and within OBIAs during biologically important seasons. If SURTASS LFA sonar operations occur in proximity to fish stocks, members of some fish species could potentially be affected by LF sounds. Even then, the impact on fish is likely to be minimal to negligible since only an inconsequential portion of any fish stock would be present within the 180-dB SPL sound field at any given time. Moreover, results from direct studies of the effects of LFA sounds on fish provide evidence that SURTASS LFA sonar sounds at relatively high received levels (up to 193 dB re 1 micro Pa [rms] SPL) have minimal impact on at least the species of fish that were studied. Nevertheless, the 180-dB SPL criterion is maintained for the analyses

presented in the 2012 FSEIS/SOEIS. This value is highly conservative and protective of fish. Therefore, SURTASS LFA sonar operations are not likely to affect fish populations and, thus, are not likely to affect commercial and recreational fisheries.

#### Potential Impacts on Sea Turtles

Nearly all species of sea turtles occur in low numbers over most of their ranges, resulting in distributions in the open ocean that are greatly and widely dispersed. In the 2012 FSEIS/SOEIS, the conservative SPL threshold for injury to sea turtles is 180 dB re 1 micro Pa (rms) SPL, which is coincident with the LFA mitigation zone, which covers a volume ensonified to a received level equal to or greater than 180 dB re 1 micro Pa (rms) around the SURTASS LFA sonar array, which is centered at a nominal depth of 122 m (400 ft) below the water surface. The small size of the LFA mitigation zone relative to the enormous area and volume of the ocean, as well as the depth of the LFA mitigation zone, are important considerations when evaluating the potential for impacts on sea turtles.

Most sea turtle species spend a high percentage of their lives in the upper 100 m (328 ft) of the water column, particularly if they are transiting between foraging and nesting grounds in the open ocean. Sea turtles

may be found in the open ocean or oceanic environment not only as adults migrating between nesting and foraging habitats but also during early life stages (post-hatchlings or juveniles). Thus, most frequently, sea turtles would occur in the water column above the LFA mitigation zone and, thus, would not encounter LFA transmissions at or above 180 dB re 1 micro Pa (rms) SPL, the threshold at which they are treated as though they were injured.

In the shallow, near-shore continental shelf waters where foraging and nesting/breeding turtles would most often occur, SURTASS LFA sonar operations are geographically constrained due to the coastal standoff range (no received levels at or above 180 dB re 1 micro Pa (rms) SPL within 22 km [12 nmi] of any coastline). Also, visual and acoustic monitoring measures are conducted during LFA sonar transmissions, which further reduces the potential for surfaced animals potentially diving into the LFA mitigation zone. The position of the HF/M3 sonar system just above the top of the LFA sonar array means that a sea turtle would have to swim from the surface through the HF/M3 sonar detection zone to enter the 180-dB LFA mitigation zone, making an acoustic detection of the animal likely. While visual monitoring is less effective for sea turtles due to their smaller size and low surface profile,

visual sightings of sea turtles have occurred during mitigation monitoring of SURTASS LFA sonar and resulted in the suspension of the sonar to ensure safety of the observed turtle. If a sea turtle, or an active HF/M3 contact that may be a sea turtle, is detected, SURTASS LFA sonar active transmission are delayed or suspended based on mitigation protocols.

In addition to the water column usage by sea turtles, the geographic restrictions for LFA sonar use, and the mitigation measures that together result in a reduced potential for injury to sea turtles, other operational parameters of the sonar further reduce the already small likelihood for injury to individual sea turtles. These operational parameters include the small number of SURTASS LFA sonar systems to be deployed (no more than four under the requested five-year Rule), the narrow bandwidth of the SURTASS LFA sonar active signal (approximately 30 Hz), the slow speed at which the SURTASS LFA vessels travel (less than 5 knots), and the low duty cycle of the sonar system (7.5 to 10 percent). Any masking effects of the sonar would be temporary and not significant.

For these reasons, the potential for SURTASS LFA sonar operations to expose individual sea turtles to injurious sound levels or to cause TTS and/or behavioral changes is

considered negligible. Due to the small likelihood for injury to individual sea turtles, the potential impact is not significant to sea turtles on a stock level.

Therefore, the operation of SURTASS LFA sonar would not adversely impact sea turtle stocks.

#### Potential Impacts on Marine Mammals

Potential effects on marine mammals from SURTASS LFA sonar operations include: 1) non-auditory injury; 2) permanent loss of hearing; 3) temporary loss of hearing; 4) behavioral change; and 5) masking (including impaired communications). Since the 2007 FSEIS, a comprehensive review of recent literature has provided: 1) reviews of contemporary knowledge on the sources and effects of underwater anthropogenic sound on marine mammals, 2) proposed noise exposure criteria for marine mammals, and 3) information concerning acoustic masking and metrics for quantifying the influence of anthropogenic noise sources on whales that communicate in the LF band. These papers, additional literature reviews, and research indicate that there are no new data that contradict any of the assumptions or conclusions in the 2001 FOEIS/EIS and the 2007 FSEIS. The 2012 FSEIS/SOEIS provides a summary of the recent literature reviews and the overall potential for effects of SURTASS LFA sonar operations on marine mammals.

The potential effects from SURTASS LFA sonar operations on any stock of marine mammals from injury (non-auditory or permanent loss of hearing) are considered negligible, and the potential effects on the stock of any marine mammal from temporary loss of hearing or behavioral change (significant change in a biologically important behavior) are considered minimal. Any auditory masking in marine mammals due to LFA sonar signal transmissions is not expected to be severe and would be temporary. The likelihood of LFA sonar transmissions causing marine mammals to strand is negligible.

