



# FEDERAL REGISTER

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Vol. 78

Tuesday,

No. 247

December 24, 2013

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## Part VII

### Department of Commerce

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National Oceanic and Atmospheric Administration

50 CFR Parts 216 and 218

Takes of Marine Mammals Incidental to Specified Activities; U.S. Navy Training and Testing Activities in the Hawaii-Southern California Training and Testing Study Area; Final Rule

**DEPARTMENT OF COMMERCE****National Oceanic and Atmospheric Administration****50 CFR Parts 216 and 218**

[Docket No. 130107014–3969–02]

RIN 0648–BC52–X

**Takes of Marine Mammals Incidental to Specified Activities; U.S. Navy Training and Testing Activities in the Hawaii-Southern California Training and Testing Study Area**

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

**ACTION:** Final rule.

**SUMMARY:** Upon application from the U.S. Navy (Navy), we (the National Marine Fisheries Service) are issuing regulations under the Marine Mammal Protection Act (MMPA) to govern the unintentional taking of marine mammals incidental to training and testing activities conducted in the Hawaii-Southern California Training and Testing (HSTT) Study Area from December 2013 through December 2018. These regulations allow us to issue Letters of Authorization (LOAs) for the incidental take of marine mammals during the Navy's specified activities and timeframes, set forth the permissible methods of taking, set forth other means of effecting the least practicable adverse impact on marine mammal species or stocks and their habitat, and set forth requirements pertaining to the monitoring and reporting of the incidental take.

**DATES:** Effective December 24, 2013, through December 24, 2018.

**ADDRESSES:** To obtain an electronic copy of the Navy's application or other referenced documents, visit the Internet at: <http://www.nmfs.noaa.gov/pr/permits/incidental.htm#applications>. Documents cited in this notice may also be viewed, by appointment, during regular business hours, at 1315 East-West Highway, SSMC III, Silver Spring, MD 20912.

**FOR FURTHER INFORMATION CONTACT:** Michelle Magliocca, Office of Protected Resources, NMFS, (301) 427–8401.

**SUPPLEMENTARY INFORMATION:****Availability**

A copy of the Navy's application may be obtained by visiting the Internet at: <http://www.nmfs.noaa.gov/pr/permits/incidental.htm#applications>. The Navy's Final Environmental Impact Statement/Overseas Environmental

Impact Statement (FEIS/OEIS) for HSTT may be viewed at <http://www.hstteis.com>. Documents cited in this notice may also be viewed, by appointment, during regular business hours, at the aforementioned address (see **ADDRESSES**).

**Background**

Section 101(a)(5)(A) of the MMPA (16 U.S.C. 1361 *et seq.*) directs the Secretary of Commerce to allow, upon request, the incidental, but not intentional, taking of small numbers of marine mammals by U.S. citizens who engage in a specified activity (other than commercial fishing) within a specified geographical region if certain findings are made and regulations are issued. We are required to grant authorization for the incidental taking of marine mammals if we find that the total taking will have a negligible impact on the species or stock(s) and will not have an unmitigable adverse impact on the availability of the species or stock(s) for subsistence uses (where relevant). We must also set forth the permissible methods of taking and requirements pertaining to the mitigation, monitoring, and reporting of such takings. 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.”

The National Defense Authorization Act of 2004 (NDAA) (Pub. L. 108–136) amended section 101(a)(5)(A) of the MMPA by removing the small numbers and specified geographical region provisions and amending the definition of “harassment” as it applies to a “military readiness activity” to read as follows (section 3(18)(B) of the MMPA): “(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].”

**Summary of Request**

On April 13, 2012, NMFS received an application from the Navy requesting two LOAs for the take of 39 species of marine mammals incidental to Navy training and testing activities to be conducted in the HSTT Study Area over

5 years. The Navy submitted an addendum on September 24, 2012 and NMFS considered the application complete. The Navy requests authorization to take marine mammals by Level A and Level B harassment and mortality during training and testing activities. The Study Area includes three existing range complexes (Southern California (SOCAL) Range Complex, Hawaii Range Complex (HRC), and Silver Strand Training Complex (SSTC)) plus pierside locations and areas on the high seas where maintenance, training, or testing may occur. These activities are considered military readiness activities. Marine mammals present in the Study Area may be exposed to sound from active sonar, underwater detonations, airguns, and/or pile driving and removal. In addition, incidental takes of marine mammals may occur from ship strikes. The Navy requests authorization to take 39 marine mammal species by Level B harassment and 24 marine mammal species by Level A harassment or mortality.

The Navy's application and the HSTT FEIS/OEIS contain acoustic thresholds that, in some instances, represent changes from what NMFS has used to evaluate the Navy's activities for previous authorizations. The revised thresholds, which the Navy developed in coordination with NMFS, are based on the evaluation and inclusion of new information from recent scientific studies; a detailed explanation of how they were derived is provided in the HSTT FEIS/OEIS Criteria and Thresholds Technical Report (available at <http://www.hstteis.com>). The revised thresholds are adopted for this rulemaking after providing the public with an opportunity for review and comment via the proposed rule for this action, which published on January 31, 2013 (78 FR 6978).

Further, more generally, NMFS is committed to the use of the best available science. NMFS uses an adaptive transparent process that allows for both timely scientific updates and public input into agency decisions regarding the use of acoustic research and thresholds. NMFS is currently in the process of re-evaluating acoustic thresholds based on the best available science, as well as how these thresholds are applied in the application of the MMPA standards for all activity types (not just for Navy activities). This re-evaluation could potentially result in changes to the acoustic thresholds or their application as they apply to future Navy activities. However, it is important to note that while changes in acoustic criteria may affect the enumeration of

“takes,” they do not necessarily significantly change the evaluation of population level effects or the outcome of the negligible impact analysis. Further, while acoustic criteria may also inform mitigation and monitoring decisions, the Navy has a robust adaptive management program that regularly addresses new information and allows for modification of mitigation and/or monitoring measures as appropriate.

#### Description of Specified Activities

The proposed rule (78 FR 6978, January 31, 2013) and HSTT FEIS/OEIS include a complete description of the Navy’s specified activities that are being authorized in this final rule. Sonar use, underwater detonations, airguns, pile driving and removal, and ship strike are the stressors most likely to result in impacts on marine mammals that could rise to the level of harassment, thus necessitating MMPA authorization. Below we summarize the description of the specified activities.

#### Overview of Training Activities

Training activities are categorized into eight functional warfare areas (anti-air warfare; amphibious warfare; strike warfare; anti-surface warfare; anti-submarine warfare; electronic warfare; mine warfare; and naval special warfare). The Navy determined that the following stressors used in these warfare areas are most likely to result in impacts on marine mammals:

- Amphibious warfare (underwater detonations, pile driving and removal)
- Anti-surface warfare (underwater detonations)
- Anti-submarine warfare (active sonar, underwater detonations)
- Mine warfare (active sonar, underwater detonations, and marine mammal systems (see description below))
- Naval special warfare (underwater detonations)

The Navy’s activities in anti-air warfare, strike warfare, and electronic warfare do not involve stressors that could result in harassment of marine mammals. Therefore, these activities are not discussed further.