**Risk Assessment:** The goal of the risk assessment is to analyze the proposed action and alternatives for the employment by the U.S. Navy of up to four SURTASS LFA sonar systems for routine training, testing, and military operations in oceanic areas. Based on current U.S. national security and operational requirements, routine training and testing as well as military operations using these sonar systems could occur in the Pacific, Atlantic, and Indian Oceans, and the Mediterranean Sea. These potential operating areas are the same as those assessed in the 2001 FOEIS/EIS and 2007 FSEIS except for additional OBIAs. To reduce adverse effects on the marine environment, areas would be excluded to prevent 180-dB SPL

RL or greater in coastal waters within 22 km (12 nmi) of land and in OBIAs during biologically important seasons; to prevent greater than 145-dB SPL RL at known recreational and commercial dive sites; to prevent exposure of marine mammals and sea turtles to 180 dB SPL RL or greater within the LFA mitigation zone by monitoring for their presence with visual, passive acoustic, and active acoustic mitigation methods, and delaying/suspending transmissions when one of these animals enters the zone; planning missions to ensure that the potential annual takes are within limitations required by the Rule and LOAs; and reporting quarterly to NMFS on all SURTASS LFA sonar active operations.

Risk assessments must provide decision-makers and regulators results that demonstrate: 1) under the MMPA, the total taking will have a negligible impact on the marine mammal species or stock(s), and will not have an unmitigable adverse impact on the availability of species or stock(s) for subsistence uses; further, the information can be used to inform the permissible methods of taking and requirements pertaining to the mitigation, monitoring, and reporting of such takings (including consideration of personnel safety, practicability of implementation, and impact on the effectiveness of military readiness

activities); and 2) under the ESA, employment of SURTASS LFA sonar is not likely to jeopardize the continued existence of threatened/endangered marine species or result in the destruction or adverse modification of critical habitat.

Since it was neither reasonable nor practicable to model all areas of the world's oceans in which SURTASS LFA sonar could potentially operate, the initial risk assessment in the 2001 FOEIS/EIS analyzed 31 potential operating sites. This initial analytical process was refined to provide sensitivity and risk analyses for annual LOA applications sufficient to identify and select potential SURTASS LFA sonar mission areas that meet the restrictions on marine mammal/animal impacts from SURTASS LFA sonar required under the NMFS 5-yr Rule and ESA section 7 consultation and are consistent with the Navy's operational readiness requirements. These analyses were used to provide NMFS with reasonable and realistic pre- and post-operational risk estimates for marine mammal stocks in the proposed SURTASS LFA sonar operating areas during the annual period of the LOAs. This process was documented in the 2007 FSEIS and 2012 FSEIS/SOEIS.

The modeling of the 31 sites represented the upper bound of potential effects (both in terms of possible

underwater acoustic propagation conditions, and marine mammal population and density) that could be expected from operation of the SURTASS LFA sonar system. The conservative assumptions of the 2001 FOEIS/EIS and 2007 FSEIS are still valid. Moreover, there are no new data that contradict any of the assumptions or conclusions made in the 2001 FOEIS/EIS and 2007 FSEIS.

In the 2012 FSEIS/SOEIS's supplemental analysis, 19 additional potential SURTASS LFA sonar operating sites have been analyzed. These sites were chosen because they represent, based on today's political climate, areas where SURTASS LFA sonar could potentially conduct testing, training, or military operations during the 5-year period of the next MMPA Rule.

Under the MMPA Rule, the Navy must apply for annual LOAs. In these applications, the Navy projects where it intends to operate for the period of the next annual LOAs, and provides NMFS with reasonable and realistic risk estimates for marine mammal stocks in the proposed SURTASS LFA sonar mission areas. The LOA application analytical process uses a conservative approach by integrating mission planning needs and a cautious assessment of the limited data available on specific marine mammal populations, seasonal habitat, and activity. Because of the use of

conservative assumptions, it is likely that the aggregate effect of such assumptions is an overestimation of risk—a prudent approach for environmental conservation when there are data gaps and other sources of uncertainty. The total annual risk for each stock of marine mammal species is estimated by summing a particular species' risk estimates within that stock, across SURTASS LFA sonar mission areas. Each stock, for a given species, is then examined. Based on this approach, the highest total annual estimated risk (upper bound) for marine mammal species' stocks are provided in the LOA applications.

Information on how the density and stock/abundance estimates are derived for the selected SURTASS LFA sonar mission areas is provided in the LOA applications. These data are derived from current, available published source documents, and provide general information for each mission area with species-specific information on the marine mammals that could potentially occur in that area, including estimates for their stock/abundance and density.

Estimates of the percentage of marine mammal stocks affected by SURTASS LFA sonar operations in the 19 potential operating areas, for the seasons specified, have been derived for the FSEIS/SOEIS. The estimated stock values support the conclusion that estimates of potential

effects to marine mammal stocks are below the conditions delineated by NMFS in the LOAs issued under the 2007 Final Rule.

#### NMFS 1-km Buffer Zone Restrictions

In the 2007 Final Rule, NMFS required a 1-km (0.54-nmi) buffer zone operational restriction. In the Proposed Rule for the period 2012 to 2017, NMFS also proposes that the SURTASS LFA sonar sound field does not exceed 180 dB re 1 micro Pa (rms) SPL at a distance of 1 km (0.54 nmi) beyond the LFA mitigation zone and 1 km (0.54 nmi) seaward of the outer boundary of any OBIA. The mitigation measures presented in this document include this 1-km buffer zone requirement.