#### Overview of Testing Activities

Testing activities may occur independently of or in conjunction with training activities. Many testing activities are conducted similarly to Navy training activities and are also categorized under one of the primary mission areas. Other testing activities are unique and are described within their specific testing categories. The Navy determined that stressors used

during the following testing activities are most likely to result in impacts on marine mammals:

#### *Naval Air Systems Command (NAVAIR) Testing*

- Anti-surface warfare testing (underwater detonations)
- Anti-submarine warfare testing (active sonar, underwater detonations)
- Mine warfare testing (active sonar, underwater detonations)
- Naval Sea Systems Command (NAVSEA) Testing
- New ship construction (active sonar, underwater detonations)
- Life cycle activities (active sonar, underwater detonations)
- Anti-surface warfare/anti-submarine warfare testing (active sonar, underwater detonations)
- Mine warfare testing (active sonar, underwater detonations)
- Ship protection systems and swimmer defense testing (active sonar, airguns)
- Unmanned vehicle testing (active sonar)
- Other testing (active sonar)

#### *Space and Naval Warfare Systems Commands (SPAWAR) Testing*

- SPAWAR research, development, test, and evaluation (active sonar)

#### *Office of Naval Research (ONR) and Naval Research Laboratory (NRL) Testing*

- ONR/NRL research, development, test, and evaluation (active sonar)

Other Navy testing activities do not involve stressors that could result in marine mammal harassment. Therefore, these activities are not discussed further.

#### Classification of Non-Impulsive and Impulsive Sources Analyzed

In order to better organize and facilitate the analysis of about 300 sources of underwater non-impulsive sound or impulsive energy, the Navy developed a series of source classifications, or source bins. This method of analysis provides the following benefits:

- Allows for new sources to be covered under existing authorizations, as long as those sources fall within the parameters of a “bin;”
- Simplifies the data collection and reporting requirements anticipated under the MMPA;
- Ensures a conservative approach to all impact analysis because all sources in a single bin are modeled as the loudest source (e.g., lowest frequency, highest source level, longest duty cycle, or largest net explosive weight within that bin);

- Allows analysis to be conducted more efficiently, without compromising the results;
- Provides a framework to support the reallocation of source usage (hours/explosives) between different source bins, as long as the total number and severity of marine mammal takes remain within the overall analyzed and authorized limits. This flexibility is required to support evolving Navy training and testing requirements, which are linked to real world events.

A description of each source classification is provided in Tables 1, 2, and 3. Non-impulsive sources are grouped into bins based on the frequency, source level when warranted, and how the source would be used. Impulsive bins are based on the net explosive weight of the munitions or explosive devices. The following factors further describe how non-impulsive sources are divided:

Frequency of the non-impulsive source:

- Low-frequency sources operate below 1 kilohertz (kHz)
- Mid-frequency sources operate at or above 1 kHz, up to and including 10 kHz
- High-frequency sources operate above 10 kHz, up to and including 100 kHz
- Very high-frequency sources operate above 100 kHz, but below 200 kHz

Source level of the non-impulsive source:

- Greater than 160 decibels (dB), but less than 180 dB
- Equal to 180 dB and up to 200 dB
- Greater than 200 dB

How a sensor is used determines how the sensor’s acoustic emissions are analyzed. Factors to consider include pulse length (time source is on); beam pattern (whether sound is emitted as a narrow, focused beam, or, as with most explosives, in all directions); and duty cycle (how often a transmission occurs in a given time period during an event).

There are also non-impulsive sources with characteristics that are not anticipated to result in takes of marine mammals. These sources have low source levels, narrow beam widths, downward directed transmission, short pulse lengths, frequencies beyond known hearing ranges of marine mammals, or some combination of these factors. These sources were not modeled by the Navy, but are qualitatively analyzed in Table 1–4 of the LOA application and the HSTT FEIS/OEIS. In addition, impulsive sources with explosive weights less than 0.1 lb net explosive weight (less than bin E1) were not modeled.

TABLE 1—IMPULSIVE TRAINING AND TESTING SOURCE CLASSES ANALYZED

Source class	Representative munitions	Net explosive weight (lbs)
E1 .....	Medium-caliber projectiles .....	0.1–0.25 (45.4–113.4 g).
E2 .....	Medium-caliber projectiles .....	0.26–0.5 (117.9–226.8 g).
E3 .....	Large-caliber projectiles .....	>0.5–2.5 (>226.8 g–1.1 kg).
E4 .....	Improved Extended Echo Ranging Sonobuoy .....	>2.5–5.0 (1.1–2.3 kg).
E5 .....	5 in. (12.7 cm) projectiles .....	>5–10 (>2.3–4.5 kg).
E6 .....	15 lb. (6.8 kg) shaped charge .....	>10–20 (>4.5–9.1 kg).
E7 .....	40 lb. (18.1 kg) demo block/shaped charge .....	>20–60 (>9.1–27.2 kg).
E8 .....	250 lb. (113.4 kg) bomb .....	>60–100 (>27.2–45.4 kg).
E9 .....	500 lb. (226.8 kg) bomb .....	>100–250 (>45.4–113.4 kg).
E10 .....	1,000 lb. (453.6 kg) bomb .....	>250–500 (>113.4–226.8 kg).
E11 .....	650 lb. (294.8 kg) mine .....	>500–650 (>226.8–294.8 kg).
E12 .....	2,000 lb. (907.2 kg) bomb .....	>650–1,000 (>294.8–453.6 kg).
E13 .....	1,200 lb. (544.3 kg) HBX charge .....	>1,000–1,740 (>453.6–789.3 kg).

TABLE 2—NON-IMPULSIVE TRAINING SOURCE CLASSES ANALYZED

Source class category	Source class	Description
Mid-Frequency (MF): Tactical and non-tactical sources that produce mid-frequency (1 to 10 kHz) signals.	MF1 .....	Active hull-mounted surface ship sonar (e.g., AN/SQS–53C and AN/SQS–60).
	MF1K .....	Kingfisher object avoidance mode associated with MF1 sonar.
	MF2 .....	Active hull-mounted surface ship sonar (e.g., AN/SQS–56).
	MF2K .....	Kingfisher mode associated with MF2 sonar.
	MF3 .....	Active hull-mounted submarine sonar (e.g., AN/BQQ–10).
	MF4 .....	Active helicopter-deployed dipping sonar (e.g., AN/AQS–22 and AN/AQS–13).
	MF5 .....	Active acoustic sonobuoys (e.g., AN/SSQ–62 DICASS).
	MF6 .....	Active underwater sound signal devices (e.g., MK–84).
	MF11 .....	Hull-mounted surface ship sonar with an active duty cycle greater than 80%.
	MF12 .....	High duty cycle—variable depth sonar.
	HF1 .....	Active hull-mounted submarine sonar (e.g., AN/BQQ–15).
	HF4 .....	Active mine detection, classification, and neutralization sonar (e.g., AN/SQS–20).
High-Frequency (HF) and Very High-Frequency (VHF): Tactical and non-tactical sources that produce high-frequency (greater than 10 kHz but less than 200 kHz) signals.	ASW1 .....	MF active Deep Water Active Distributed System (DWADS).
	ASW2 .....	MF active Multistatic Active Coherent (MAC) sonobuoy (e.g., AN/SSQ–125).
	ASW3 .....	MF active towed active acoustic countermeasure systems (e.g., AN/SLQ–25 NIXIE).
	ASW4 .....	MF active expendable active acoustic device countermeasures (e.g., MK–3).
Anti-Submarine Warfare (ASW): Tactical sources such as active sonobuoys and acoustic countermeasures systems used during ASW training activities.	TORP1 .....	HF active lightweight torpedo sonar (e.g., MK–46, MK–54, or Anti-Torpedo Torpedo).
	TORP2 .....	HF active heavyweight torpedo sonar (e.g., MK–48).
Torpedoes (TORP): Source classes associated with active acoustic signals produced by torpedoes.		

TABLE 3—NON-IMPULSIVE TESTING SOURCE CLASSES ANALYZED

Source class category	Source class	Description
Low-Frequency (LF): Sources that produce low-frequency (less than 1 kilohertz [kHz]) signals <sup>1</sup> .	LF4 .....	Low-frequency sources equal to 180 dB and up to 200 dB
	LF5 .....	Low-frequency sources less than 180 dB
	LF6 .....	Low-frequency sonar currently in development (e.g., anti-submarine warfare sonar associated with the Littoral Combat Ship).
Mid-Frequency (MF): Tactical and non-tactical sources that produce mid-frequency (1 to 10 kHz) signals.	MF1 .....	Hull-mounted surface ship sonar (e.g., AN/SQS–53C and AN/SQS–60).
	MF1K .....	Kingfisher mode associated with MF1 sonar (Sound Navigation and Ranging).
	MF2 .....	Hull-mounted surface ship sonar (e.g., AN/SQS–56).
	MF3 .....	Hull-mounted submarine sonar (e.g., AN/BQQ–10).
	MF4 .....	Helicopter-deployed dipping sonar (e.g., AN/AQS–22 and AN/AQS–13).
	MF5 .....	Active acoustic sonobuoys (e.g., DICASS).
	MF6 .....	Active underwater sound signal devices (e.g., MK–84).

TABLE 3—NON-IMPULSIVE TESTING SOURCE CLASSES ANALYZED—Continued

Source class category	Source class	Description
High-Frequency (HF) and Very High-Frequency (VHF): Tactical and non-tactical sources that produce high-frequency (greater than 10 kHz but less than 200 kHz) signals	MF8 .....	Active sources (greater than 200 dB).
	MF9 .....	Active sources (equal to 180 dB and up to 200 dB).
	MF10 .....	Active sources (greater than 160 dB, but less than 180 dB) not otherwise binned.
	MF12 .....	High duty cycle—variable depth sonar.
	HF1 .....	Hull-mounted submarine sonar (e.g., AN/BQQ-10).
	HF3 .....	Hull-mounted submarine sonar (classified).
	HF4 .....	Mine detection, classification, and neutralization sonar (e.g., AN/SQS-20).
	HF5 .....	Active sources (greater than 200 dB).
	HF6 .....	Active sources (equal to 180 dB and up to 200 dB).
	ASW1 .....	Mid-frequency Deep Water Active Distributed System (DWADS).
Anti-Submarine Warfare (ASW): Tactical sources such as active sonobuoys and acoustic countermeasures systems used during the conduct of anti-submarine warfare testing activities.	ASW2 .....	Mid-frequency Multistatic Active Coherent sonobuoy (e.g., AN/SSQ-125)—sources analyzed by number of items (sonobuoys).
	ASW2 .....	Mid-frequency sonobuoy (e.g., high duty cycle)—Sources that are analyzed by hours.
	ASW3 .....	Mid-frequency towed active acoustic countermeasure systems (e.g., AN/SLQ-25).
	ASW4 .....	Mid-frequency expendable active acoustic device countermeasures (e.g., MK-3).
Torpedoes (TORP): Source classes associated with the active acoustic signals produced by torpedoes.	TORP1 .....	Lightweight torpedo (e.g., MK-46, MK-54, or Surface Ship Defense System).
	TORP2 .....	Heavyweight torpedo (e.g., MK-48).
Acoustic Modems (M): Systems used to transmit data acoustically through water.	M3 .....	Mid-frequency acoustic modems (greater than 190 dB).
Swimmer Detection Sonar (SD): Systems used to detect divers and submerged swimmers.	SD1—SD2 .....	High-frequency sources with short pulse lengths, used for the detection of swimmers and other objects for the purpose of port security.
Airguns (AG): Underwater airguns are used during swimmer defense and diver deterrent training and testing activities.	AG .....	Up to 60 cubic inch airguns (e.g., Sercel Mini-G).
Synthetic Aperture Sonar (SAS): Sonar in which active acoustic signals are post-processed to form high-resolution images of the seafloor.	SAS1 .....	MF SAS systems.
	SAS2 .....	HF SAS systems.
	SAS3 .....	VHF SAS systems.

<sup>1</sup> This source class category does not include the SURTASS LFA system, which is authorized under a separate rulemaking and EIS/OEIS.

**Authorized Action**

Training—Table 4 describes the annual number of impulsive source

detonations during training activities within the HSTT Study Area, and Table 5 describes the annual number of hours

or items of non-impulsive sources used during training within the HSTT Study Area.

TABLE 4—ANNUAL NUMBER OF IMPULSIVE SOURCE DETONATIONS DURING TRAINING IN THE HSTT STUDY AREA

Explosive class	Net explosive weight (NEW)	Annual in-water detonations (training)
E1 .....	(0.1 lb.–0.25 lb.) .....	19,840
E2 .....	(0.26 lb.–0.5 lb.) .....	1,044
E3 .....	(>0.5 lb.–2.5 lb.) .....	3,020
E4 .....	(>2.5 lb.–5 lb.) .....	668
E5 .....	(>5 lb.–10 lb.) .....	8,154
E6 .....	(>10 lb.–20 lb.) .....	538
E7 .....	(>20 lb.–60 lb.) .....	407
E8 .....	(>60 lb.–100 lb.) .....	64
E9 .....	(>100 lb.–250 lb.) .....	16
E10 .....	(>250 lb.–500 lb.) .....	19
E11 .....	(>500 lb.–650 lb.) .....	8
E12 .....	(>650 lb.–1,000 lb.) .....	224
E13 .....	(>1,000 lb.–1,740 lb.) .....	9

TABLE 5—ANNUAL HOURS AND ITEMS OF NON-IMPULSIVE SOURCES USED DURING TRAINING WITHIN THE HSTT STUDY AREA

Source class category	Source class	Annual Use
Mid-Frequency (MF) Active sources from 1 to 10 kHz .....	MF1 .....	11,588 hours.
	MF1K .....	88 hours.
	MF2 .....	3,060 hours.
	MF2K .....	34 hours.
	MF3 .....	2,336 hours.
	MF4 .....	888 hours.
	MF5 .....	13,718 items.
	MF11 .....	1,120 hours.
	MF12 .....	1,094 hours.
High-Frequency (HF) and Very High-Frequency (VHF) Tactical and non-tactical sources that produce signals greater than 10kHz but less than 200kHz.	HF1 .....	1,754 hours.
Anti-Submarine Warfare (ASW)—Active ASW sources .....	HF4 .....	4,848 hours.
	ASW1 .....	224 hours.
	ASW2 .....	1,800 items.
	ASW3 .....	16,561 hours.
	ASW4 .....	1,540 items.
Torpedoes (TORP)—Active torpedo sonar .....	TORP1 .....	170 items.
	TORP2 .....	400 items.