The 1-km (0.54 nmi) buffer zone operational restriction has proven to be practical under the current operations, but the analysis in the 2007 SEIS demonstrated that it did not perceptibly change the potential for adverse impacts below 180-dB RL. The differences in the number of animals affected were insignificant. Thus, the removal of this interim operational restriction would not appreciably change the percentage of animals potentially affected. However, NMFS has again included the 1-km buffer zone in the Rule for SURTASS LFA sonar, and the Navy will adhere to this restriction.

## Additional Environmental Impact Analysis

As stated above, the purpose of the 2012 FSEIS/SOEIS is to address recent concerns raised during litigation over employment of the SURTASS LFA sonar system, and to support issuance of a third five-year Rule under the MMPA for employment of SURTASS LFA sonar systems. The 2012 FSEIS/SOEIS provides further analyses of the following: 1) potential additional OBIAs (greater than 22 km [12 nmi]) in regions of the world where the Navy intends to use the SURTASS LFA sonar systems for routine training, testing, and military operations, 2) whether using a larger coastal standoff distance where the continental shelf extends further than current standoff distance is practicable for SURTASS LFA sonar, at least in some locations, and 3) potential cumulative impacts from concurrent use of SURTASS LFA sonar with other active sonar sources.

### Additional Offshore Biologically Important Areas (OBIA):

OBIAs were initially defined in the 2001 FOEIS/EIS as those areas of the world's oceans outside of 22 km (12 nmi) of a coastline where marine animals of concern (those animals listed under the ESA and/or marine mammals) congregate in high densities to carry out biologically important activities. These areas included migration corridors; breeding and calving grounds; and feeding grounds.

NMFS revised the screening criteria for the 2012 FSEIS/SOEIS and the 2012 Rule to determine an area's eligibility to be considered as a nominee for an OBIA for marine mammals. OBIA screening criteria now are: (1) areas with: (a) high densities of marine mammals; or (b) known/defined breeding/calving grounds, foraging grounds, migration routes; or (c) small, distinct populations of marine mammals with limited distributions; and (2) areas that are outside of the coastal standoff distance and within potential operational areas for SURTASS LFA (i.e., greater than 22 km (13.6 mi; 12 nmi) from any shoreline and not in polar regions). These OBIA criteria differ from the criteria in the 2001 FOEIS/EIS (as continued in the 2007 SEIS) and the 2007 MMPA Final Rule in two respects. First, under the 2001 FOEIS/EIS, 2007 SEIS, and the 2007 Final Rule, an area could be designated as an OBIA only if it met a conjunctive test of being an area where: (a) marine mammals congregate in high densities, and (b) for a biologically important purpose. Under the new NMFS criteria, high density alone can be sufficient. Second, the new criteria include an additional criterion that, standing alone, could be a basis for designation; i.e., "small, distinct populations with limited distributions." The detailed analysis of the OBIAs (for marine mammals and the

potential for non-marine mammal OBIA) is presented in Subchapter 4.5 and Appendix D of the 2012 FSEIS/SOEIS.

As a result of this further analysis, NMFS concluded that there was adequate biological basis to designate 22 SURTASS LFA sonar marine mammal OBIA. The Navy also reviewed the potential OBIA to assess personnel safety, practicality of implementation, and impacts on the effectiveness of SURTASS LFA sonar testing, training, and military operations. The proposed Southern California Bight OBIA was determined by the Navy not to be practicable based upon current naval operations in the Southern California ranges. No other issues were found that would affect the practical implementation of the other 21 SURTASS LFA sonar marine mammal OBIA. These OBIA, as part of a comprehensive suite of LFA mitigation measures, will further reduce the potential for effects from SURTASS LFA sonar. Consistent with the current 2007 Rule, these LFA marine mammal OBIA are not intended to apply to other Navy activities and sonar operations.

Based on comments received during the comment periods for the Proposed Rule, NMFS analyzed the 2011 Second Edition of "Marine Protected Areas for Whales, Dolphins and Porpoises" by Erich Hoyt, and other areas received from public comments. After reviews by the Navy and NMFS,

another LFA marine mammal OBIA was added. The Abrolhos Bank off the coast of Brazil was designated as a LFA marine mammal OBIA for humpback whale breeding/calving effective August through September in the Final Rule, increasing the final number of designated OBIA's to 22.

Practicability of Greater Coastal Standoff: The Navy also used the OBIA analysis to consider (based on the best available scientific information and operational practicability) whether dual criteria should apply to the coastal exclusion zones in some locations where the shelf (less than or equal to 200 m [656 ft] depth) extends farther than the current 22 km (12 nmi) coastal standoff range. This analysis was a part of the OBIA analysis (Subchapter 4.5 and Appendix D in the 2012 FSEIS/SOEIS), because NMFS and the Navy considered the biological importance of coastal areas outside the current 22 km (12 nmi) coastal standoff range and with respect to those areas on the shelf outside the coastal standoff range that met the OBIA criteria, their practicability for SURTASS LFA sonar operations. For example, of the initial listing of 73 recommended LFA marine mammal OBIA's by NMFS' expert panelists, 32 were either completely or partially within shelf waters and outside of the coastal standoff range. After analyses and rankings, NMFS and the Navy agreed on 21

SURTASS LFA sonar OBIAs for the MMPA proposed rulemaking. Of the 21 OBIAs, 17 included important areas for coastal protection, such as continental shelf/slope areas and similar coastal areas. As noted above, NMFS later added a 22nd OBIA, Abrolhos Bank that is an extension of the Brazilian continental shelf.