Testing—Table 6 describes the annual HSTT Study Area, and Table 7 describes non-impulsive sources used during number of impulsive source detonations the annual number of hours or items of testing within the HSTT Study Area. during testing activities within the

TABLE 6—ANNUAL NUMBER OF IMPULSIVE SOURCE DETONATIONS DURING TESTING ACTIVITIES WITHIN THE HSTT STUDY AREA

Explosive class	Net explosive weight (NEW)	Annual in-water detonations (testing)
E1 .....	(0.1 lb.–0.25 lb.) .....	14,501
E2 .....	(0.26 lb.–0.5 lb.) .....	0
E3 .....	(>0.5 lb.–2.5 lb.) .....	2,990
E4 .....	(>2.5 lb.–5 lb.) .....	753
E5 .....	(>5 lb.–10 lb.) .....	202
E6 .....	(>10 lb.–20 lb.) .....	37
E7 .....	(>20 lb.–60 lb.) .....	21
E8 .....	(>60 lb.–100 lb.) .....	12
E9 .....	(>100 lb.–250 lb.) .....	0
E10 .....	(>250 lb.–500 lb.) .....	31
E11 .....	(>500 lb.–650 lb.) .....	14
E12 .....	(>650 lb.–1,000 lb.) .....	0
E13 .....	(>1,000 lb.–1,740 lb.) .....	0

TABLE 7—ANNUAL HOURS AND ITEMS OF NON-IMPULSIVE SOURCES USED DURING TESTING WITHIN THE HSTT STUDY AREA

Source class category	Source class	Annual use
Low-Frequency (LF) Sources that produce signals less than 1 kHz <sup>1</sup> .....	LF4 .....	52 hours.
	LF5 .....	2,160 hours.
	LF6 .....	192 hours.
Mid-Frequency (MF) Tactical and non-tactical sources that produce signals from 1 to 10 kHz .....	MF1 .....	180 hours.
	MF1K .....	18 hours.
	MF2 .....	84 hours.
	MF3 .....	392 hours.
	MF4 .....	693 hours.
	MF5 .....	5,024 items.
	MF6 .....	540 items.
	MF8 .....	2 hours.
	MF9 .....	3,039 hours.
	MF10 .....	35 hours.
	MF12 .....	336 hours.
High-Frequency (HF) and Very High-Frequency (VHF): Tactical and non-tactical sources that produce signals greater than 10kHz but less than 200kHz.	HF1 .....	1,025 hours.
	HF3 .....	273 hours.
	HF4 .....	1,336 hours.

TABLE 7—ANNUAL HOURS AND ITEMS OF NON-IMPULSIVE SOURCES USED DURING TESTING—Continued  
WITHIN THE HSTT STUDY AREA

Source class category	Source class	Annual use
Anti-Submarine Warfare (ASW) Tactical sources used during anti-submarine warfare training and testing activities.	HF5 .....	1,094 hours.
	HF6 .....	3,460 hours.
	ASW1 .....	224 hours.
Torpedoes (TORP) Source classes associated with active acoustic signals produced by torpedoes	ASW2 .....	2,260 items.
	ASW2 .....	255 hours.
	ASW3 .....	1,278 hours.
Acoustic Modems (M) Transmit data acoustically through the water .....	ASW4 .....	477 items.
	TORP1 .....	701 items.
	TORP2 .....	732 items.
Swimmer Detection Sonar (SD) Used to detect divers and submerged swimmers .....	M3 .....	4,995 hours.
Airguns (AG) Used during swimmer defense and diver deterrent training and testing activities .....	SD1 .....	38 hours.
Synthetic Aperture Sonar (SAS): Sonar in which active acoustic signals are post-processed to form high-resolution images of the seafloor.	AG .....	5 uses.
	SAS1 .....	2,700 hours.
	SAS2 .....	4,956 hours.
	SAS3 .....	3,360 hours.

<sup>1</sup> This source class category does not include the SURTASS LFA system, which is authorized under a separate rulemaking and EIS/OEIS.

Vessels—Representative Navy vessel types, lengths, and speeds used in both training and testing activities are shown in Table 8. While these speeds are representative, some vessels operate outside of these speeds due to unique

training, testing, or safety requirements for a given event. Examples include increased speeds needed for flight operations, full speed runs to test engineering equipment, time critical positioning needs, etc. Examples of

decreased speeds include speeds less than 5 knots or completely stopped for launching small boats, certain tactical maneuvers, target launch or retrievals, unmanned underwater vehicles, etc.

TABLE 8—TYPICAL NAVY BOAT AND VESSEL TYPES WITH LENGTH GREATER THAN 18 METERS  
USED WITHIN THE HSTT STUDY AREA

Vessel Type (>18 m)	Example(s) (specifications in meters (m) for length, metric tons (mt) for mass, and knots for speed)	Typical operating speed (knots)
Aircraft Carrier .....	Aircraft Carrier (CVN) length: 333 m beam: 41 m draft: 12 m displacement: 81,284 mt max. speed: 30+ knots.	10 to 15.
Surface Combatants .....	Cruiser (CG) length: 173 m beam: 17 m draft: 10 m displacement: 9,754 mt max. speed: 30+ knots.	10 to 15.
	Destroyer (DDG) length: 155 m beam: 18 m draft: 9 m displacement: 9,648 mt max. speed: 30+ knots.	
	Frigate (FFG) length: 136 m beam: 14 m draft: 7 m displacement: 4,166 mt max. speed: 30+ knots.	
Amphibious Warfare Ships .....	Littoral Combat Ship (LCS) length: 115 m beam: 18 m draft: 4 m displacement: 3,000 mt max. speed: 40+ knots.	10 to 15.
	Amphibious Assault Ship (LHA, LHD) length: 253 m beam: 32 m draft: 8 m displacement: 42,442 mt max. speed: 20+ knots.	
	Amphibious Transport Dock (LPD) length: 208 m beam: 32 m draft: 7 m displacement: 25,997 mt max. speed: 20+ knots.	
Mine Warship Ship .....	Dock Landing Ship (LSD) length: 186 m beam: 26 m draft: 6 m displacement: 16,976 mt max. speed: 20+ knots.	5 to 8.
	Mine Countermeasures Ship (MCM) length: 68 m beam: 12 m draft: 4 m displacement: 1,333 max. speed: 14 knots.	
	Attack Submarine (SSN) length: 115 m beam: 12 m draft: 9 m displacement: 12,353 mt max. speed: 20+ knots.	8 to 13.
Submarines .....	Guided Missile Submarine (SSGN) length: 171 m beam: 13 m draft: 12 m displacement: 19,000 mt max. speed: 20+ knots.	
	Fast Combat Support Ship (T-AOE) length: 230 m beam: 33 m draft: 12 m displacement: 49,583 max. speed: 25 knots.	
Combat Logistics Force Ships * .....	Dry Cargo/Ammunition Ship (T-AKE) length: 210 m beam: 32 m draft: 9 m displacement: 41,658 mt max speed: 20 knots.	8 to 12.
	Fleet Replenishment Oilers (T-AO) length: 206 m beam: 30 m draft: 11 displacement: 42,674 mt max. speed: 20 knots	
	Fleet Ocean Tugs (T-ATF) length: 69 m beam: 13 m draft: 5 m displacement: 2,297 max. speed: 14 knots.	
Support Craft/Other .....	Landing Craft, Utility (LCU) length: 41m beam: 9 m draft: 2 m displacement: 381 mt max. speed: 11 knots.	3 to 5.
	Landing Craft, Mechanized (LCM) length: 23 m beam: 6 m draft: 1 m displacement: 107 mt max. speed: 11 knots.	

TABLE 8—TYPICAL NAVY BOAT AND VESSEL TYPES WITH LENGTH GREATER THAN 18 METERS—Continued  
USED WITHIN THE HSTT STUDY AREA

Vessel Type (>18 m)	Example(s) (specifications in meters (m) for length, metric tons (mt) for mass, and knots for speed)	Typical operating speed (knots)
Support Craft/Other Specialized High Speed.	MK V Special Operations Craft length: 25 m beam: 5 m displacement: 52 mt max. speed: 50 knots.	Variable.

\* CLF vessels are not homeported in Pearl Harbor or San Diego, but are frequently used for various fleet support and training support events in the HSTT Study Area.

### Duration and Location

The description of the location of authorized activities has not changed from what was provided in the proposed rule and HSTT FEIS/OEIS (78 FR 6978, January 31, 2013; pages 6987–6988; <http://www.hstteis.com>). For a complete description, please see those documents. Training and testing activities will be conducted in the HSTT Study Area from December 2013 through December 2018. The Study Area includes three existing range complexes: the Hawaii Range Complex (HRC), the Southern California (SOCAL) Range Complex, and the Silver Strand Training Complex (SSTC). Each range complex is an organized and designated set of specifically bounded geographic areas, which includes a water component (above and below the surface), airspace, and sometimes a land component. Operating areas (OPAREAs) and special use airspace are established within each range complex. In addition to Navy range complexes, the Study Area includes other areas where training and testing activities occur, including pierside locations in San Diego Bay and Pearl Harbor, the transit corridor between SOCAL and Hawaii, and throughout the San Diego Bay. The majority of active sonar activities occur in SOCAL and the HRC, while the SSTC is used primarily for explosive activities and pile driving. However, hull mounted mid-frequency active sonar during Major Training Events (MTEs) is not typically used in the San Diego Arc area or in areas of high humpback whale density around Hawaii (with the exception of water adjacent to the Pacific Missile Range Facility). Much less sonar activity and no explosive activities are conducted within the transit corridors.

### Description of Marine Mammals in the Area of the Specified Activities

Thirty-nine marine mammal species are known to occur in the Study Area, including seven mysticetes (baleen whales), 25 odontocetes (dolphins and toothed whales), six pinnipeds (seals and sea lions), and the Southern sea otter. Among these species, there are 72

stocks managed by NMFS or the U.S. Fish and Wildlife Service (USFWS) in the U.S. Exclusive Economic Zone (EEZ). To address a public comment on population structure, and consistent with NMFS most recent Pacific Stock Assessment Report, a single species may include multiple stocks recognized for management purposes (e.g., spinner dolphin), while other species are grouped into a single stock due to limited species-specific information (e.g., beaked whales belonging to the genus *Mesoplodon*). However, when there is sufficient information available, the Navy's take estimates and NMFS' negligible impact determination are based on stock-specific numbers. Eight of the 39 marine mammal species are endangered and one of the 39 marine mammal species are threatened under the Endangered Species Act of 1978 (ESA; 16 U.S.C. 1531 *et seq.*).

The Description of Marine Mammals in the Area of the Specified Activities section has not changed from what was in the proposed rule (78 FR 6978, January 31, 2013; pages 6988–6994). Table 9 of the proposed rule provided a list of marine mammals with possible or confirmed occurrence within the HSTT Study Area, including stock, abundance, and status. Since publishing the proposed rule, NMFS released new stock assessment reports for some of the marine mammal species occurring within the HSTT Study Area. The new species abundance estimates were considered in making our final determinations. Table 3.4–1 of the HSTT FEIS/OEIS includes a table with the revised species abundance estimates. Although not repeated in this final rule, we have reviewed these data, determined them to be the best available scientific information for the purposes of the rulemaking, and consider this information part of the administrative record for this action.

The proposed rule (78 FR 6978, January 31, 2013; pages 6994–6995), the Navy's LOA application and the HSTT FEIS/OEIS include a complete description of information on the status, distribution, abundance, vocalizations, density estimates, and general biology of marine mammal species.

### Potential Effects of Specified Activities on Marine Mammals

For the purpose of MMPA authorizations, NMFS' effects assessments serve five primary purposes: (1) To prescribe the permissible methods of taking (i.e., Level B harassment (behavioral harassment), Level A harassment (injury), or mortality, including an identification of the number and types of take that could occur by harassment or mortality), (2) to prescribe other means of effecting the least practicable adverse impact on such species or stock and its habitat (i.e., mitigation); (3) to determine whether the specified activity would have a negligible impact on the affected species or stocks of marine mammals (based on the likelihood that the activity would adversely affect the species or stock through effects on annual rates of recruitment or survival); (4) to determine whether the specified activity would have an unmitigable adverse impact on the availability of the species or stock(s) for subsistence uses; and (5) to prescribe requirements pertaining to monitoring and reporting.

In the Potential Effects of Specified Activities on Marine Mammals section of the proposed rule, we included a qualitative discussion of the different ways that Navy training and testing activities may potentially affect marine mammals without consideration of mitigation and monitoring measures (78 FR 6978, January 31, 2013; pages 6997–7011). Marine mammals may experience direct physiological effects (e.g., threshold shift and non-acoustic injury), acoustic masking, impaired communication, stress responses, behavioral disturbance, stranding, behavioral responses from vessel movement, and injury or death from vessel collisions. NMFS made no changes to the information contained in that section of the proposed rule, and it adopts that discussion for purposes of this final rule.

NMFS is constantly evaluating new science and how to best incorporate it into our decisions. This process involves careful consideration of new data and how it is best interpreted



within the context of a given management framework. Since publication of the proposed rule, a few studies have been published regarding behavioral responses that are relevant to the proposed activities and energy sources: Moore and Barlow, 2013; DeRuiter *et al.*, 2013; and Goldbogen *et al.*, 2013, among others. These articles are specifically addressed in the Comments and Responses section of this document. Each of these articles emphasizes the importance of context (e.g., behavioral state of the animals, distance from the sound source, etc.) in evaluating behavioral responses of marine mammals to acoustic sources. In addition, New *et al.*, 2013, Houser *et al.*, 2013, and Claridge, 2013 were recently published.

New *et al.* uses energetic models to investigate the survival and reproduction of beaked whales. The model suggests that impacts to habitat quality may affect adult female beaked whales' ability to reproduce; and therefore, a reduction in energy intake over a long period of time may have the potential to impact reproduction. However, the SOCAL Range Complex continues to support high densities of beaked whales and there is no data to suggest a decline in this population.

Houser *et al.* performed a controlled exposure study involving California sea lions exposed to a simulated mid-frequency sonar signal. The purpose of this Navy-sponsored study was to determine the probability and magnitude of behavioral responses by California sea lions exposed to differing intensities of simulated mid-frequency sonar signals. Houser *et al.*'s findings are consistent with current scientific studies and criteria development concerning marine mammal reactions to mid-frequency sonar sounds.

Claridge published her Ph.D. thesis, which investigated the potential effects exposure to mid-frequency active sonar could have on beaked whale demographics. In summary, Claridge suggested that lower reproductive rates observed at the Navy's Atlantic Undersea Test and Evaluation Center (AUTC), when compared to a control site, were due to stressors associated with frequent and repeated use of Navy sonar. However, the author noted that there may be other unknown differences between the sites. It is also important to note that there were some relevant shortcomings of this study. For example, all of the re-sighted whales during the 5-year study at both sites were female, which Claridge acknowledged can lead to a negative bias in the abundance estimation. There was also a reduced effort and shorter

overall study period at the AUTC site that failed to capture some of the emigration/immigration trends identified at the control site. Furthermore, Claridge assumed that the two sites were identical and therefore should have equal potential abundances; when in reality, there were notable physical differences. All of the aforementioned studies were considered in NMFS' determination to issue regulations and associated LOAs to the Navy for their proposed activities in the HSTT Study Area.