Potential Cumulative Impacts from Concurrent Use of SURTASS LFA Sonar with Other Active Sonar Sources: Although the SURTASS LFA and mid-frequency active (MFA) sonars (AN/SQS 53C and AN/SQS 56) are similar in the underlying transmission types, specifically frequency-modulated (FM) sweeps and continuous wave (CW) transmissions, LFA and MFA sonars are dissimilar in other respects (source level, pulse length, inter-pulse time, center frequency, bandwidth, source depth). In addition to these multiple differences, the duty cycle, (i.e., the amount of time during sonar operations that the sonar is actually transmitting), is different for SURTASS LFA sonar as opposed to MFA sonar. During SURTASS LFA sonar operations, LFA sonar transmits approximately 10 percent of the time (nominally 1 minute out of 10). During MFA sonar operations, MFA sonar transmits approximately 1.7 percent of the time (nominally 1 second out of 60). This means that for any given period of time that both SURTASS LFA and

MFA sonars are operating concurrently, the LFA 60-sec transmission will be overlapped by 1 sec of MFA transmission, or 1.7 percent of the 60-sec LFA ping (1 sec/60 sec). During the 10-min LFA transmission cycle, the most an animal could be simultaneously exposed from both transmissions is 1 sec for every 600 sec, or about 0.17 percent of the time that both sonars are operating.

The ocean volumes of Level A harassment RLs for each source are relatively small (1 km [0.54 nmi] radius or less). It is not reasonably foreseeable that SURTASS LFA and MFA sonars would operate simultaneously within ranges less than 9.3 km (5 nmi). Thus, it is not reasonably foreseeable that the Level A harassment volumes of the two sonars could ever overlap during simultaneous transmissions.

The results of two separate analysis methodologies, parametric analysis and underwater acoustic model analysis, were consistent in their conclusions that concurrent MFA/SURTASS LFA sonar operations produce no level B harassment risk greater than that obtained by simply adding the risks from the individual sources. Therefore, two separate analytic approaches have concluded that there is no potential increase in risk for Level B harassment from concurrent MFA/SURTASS LFA sonar operations.

## Marine Mammal Strandings

The use of SURTASS LFA sonar was not associated with any of the reported 27 mass stranding events or unusual mortality events (UME) that occurred globally between 2006 and early 2010. There is no evidence that SURTASS LFA sonar transmissions resulted in any difference in the stranding rates of marine mammals in Japanese coastal waters adjacent to SURTASS LFA sonar operating areas. As reported previously in the 2001 FOEIS/EIS and 2007 FSEIS and further documented in the 2012 FSEIS/SOEIS, the employment of SURTASS LFA sonar is not expected to result in any sonar-induced strandings of marine mammals. Given the large number of natural factors that can result in marine mammal mortality, the high occurrence of marine mammal strandings, and the many years of SURTASS LFA sonar operations without any reported associated stranding events, the likelihood of SURTASS LFA sonar transmissions causing marine mammals to strand is negligible.

## Subsistence Use

The possible employment of SURTASS LFA sonar near coastal areas, such as the Gulf of Alaska or the coast of Washington or Oregon, will not cause abandonment of any subsistence harvest/hunting locations, will not displace any subsistence users, and will not place physical barriers

between marine mammals and the hunters. No mortalities of marine mammals have been associated with the employment of SURTASS LFA sonar, and the Navy undertakes a suite of proven mitigation measures whenever SURTASS LFA sonar is actively transmitting.

#### Cumulative Impacts

The operations of up to four SURTASS LFA sonars are evaluated in the 2012 FSEIS/SOEIS for the potential for cumulative effects in the following foreseeable areas: 1) anthropogenic oceanic noise levels; 2) injury and lethal takes from anthropogenic causes; 3) socioeconomics; and 4) cumulative effects from concurrent LFA and MFA sonar operations.

Given the information provided in the 2012 FSEIS/SOEIS, the potential for cumulative effects from the operations of up to four SURTASS LFA sonars has been addressed by limitations proposed for employment of the systems (i.e., geographical restrictions, monitoring mitigation, and delay/shutdown protocols). Even if considered in combination with other underwater sounds, such as commercial shipping, other operational, research, and exploration activities (e.g., acoustic thermometry, hydrocarbon exploration and production), recreational water activities, commercial and military sonars, and naturally-

occurring sounds (e.g., storms, lightning strikes, subsea earthquakes, underwater volcanoes, whale vocalizations, etc.), the proposed four SURTASS LFA sonar systems do not add appreciably to the underwater sounds to which fish, sea turtles, marine mammals, and human divers are exposed. Because LFA transmissions will not significantly increase anthropogenic oceanic noise and the potential for masking is negligible, cumulative effects related to the potential for inducing stress from the proposed four SURTASS LFA sonar systems are not a reasonably foreseeable significant adverse impact on marine animals. Moreover, SURTASS LFA sonar is not likely to cause injury or lethal takes of marine mammals or other marine animals. SURTASS LFA sonar operations are not likely to affect commercial and recreational fisheries, or research and exploration activities; and there is no reasonably foreseeable likelihood of affecting recreational diving, swimming, snorkeling, or whale watching. Analysis of the potential impacts from concurrent LFA and MFA sonar operations demonstrates that the overall risk of Level A and Level B harassment is no greater than that obtained by simply adding the risks from the individual LFA and MFA sources. Therefore, cumulative effects from the operation of up to

four SURTASS LFA sonar systems are not a reasonably foreseeable significant adverse impact on marine animals.