Also, since the publication of the proposed rule, the Independent Scientific Review Panel investigating potential contributing factors to a 2008 mass stranding of melon-headed whales (*Peponocephala electra*) in Antsohiy, Madagascar released its final report. This report suggests that the operation of a commercial high-powered 12 kHz multi-beam echosounder during an industry seismic survey was a plausible and likely initial trigger that caused a large group of melon-headed whales to leave their typical habitat and then ultimately strand as a result of secondary factors such as malnourishment and dehydration. The report indicates that the risk of this particular convergence of factors and ultimate outcome is likely very low, but recommends that the potential be considered in environmental planning. Because of the association between tactical mid-frequency active sonar use and a small number of marine mammal strandings, the Navy and NMFS have been considering and addressing the potential for strandings in association with Navy activities for years. In addition to a suite of mitigation intended to more broadly minimize impacts to marine mammals, the Navy and NMFS have a detailed Stranding Response Plan that outlines reporting, communication, and response protocols intended both to minimize the impacts of, and enhance the analysis of, any potential stranding in areas where the Navy operates.

#### Mitigation

In order to issue regulations and LOAs under section 101(a)(5)(A) of the MMPA, NMFS must set forth the "permissible methods of taking pursuant to such activity, and other means of effecting the least practicable adverse impact on such species or stock and its habitat, paying particular attention to rookeries, mating grounds, and areas of similar significance." NMFS' duty under this "least practicable adverse impact" standard is to prescribe mitigation reasonably designed to minimize, to the extent

practicable, any adverse population-level impacts, as well as habitat impacts. While population-level impacts can be minimized only by reducing impacts on individual marine mammals, not all takes translate to population-level impacts. NMFS' objective under the "least practicable adverse impact" standard is to design mitigation targeting those impacts on individual marine mammals that are most likely to lead to adverse population-level effects.

The NDAA of 2004 amended the MMPA as it relates to military readiness activities and the Incidental Take Authorization (ITA) process such that "least practicable adverse impact" shall include consideration of personnel safety, practicality of implementation, and impact on the effectiveness of the "military readiness activity." The training and testing activities described in the Navy's LOA application are considered military readiness activities.

NMFS reviewed the proposed activities and the suite of proposed mitigation measures as described in the Navy's LOA application to determine if they would result in the least practicable adverse effect on marine mammal species and stocks and their habitat, which includes a careful balancing of the degree to which the mitigation measures are expected to reduce the likelihood and/or magnitude of adverse impacts to marine mammal species or stocks and their habitat with the likely effect of the measures on personnel safety, practicality of implementation, and impact on the effectiveness of the military readiness activity. Included below are the mitigation measures the Navy proposed in their LOA application.

NMFS described the Navy's proposed mitigation measures in detail in the proposed rule (78 FR 6978, January 31, 2013; pages 7011–7017), and they have not changed. NMFS worked with the Navy in the development of the Navy's initially proposed measures, and they are informed by years of experience and monitoring. As described in the mitigation conclusions below and in responses to comments, and in the HSTT EIS, additional measures were considered and analyzed, but ultimately not chosen for implementation. However, the Navy's low use of mid-frequency active sonar in certain areas of particular importance to marine mammals has been clarified in the Comments and Responses section of this document. Below are the mitigation measures as agreed upon by the Navy and NMFS.

- At least one Lookout during training and testing activities;

- Mitigation zones during impulse and non-impulsive sources to avoid or reduce the potential for onset of the lowest level of injury, PTS, out to the predicted maximum range (Tables 11 and 12);

- Mitigation zones of 500 yards (yd) (457 meters(m)) for whales and 200 yd (183 m) for all other marine mammals (except bow riding dolphins) during vessel movement;

- A mitigation zone of 250 yd (229 m) for marine mammals during use of

towed in-water devices being towed from manned platforms;

- A mitigation zone of 200 yd (183 m) around the intended impact location during non-explosive gunnery exercises (all calibers) and small and medium caliber explosive gunnery exercises;

- A mitigation zone of 600 yd (549 m) around the intended impact location during large caliber explosive gunnery exercises;

- A mitigation zone of 1,000 yd (914 m) around the intended impact location

during non-explosive bombing exercises;

- A mitigation zone of 1.5 miles (mi) (2.3 kilometers (km)) for explosive bombing exercises;

- Standard operating procedures to limit the low risk of disease transmission during Navy Marine Mammal Program operations; and

- Humpback whale cautionary area requiring high-level clearance if training or testing use of mid-frequency active sonar is necessary between December 15 and April 15.

TABLE 11—PREDICTED RANGES TO TTS, PTS, AND RECOMMENDED MITIGATION ZONES

Activity category	Bin (representative source) *	Predicted average (longest) range to TTS	Predicted average (longest) range to PTS	Predicted maximum range to PTS	Recommended mitigation zone
<b>Non-Impulsive Sound</b>					
Low-Frequency and Hull-Mounted Mid-Frequency Active Sonar <sup>1</sup> .	MF1 (SQS-53 ASW hull-mounted sonar).	3,821 yd (3.5 km) for one ping.	100 yd (91 m) for one ping.	N/A .....	6 dB power down at 1,000 yd. (914 m); 4 dB power down at 500 yd. (457 m); and shutdown at 200 yd. (183 m).
High-Frequency and Non-Hull Mounted Mid-Frequency Active Sonar.	MF4 (AQS-22 ASW dipping sonar).	230 yd (210 m) for one ping.	20 yd (18 m) for one ping.	N/A .....	200 yd. (183 m).
<b>Explosive and Impulsive Sound</b>					
Improved Extended Echo Ranging Sonobuoys.	E4 (Explosive sonobuoy).	434 yd (397 m) .....	156 yd (143 m) .....	563 yd (515 m) .....	600 yd (549 m).
Explosive Sonobuoys using 0.5–2.25 lb. NEW.	E3 (Explosive sonobuoy).	290 yd (265 m) .....	113 yd (103 m) .....	309 yd (283 m) .....	350 yd (320 m).
Anti-Swimmer Grenades.	E2 (Up to 0.5 lb. NEW).	190 yd (174 m) .....	83 yd (76 m) .....	182 yd (167 m) .....	200 yd (183 m).
Mine Countermeasure and Neutralization Activities Using Positive Control Firing Devices.	NEW dependent (see Table 12)				
Mine Neutralization Diver-Placed Mines Using Time-Delay Firing Devices.	E7 (29 lb. NEW only)	846 yd (774 m) .....	286 yd (262 m) .....	541 yd (495 m) .....	1,000 yd (915 m).
Gunnery Exercises—Small and Medium-Caliber (Surface Target).	E2 (40 mm projectile)	190 yd (174 m) .....	83 yd (76 m) .....	182 yd (167 m) .....	200 yd (183 m).
Gunnery Exercises—Large-Caliber (Surface Target).	E5 (5 in. projectiles at the surface ***).	453 yd (414 m) .....	186 yd (170 m) .....	526 yd (481 m) .....	600 yd (549 m).
Missile Exercises up to 250 lb. NEW (Surface Target).	E9 (Maverick missile)	949 yd (868 m) .....	398 yd (364 m) .....	699 yd (639 m) .....	900 yd (823 m).
Missile Exercises up to 500 lb. NEW (Surface Target).	E10 (Harpoon missile).	1,832 yd (1.7 km) .....	731 yd (668 m) .....	1,883 yd (1.7 k m) ....	2,000 yd (1.8 km).
Bombing Exercises ....	E12 (MK-84 2,000 lb. bomb).	2,513 yd (2.3 km) ....	991 yd (906 m) .....	2,474 yd (2.3 km) ....	2,500 yd (2.3 km).**
Torpedo (Explosive) Testing.	E11 (MK-48 torpedo)	1,632 yd (1.5 km) ....	697 yd (637 m) .....	2,021 yd (1.8 km) ....	2,100 yd (1.9 km).
Sinking Exercises .....	E12 (Various sources up to the MK-84 2,000 lb. bomb).	2,513 yd (2.3 km) ....	991 yd (906 m) .....	2,474 yd (2.3 km) ....	2.5 nm.

TABLE 11—PREDICTED RANGES TO TTS, PTS, AND RECOMMENDED MITIGATION ZONES—Continued

Activity category	Bin (representative source)*	Predicted average (longest) range to TTS	Predicted average (longest) range to PTS	Predicted maximum range to PTS	Recommended mitigation zone
At-Sea Explosive Testing.	E5 (Various sources less than 10 lb. NEW at various depths***).	525 yd (480 m) .....	204 yd (187 m) .....	649 yd (593 m) .....	1,600 yd (1.4 km).**
Elevated Causeway System—Pile Driving.	24 in. steel impact hammer.	1,094 yd (1 k m) .....	51 yd (46 m) .....	51 yd (46 m) .....	60 yd (55 m).

**Note:** The predicted average and maximum ranges have been updated for bins MF1 and MF4 since the proposed rules. These distances are consistent with the HSTT FEIS and do not change the recommended mitigation zones. ASW: anti-submarine warfare; NEW: net explosive weight; PTS: permanent threshold shift; TTS: temporary threshold shift.

<sup>1</sup> The mitigation zone would be 200 yd for sources not able to be powered down (e.g., LF4 and LF5).

\* This table does not provide an inclusive list of source bins; bins presented here represent the source bin with the largest range to effects within the given activity category.

\*\* Recommended mitigation zones are larger than the modeled injury zones to account for multiple types of sources or charges being used.

\*\*\* The representative source bin E5 has different range to effects depending on the depth of activity occurrence (at the surface or at various depths).

TABLE 12—PREDICTED RANGES TO EFFECTS AND MITIGATION ZONE RADIUS FOR MINE COUNTERMEASURE AND NEUTRALIZATION ACTIVITIES USING POSITIVE CONTROL FIRING DEVICES

Charge size	General mine countermeasure and				Mine countermeasure and neutralization			
Net explosive weight (bins)	Neutralization activities using positive control firing devices *				Activities using diver placed charges under positive control**			
	Predicted average range to TTS	Predicted average range to PTS	Predicted maximum range to PTS	Recommended mitigation zone	Predicted average range to TTS	Predicted average range to PTS	Predicted maximum range to PTS	Recommended mitigation zone
2.6–5 lb (1.2–2.3 kg) (E4).	434 yd .....	197 yd .....	563 yd .....	600 yd .....	545 yd .....	169 yd .....	301 yd .....	350 yd.
	(397 m) .....	(180 m) .....	(515 m) .....	(549 m) .....	(498 m) .....	(155 m) .....	(275 m) .....	(320 m).
6–10 lb (2.7–4.5 kg) (E5).	525 yd .....	204 yd .....	649 yd .....	800 yd .....	587 yd .....	203 yd .....	464 yd .....	500 yd.
	(480 m) .....	(187 m) .....	(593 m) .....	(732 m) .....	(537 m) .....	(185 m) .....	(424 m) .....	(457 m).
11–20 lb (5–9.1 kg) (E6).	766 yd .....	288 yd .....	648 yd .....	800 yd .....	647 yd .....	232 yd .....	469 yd .....	500 yd.
	(700 m) .....	(263 m) .....	(593 m) .....	(732 m) .....	(592 m) .....	(212 m) .....	(429 m) .....	(457 m).
21–60 lb (9.5–27.2 kg) (E7) ***.	1,670 yd .....	581 yd .....	964 yd .....	1,200 yd. ....	1,532 yd .....	473 yd .....	789 yd .....	800 yd.
	(1.5 km) .....	(531 m) .....	(882 m) .....	(1.1 km) .....	(1.4 km) .....	(432 m) .....	(721 m) .....	(732 m).
61–100 lb (27.7–45.4 kg) (E8) ****.	878 yd .....	383 yd .....	996 yd .....	1,600 yd. ....	969 yd .....	438 yd .....	850 yd .....	850 yd.
	(802 m) .....	(351 m) .....	(911 m) .....	(1.4 m) .....	(886 m) .....	(400 m) .....	(777 m) .....	(777 m).
250–500 lb (113.4–226.8 kg) (E10).	1,832 yd .....	731 yd .....	1,883 yd .....	2,000 yd. ....	.....	.....	.....	700 yd (640 m).*****
	(1,675 m) .....	(668 m) .....	(1,721 m) .....	(1.8 km) .....	.....	.....	.....	*
501–650 lb (227.3–294.8) (E11).	1,632 yd .....	697 yd .....	2,021 yd .....	2,100 yd. ....	.....	.....	.....	N/A.
	(1,492 m) .....	(637 m) .....	(1,848 m) .....	(1.9 km) .....	.....	.....	.....	

PTS: permanent threshold shift; TTS: temporary threshold shift.

\* These mitigation zones are applicable to all mine countermeasure and neutralization activities conducted in all locations that Tables 2.8–1 through 2.8–5 in the HSTT FEIS/OEIS specifies.

\*\* These mitigation zones are only applicable to mine countermeasure and neutralization activities involving the use of diver placed charges. These activities are conducted in shallow-water and the mitigation zones are based only on the functional hearing groups with species that occur in these areas (mid-frequency cetaceans and sea turtles).

\*\*\* The E7 bin was only modeled in shallow-water locations so there is no difference for the diver placed charges category.

\*\*\*\* The E8 bin was only modeled for surface explosions, so some of the ranges are shorter than for sources modeled in the E7 bin which occur at depth.

\*\*\*\*\* The mitigation zone for the E10 charge applies only to very shallow water detonations and is based on empirical data as described in section 5.3.2.1.2.4 of the HSTT FEIS/OEIS (Mine Countermeasure and Neutralization Activities Using Positive Control Firing Devices).

### Time-Delay Firing Devices

When mine neutralization activities using diver placed charges (up to a 29 lb NEW) are conducted with a time-delay firing device, the detonation is fused with a specified time-delay by the personnel conducting the activity and is not authorized until the area is clear at the time the fuse is initiated. During these activities, the detonation cannot be terminated once the fuse is initiated due to human safety concerns. During

activities using up to a 29 lb NEW (bin E7) detonation, the Navy will have four Lookouts and two small rigid hull inflatable boats (two Lookouts positioned in each of the two boats) monitoring a 1,000-yd (915-m) mitigation zone. In addition, when aircraft are used, the pilot or member of the aircrew will serve as an additional Lookout. The Navy will monitor the mitigation zone for 30 minutes before, during, and 30 minutes after the activity

to ensure that the area is clear of marine mammals and time-delay firing device events will only be conducted during daylight hours.

### Vessel Strike

Naval vessels will maneuver to keep at least 500 yd (457 m) away from any observed whale in the vessel's path and avoid approaching whales head-on. These requirements do not apply if a vessel's safety is threatened, such as

when change of course will create an imminent and serious threat to a person, vessel, or aircraft, and to the extent vessels are restricted in their ability to maneuver. Restricted maneuverability includes, but is not limited to, situations when vessels are engaged in dredging, submerged activities, launching and recovering aircraft or landing craft, minesweeping activities, replenishment while underway and towing activities that severely restrict a vessel's ability to deviate course. Vessels will take reasonable steps to alert other vessels in the vicinity of the whale. Given rapid swimming speeds and maneuverability of many dolphin species, naval vessels would maintain normal course and speed on sighting dolphins unless some condition indicated a need for the vessel to maneuver. Vessels will take all practical steps to alert other vessels in the vicinity of a whale.