#### **MITIGATION**

All practicable means to avoid or minimize environmental harm have been adopted through the incorporation of mitigation measures into operation of the SURTASS LFA sonar. The objective of these mitigation measures is to effect the least practicable adverse impact on marine mammal species or stocks and to avoid risk of injury to marine mammals, sea turtles, and human divers. These objectives are met by: 1) ensuring that coastal waters within 22 km (12 nmi) of shore (including islands) are not exposed to SURTASS LFA sonar signal received levels (RL) equal to or greater than 180 dB re 1 micro Pa (rms) SPL; 2) ensuring that no offshore biologically important areas (OBIA) are exposed to SURTASS LFA sonar signal RLs equal to or greater than 180 dB re 1 micro Pa (rms) SPL during biologically important seasons; 3) minimizing exposure of marine mammals and sea turtles to SURTASS LFA sonar signal RLs below 180 dB re 1 micro Pa (rms) (SPL) by monitoring for their presence and delaying/suspending transmissions when one of these animals enters the LFA mitigation zone; and 4) ensuring that no known recreational

or commercial dive sites are subjected to SURTASS LFA sonar signal RLs greater than 145 dB re 1 micro Pa (rms) (SPL).

In the Proposed Rule for the period 2012 to 2017, NMFS proposes a 1-km (0.54-nmi) buffer zone operational restriction so that the SURTASS LFA sonar sound field does not exceed 180 dB re 1 micro Pa received level at a distance of 1 km (0.54 nmi) beyond the LFA mitigation zone and 1 km (0.54 nmi) seaward of the outer boundary of any OBIA. The mitigation measures presented for SURTASS LFA sonar will include this 1-km buffer zone requirement.

Additionally, monitoring will take place during operations to prevent injury to marine animals. This monitoring will take three forms. First, visual monitoring for marine mammals and sea turtles will be conducted from the vessel during daylight hours by personnel trained to detect and identify marine mammals and sea turtles. Monitoring will begin 30 minutes before sunrise for ongoing missions or 30 minutes before SURTASS LFA sonar is deployed and continue until 30 minutes after sunset or until the SURTASS LFA sonar have been recovered. Second, passive acoustic monitoring using the SURTASS array will listen for sounds generated by marine mammals as an indicator of their presence when SURTASS is deployed. Finally, active acoustic monitoring will take place using the HF/M3 sonar,

which is a Navy-developed, enhanced high frequency commercial sonar to detect, locate, and track marine mammals that may pass close enough to the SURTASS LFA sonar's transmit array to enter the 180-dB SPL sound field (LFA mitigation zone). HF/M3 sonar 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. Whenever a marine mammal or sea turtle is detected within the LFA mitigation zone (180-dB SPL sound field) or within the 1-km buffer zone beyond the LFA mitigation zone (operational restriction per NMFS Final Rule), the Officer in Charge will order the immediate delay or suspension of SURTASS LFA sonar transmissions, until the animal is determined to have moved beyond the buffer zone.

The startup of the HF/M3 sonar will involve a ramp-up from a source level of approximately 180 dB SPL to ensure there is no inadvertent exposure of local animals to RLs of 180 dB SPL and above. If the operating area is found to be clear, the source level will be increased in 10-dB steps until full power (if required) is attained, at which time the operator will adjust the HF/M3 sonar controls as necessary to optimize system performance. The HF/M3 sonar

and its operating protocols were designed to minimize potential effects on marine animals.

The HF/M3 sonar operates with a similar power level (220 dB re: 1 micro Pa at 1 m (rms) SPL), signal type and frequency (30 to 40 kilohertz [kHz]) as high frequency "fish finder" type sonars used worldwide by both commercial and recreational fishermen. The HF/M3 sonar is located near the top of the ship's SURTASS LFA sonar vertical line array. Its computer terminal for data acquisition, processing and display is located in the SURTASS Operations Center.

Analysis and testing of the HF/M3 sonar operating capabilities indicate that this system substantially increases the probability of detecting marine mammals that may pass close enough to the SURTASS LFA sonar's transmit array to enter the 180-dB SPL sound field (LFA mitigation zone) and provides excellent monitoring capability (particularly for medium to large marine mammals) beyond the LFA mitigation zone, in the 1-km buffer zone. The system's ability to detect marine mammals of various sizes has been verified in several sea trials. Testing of the HF/M3 sonar, as documented in the 2001 FOEIS/EIS and the 2007 FSEIS, has demonstrated a probability of detection

above approximately 99 percent within the LFA mitigation zone for most marine mammals.

#### Long Term Monitoring (LTM) Program

The LTM program consists of two parts. First are NMFS-directed reports under the Final Rule. These reports provide the necessary information for assessments of whether any taking of marine mammals occurred within the SURTASS LFA mitigation zone plus 1-km buffer zone during operations based upon data from the monitoring mitigation (visual, passive acoustic, and active acoustic). Data analysis from the monitoring mitigation and post-operation acoustic modeling provide post-mission estimates of any Level A and/or Level B incidental harassments.

The second part of the LTM program involves long-term independent scientific research (monitoring) efforts on topics designed to increase the knowledge of potentially affected marine mammal species and further the overall understanding of the effects of anthropogenic sound and noise on the marine environment. These include: 1) convening a Scientific Advisory Group (SAG) to analyze different types of monitoring/ research that could increase the understanding of the potential effects of low-frequency active sonar transmissions on beaked whales and/or harbor porpoises; 2) continuing to assess data from the Marine

Mammal Monitoring Program and work toward making some portion of that data, after appropriate security reviews, available to scientists with appropriate clearances with any portions of the analyses determined to be unclassified after appropriate security reviews to be made publically available; 3) continuing to explore the feasibility of coordinating with other fleet assets and/or range monitoring programs to include the use of SURTASS LFA sonar towed horizontal line arrays to augment the collection of marine mammal vocalizations before, during, and after designated exercises; and 4) continuing to collect ambient noise data and explore the feasibility of declassifying and archiving the ambient noise data for incorporation into appropriate ocean noise budget efforts.

#### Reporting

During routine operations of SURTASS LFA sonar, technical and environmental data are collected and recorded. As part of the LTM program and as stipulated in the MMPA Final Rule/LOAs, the following reports are required. First, a mission report will be provided to NMFS on a quarterly basis that includes all active-mode missions that have been completed 30 days or more prior to the date of the deadline for the report. Second, the Navy submits an annual report to NMFS summarizing the mission reports

and analyzing any SURTASS LFA impacts on marine mammals during the period of the LOA. The Navy is also required to provide a final comprehensive report analyzing any impacts of SURTASS LFA sonar on marine mammal stocks during the 5-year period of the NMFS' Rule.

#### Navy-Sponsored Research

NMFS' initial Final Rule (67 FR 46785) included recommendations for the conduct of additional research activities to help increase the knowledge of marine mammal species and the determination of levels of impacts from potential takes. In addition, because of the Court's concerns about potential impacts on fish, the Navy sponsored independent research through a fish CEE as described above.

The Department of the Navy sponsors significant research and monitoring projects for marine resources to study the potential effects of its activities on marine mammals. These funding levels have increased in recent years to 31 million dollars in FY 2009 and 32 million dollars in FY 2010 for marine mammal research and monitoring activities at universities, research institutions, federal laboratories, and private companies. Navy-funded research has produced, and is producing, many peer-reviewed articles in professional journals.

Publication in open professional literature with thorough peer review is the benchmark for the quality of the research. This ongoing marine mammal research includes hearing and hearing sensitivity, auditory effects, dive and behavioral response models, noise impacts, beaked whale global distribution, modeling of beaked whale hearing and response, tagging of free-ranging marine animals at-sea, and radar-based detection of marine mammals from ships.

Under the current NMFS Rule, the Navy was required to conduct research in accordance with 50 CFR § 216.185(e) and the LOAs, as issued. As demonstrated in Table 2-2 in the 2012 FSEIS/SOEIS, the Navy has and is continuing to meet these recommended research requirements.

Within the first year of NMFS' five-year Rule (2012-2017), the Navy will convene a Scientific Advisory Group (SAG). Its goal will be to analyze different types of monitoring/research that could increase the understanding of the potential effects of low-frequency active sonar transmissions on beaked whales and/or harbor porpoises. The Navy will work closely with the SAG to characterize likely available assets and resources to help them frame their analysis, in order to identify monitoring/research options that would be most feasible for the Navy to implement. SAG members will include recognized marine

biology and marine bio-acoustic scientific subject matter experts. The results from the SAG meeting will be considered independent scientific findings, fully accessible to the public.

The Navy's execution of any monitoring/research with beaked whales or harbor porpoises that is recommended in the SAG findings will necessarily depend on the availability of scientists with the appropriate background and experience to execute the field research, as well as the availability of adequate resources to plan and conduct the research project and to process, analyze, and report on the collected data.

Following the SAG's submission of findings, the Navy will either: (1) draft a plan of action outlining the SAG's recommendations for going forward with beaked whale and/or harbor porpoise research or; (2) describe, in writing, why such research is not feasible and/or is unlikely to increase the understanding of the potential effects of low-frequency active sonar transmissions on beaked whales and/or harbor porpoises; to be followed by a meeting with NMFS to discuss any other potential options.

## **AGENCY CONSULTATION AND COORDINATION**

NMFS agreed on 6 February 2009 to participate as a cooperating agency under CEQ Regulations, 40 CFR 1501.6, in the preparation of the FSEIS/SOEIS for SURTASS LFA sonar due, in part, to their responsibilities under section 101(a)(5)(A) of the MMPA and section 7 of the ESA. NMFS was the lead agency in the analysis and identification of additional SURTASS LFA OBIAs for marine mammals in all areas of the world's oceans where SURTASS LFA sonar potentially may operate.

Office of National Marine Sanctuaries (ONMS)

On 16 November 2011, the Navy received comments on the DSEIS/SOEIS from NOAA's Office of National Marine Sanctuaries (ONMS). On 7 May 2012, the Navy responded to the ONMS comments. In July of 2012, Navy entered formal consultation with ONMS on the employment of the SURTASS LFA sonar system.

In a 6 August 2012 letter, ONMS agreed that the information provided by Navy regarding the operation of SURTASS LFA sonar, was sufficient to conduct consultation under Section 304(d)(1)(B) of the NMSA. ONMS also recommended reasonable and prudent alternatives (RPAs) for the Navy to consider. The Navy replied on 13 August 2012 regarding ONMS's proposed RPAs, which are summarized below.

RPA-1: ONMS recommended that SURTASS LFA sonar received levels not exceed 160 dB re 1  $\mu$ Pa (rms) within the boundaries of any sanctuary. The Navy's scientific analysis showed that maintaining sound levels less than 180 dB within Offshore Biologically Important Areas (OBIA) precluded the potential for injury to marine mammals and other sanctuary resources. The Navy believes that the mitigation and monitoring measures that are implemented for SURTASS LFA sonar operations reduce impacts to marine mammals, threatened and endangered marine species, and other sanctuary resources, to the greatest extent practicable, consistent with the Navy's requirements. While the Navy stated that it will continue to work with ONMS to protect sanctuary resources and consider new information, the Navy declined to adopt the recommendations related to reducing sound level limits from 180 to 160 dB.

RPA-2: Maximum dB thresholds year-round in NMSs: maximum thresholds are already imposed year-round in 11 of the 12 sanctuaries recommended by ONMS for year-round protection. Specifically, Monitor NMS maintains a year-round 145 dB maximum for the dive site, which is coexistent with the NMS boundary; the Penguin Bank portion of the Hawaiian Island Humpback Whale NMS maintains a 180 dB maximum 1 km outside of the OBIA boundary November through

April; Stellwagen Bank maintains a 180 dB maximum 1 km outside of the OBIA boundary year-round; Gray's Reef maintains a year-round 145 dB maximum for the dive site, which is coexistent with the NMS boundary; Florida Keys maintains a year-round 145 dB maximum at the 130-ft isobath; Flower Garden Banks maintains a year-round 145 dB maximum for the dive site, coexistent with the NMS boundary; Cordell Bank maintains a 180 dB maximum 1 km outside of the OBIA boundary June through November and a 145 dB maximum at the 130-ft isobath year-round; Gulf of the Farallones maintains a 180 dB maximum 1 km outside of the OBIA boundary June through November and a 145 dB maximum at the 130-ft isobath year-round; Monterey Bay maintains a 180 dB maximum 1 km outside of the OBIA boundary June through November and 145 dB maximum at the 130-ft isobath year-round; Channel Islands maintains a year-round 145 dB maximum at dive sites which is coexistent with the NMS boundary; Fagatele Bay maintains a year-round 180 dB maximum at 12 nmi from the coast. For Olympic Coast NMS, the remaining sanctuary for which ONMS has recommended a year-round maximum, Navy agreed to extend temporal coverage consistent with a separate, more specific ONMS recommendation (added the month of April so that the 180 dB maximum 1 km outside of the OBIA boundary encompasses the

months of December, January, March, April and May (see below)).

RPA-3: Seven sanctuary-specific recommendations, most of which will be adopted, at least in part.

Stellwagen Bank NMS (SBNMS): The Navy agreed with ONMS that monitoring has documented predictable concentrations of North Atlantic right whales in the sanctuary in late November through December. Hence, the Navy agreed with ONMS' recommendation, and thus the area will be treated as an OBIA year-round.

Florida Keys NMS (FKNMS): Consistent with the treatment of other dive sites, the Navy extended the 145 dB received limit for divers seaward from the 100-foot isobath to the 130-foot isobath. Regarding the use of deeper waters of the FKNMS by deep-diving whales, such as sperm whales, SURTASS LFA sonar employment is always subject to geographic restrictions, the tripartite mitigation procedures (visual observers, passive acoustic monitoring, and active acoustic monitoring), and shutdown protocols. The Navy's analysis showed that sanctuary resources will not be injured.

Monterey Bay NMS (MBNMS), Gulf of the Farallones NMS (GFNMS), and Cordell Bank NMS (CBNMS): These NMSs are located entirely within proposed LFA MM OBIA #10, which

includes a 180-dB received level restriction at a distance of 1 km (0.54 nmi) seaward of the OBIA boundary for June through November. The year-round 145-dB diver restriction within areas identified as commercial and recreational/scientific dive sites, in addition to the OBIA restrictions, tripartite mitigation procedures, and shutdown protocols make the possibility of harm to sanctuary resources (including baleen whales and beaked whales) remote.

Olympic Coast NMS (OCNMS): The Navy concurred with the ONMS recommendation that the month of April should be added to this OBIA's season, which now encompasses December, January, March, April, and May. Proposed LFA MM OBIA #21 encompasses most of this NMS and with the addition of the Prairie, and Barkley and Nitnat Canyons, the OBIA is larger than the OCNMS, and includes the 180-dB received level restriction at a distance of 1 km (0.54 nmi) seaward of the OBIA boundary for five months. Analysis indicated that the 180-dB restriction, tripartite monitoring mitigation procedures, and source shutdown protocols amply protect sanctuary resources year-round.

Fagatele Bay NMS (FBNMS): Navy agreed with ONMS on the current extent of the FBNMS, and that in its entirety, FBNMS resided within 12 nmi of the island. With already

proposed mitigations, the sanctuary will not be exposed to SURTASS LFA sonar received levels above 180 dB. Changes documented in the related July 26, 2012 ONMS Final Rule would, if it becomes law, increase its overall size with the majority of this expansion (99%) resulting from the incorporation of non-refuge marine areas. Navy analysis showed that the year-round 180-dB restriction within 12 nmi from shore, tripartite monitoring mitigation procedures, and source shutdown protocols protect sanctuary resources, both in the existing sanctuary as well as in the expansion.

Consultation and Coordination with Indian Tribal Governments

EO 13175, Consultation and Coordination with Indian Tribal Governments, establishes the requirement for consultation and collaboration with tribal officials regarding development of Federal policy that has tribal implications. The Navy distributed the FSEIS/SOEIS to 25 native tribes that carry out subsistence harvesting and hunting in the Gulf of Alaska or off the coasts of Washington and Oregon. No comments were received on the FSEIS/SOEIS from native tribes. The Navy currently has no plans to operate SURTASS LFA sonar in these areas. The Navy will continue to keep native tribes informed of the timeframes of any future SURTASS LFA sonar exercises

planned for the Gulf of Alaska and off the coasts of Washington and Oregon.

#### Coastal Zone Management

Under the Coastal Zone Management Program Regulations and CFR 930, Federal Consistency with Approved Coastal Management Programs, the Navy has determined that the employment of the SURTASS LFA sonar would be consistent to the maximum extent practicable with the relevant coastal zone management policies of 23 states and five territories with the exception of California where consistency determination has not been completed. Nothing in the current regulatory process changes that conclusion. If there is a need to operate LFA sonar in U.S. waters in the future, the Navy will review and address any coastal zone consistency issues in conjunction with the annual LOA application process.

#### Essential Fish Habitats

Under the Magnusson-Stevens Fisheries Conservation and Management Act, the Navy submitted a determination of no adverse effects on essential fish habitats for the operation of the SURTASS LFA sonar to the Office of Habitat Conservation, NMFS (DON letter, Serial 01C/069 of 28 February 2000). Nothing in the current regulatory process changes that conclusion.

### **Responses to Comments Received on the Final SEIS/SOEIS:**

The Navy received no comments from the public during the 30-day wait period following the issuance of the Notice of Availability of the FSEIS/SOEIS. The Navy received no additional comments on the FSEIS/SOEIS from NMFS. The Navy received no comment letters on the FSEIS/SOEIS from native tribes.

### **CONCLUSIONS**

Based upon my review of the comparative analysis of the potential for environmental and socioeconomic effects from the three alternatives presented in the FSEIS/SOEIS and public comments received during the NEPA process, I have decided to implement Alternative 2 of the FSEIS/SOEIS, which was identified as the Navy's preferred alternative, with certain geographical restrictions and monitoring mitigation designed to reduce potential adverse effects on the marine environment. This will include employment of up to four SURTASS LFA sonar systems in the oceanic areas as presented in Figure 1-1 (Potential Areas of Operations for SURTASS LFA Sonar) of the FSEIS/SOEIS. Based on current operational requirements, exercises using these sonar systems could occur in the Pacific, Atlantic, and Indian Oceans, and the Mediterranean Sea. This decision permits

the Navy to reasonably fulfill its purpose of providing U.S. forces with reliable, effective, and efficient long-range detection of new-generation, quiet submarines, while the geographic restrictions and monitoring mitigation requirements constitute all practical means to avoid or minimize environmental harm from the alternative selected. This alternative also provides for the 22 offshore biologically important areas listed in the Final Rule (50 CFR 218.234(f)). In the Rule for the period 2012 to 2017, NMFS stipulates that the SURTASS LFA sonar sound field does not exceed 180 dB re 1 micro Pa (rms) SPL at a distance of 1 km (0.54 nmi) beyond the LFA mitigation zone and 1 km (0.54 nmi) seaward of the outer boundary of any OBIA (50 CFR 218.234(c) and (f)). The mitigation measures presented in this document include this 1-km buffer zone requirement. This measure will limit sound pressure levels within OBIA and the LFA mitigation zone plus 1-km buffer zone to approximately 175 dB re 1 micro Pa (rms) (SPL).

During military operations SURTASS LFA sonar transmissions may exceed 180 dB re 1 micro Pa (rms) SPL within the boundaries of designated SURTASS LFA sonar OBIA's pursuant to the FSEIS/SOEIS, including operating within an OBIA, when: 1) operationally necessary to continue tracking an existing underwater contact; or 2) operationally

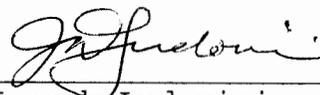
necessary to detect a new underwater contact within the OBIA. This exception will not apply to routine training and testing with the SURTASS LFA sonar systems (50 CFR 218.234(g)).

In addition, this decision and implementation of this alternative provide for continued long-term monitoring and research, which will further enhance the understanding of the potential effects of anthropogenic sounds on the marine environment. This will include the Navy convening a Scientific Advisory Group (SAG) within the first year of NMFS' five-year Rule. The SAG's goal will be to analyze different types of monitoring/research that could increase the understanding of the potential effects of low-frequency active sonar transmissions on beaked whales and/or harbor porpoises.

Actions requiring issuance of NMFS LOA(s) are being addressed through NMFS rulemaking under 50 CFR Part 218 and the Final Rule. Actions requiring issuance of incidental take statements (ITS) are being addressed as part of NMFS' Biological Opinion on the U.S. Navy's proposed use of SURTASS LFA Sonar that has been prepared by NMFS in accordance with section 7 of the Endangered Species Act (ESA) of 1973, as amended (16 U.S.C. 1531 et seq.)

Operational employments of the SURTASS LFA sonar systems are contingent upon issuance of LOAs for each system, which the Navy anticipates being issued with an effective date of 15 August 2012 in certain areas of the Pacific, Atlantic, and Indian Oceans, and the Mediterranean Sea. Operational employments are also contingent upon issuance of NMFS' Biological Opinion/Incidental Take Statement concurrent with the above LOAs and for the same specified areas.

15 AUG 2012  
Date

  
\_\_\_\_\_  
Joseph Ludovici  
Principal Deputy  
Assistant Secretary of the  
Navy (Energy, Installations  
and Environment) (Acting)