If a large whale surfaces within 500 yd (457 m) of a Navy vessel (or if a vessel is within this distance of a large whale for any other reason), the vessel should exercise caution, increase vigilance, and consider slower speed if operationally supportable and does not interfere with safety of navigation until the vessel has moved beyond a 500 yd (457 m) radius of the observed whale, or any subsequently observed whales (whales often travel in pairs within several body lengths of one another (fin/blue) and humpbacks in feeding aggregations).

#### **Cetacean and Sound Mapping**

NMFS Office of Protected Resources routinely considers available information about marine mammal habitat use to inform discussions with applicants regarding potential spatio-temporal limitations on their activities that might help effect the least practicable adverse impact on species or stocks and their habitat (e.g., Humpback Whale Cautionary Area). Through the Cetacean and Sound Mapping effort ([cet.sound.noaa.gov](http://cet.sound.noaa.gov)), NOAA's Cetacean Density and Distribution Mapping Working Group (CetMap) is currently involved in a process to compile available literature and solicit expert review to identify areas and times where species are known to concentrate for specific behaviors (e.g., feeding, breeding/calving, or migration) or be range-limited (e.g., small resident populations). These areas, called Biologically Important Areas (BIAs), are useful tools for planning and impact assessments and are being provided to the public via the CetSound Web site, along with a summary of the supporting information. While these BIAs are useful tools for analysts, any decisions

regarding protective measures based on these areas must go through the normal MMPA evaluation process (or any other statutory process that the BIAs are used to inform)—the designation of a BIA does not pre-suppose any specific management decision associated with those areas. Additionally, the BIA process is iterative and the areas will be updated as new information becomes available. Currently, NMFS has published some BIAs in Hawaii (which are considered in the Comments and Responses section of this document). The BIAs in other regions, such as the Atlantic and West Coast of the continental U.S., are preliminary and are being prepared for submission to a peer-reviewed journal for review. NMFS and the Navy have discussed the draft BIAs, what Navy activities take place in these areas (in the context of what their effects on marine mammals might be or whether additional mitigation is necessary), and what measures could be implemented to reduce impacts in these areas (in the context of their potential to reduce marine mammal impacts and their practicability). As we learn more about marine mammal density, distribution, and habitat use (and the BIAs are updated), NMFS and the Navy will continue to reevaluate appropriate time-area measures through the Adaptive Management process outlined in these regulations.

#### **Stranding Response Plan**

NMFS and the Navy developed a Stranding Response Plan for the HRC and SOCAL Range Complexes in 2009 as part of previous incidental take authorizations (ITAs). The Stranding Response Plans are specifically intended to outline applicable requirements in the event that a marine mammal stranding is reported in the HRC or SOCAL Range Complex during a major training exercise. NMFS considers all plausible causes within the course of a stranding investigation and these plans in no way presume that any strandings in a Navy range complex are related to, or caused by, Navy training and testing activities, absent a determination made during investigation. The plans are designed to address mitigation, monitoring, and compliance. The Navy is currently working with NMFS to refine these plans for the new HSTT Study Area (to include regionally specific plans that include more logistical detail) and revised plans will be made available here: <http://www.nmfs.noaa.gov/pr/permits/incidental.htm#applications>. Modifications to the Stranding Response Plan may also be made through the adaptive management process.

#### **Mitigation Conclusions**

NMFS has carefully evaluated the Navy's proposed suite of mitigation measures and considered a broad range of other measures (including those recommended during the public comment period) in the context of ensuring that NMFS prescribes the means of effecting the least practicable adverse impact on the affected marine mammal species and stocks and their habitat. Our evaluation of potential measures included consideration of the following factors in relation to one another: the manner in which, and the degree to which, the successful implementation of the required mitigation measures is expected to reduce the likelihood and/or magnitude of adverse impacts to marine mammal species and stocks and their habitat; the proven or likely efficacy of the measures; and the practicability of the suite of measures for applicant implementation, including consideration of personnel safety, practicality of implementation, and impact on the effectiveness of the military readiness activity.

In some cases, additional mitigation measures are required beyond those that the applicant proposes. NMFS may consider the practicability of implementing a particular mitigation measure if the best available science indicates that the measure (either alone or in combination with other mitigation measures) has a reasonable likelihood of accomplishing or contributing to the accomplishment of one or more of the goals listed below, which in turn would be expected to lessen the likelihood and/or magnitude of adverse impacts on marine mammal species or stocks and their habitat:

(a) Avoidance or minimization of injury or death of marine mammals wherever possible (goals b, c, and d may contribute to this goal).

(b) A reduction in the numbers of marine mammals (total number or number at biologically important time or location) exposed to received levels of active sonar, underwater detonations, or other activities expected to result in the take of marine mammals (this goal may contribute to a, above, or to reducing harassment takes only).

(c) A reduction in the number of times (total number or number at biologically important time or location) individuals would be exposed to received levels of active sonar, underwater detonations, or other activities expected to result in the take of marine mammals (this goal may contribute to a, above, or to reducing harassment takes only).

(d) A reduction in the intensity of exposures (either total number or number at biologically important time or location) to received levels of MFAS/HFAS, underwater detonations, or other activities expected to result in the take of marine mammals (this goal may contribute to a, above, or to reducing the severity of harassment takes only).

(e) Avoidance or minimization of adverse effects to marine mammal habitat, paying special attention to the food base, activities that block or limit passage to or from biologically important areas, permanent destruction of habitat, or temporary destruction/disturbance of habitat during a biologically important time.

(f) For monitoring directly related to mitigation—an increase in the probability of detecting marine mammals, thus allowing for more effective implementation of the mitigation (shut-down zone, etc.).

Based on our evaluation of the Navy's proposed measures, as well as other measures considered by NMFS or recommended by the public, NMFS has determined that the Navy's proposed mitigation measures (especially when the adaptive management component is taken into consideration (see Adaptive Management, below)), along with the additions detailed in the Mitigation section above, are adequate means of effecting the least practicable adverse impacts on marine mammals species or stocks and their habitat, paying particular attention to rookeries, mating grounds, and areas of similar significance, while also considering personnel safety, practicality of implementation, and impact on the effectiveness of the military readiness activity.

### Monitoring

Section 101(a)(5)(A) of the MMPA states that in order to issue an incidental take authorization for an activity, NMFS must set forth "requirements pertaining to the monitoring and reporting of such taking." The MMPA implementing regulations at 50 CFR 216.104(a)(13) indicate that requests for LOAs must include the suggested means of accomplishing the necessary monitoring and reporting that will result in increased knowledge of the species and of the level of taking or impacts on populations of marine mammals that are expected to be present.

Monitoring measures prescribed by NMFS should accomplish one or more of the following general goals:

- An increase in the probability of detecting marine mammals, both within the mitigation zone (thus allowing for more effective

implementation of the mitigation) and in general to generate more data to contribute to the analyses mentioned below;

- An increase in our understanding of how many marine mammals are likely to be exposed to levels of active sonar (or in-water explosives or other stimuli) that we associate with specific adverse effects, such as behavioral harassment, TTS, or PTS;
- An increase in our understanding of how marine mammals respond to active sonar (at specific received levels), underwater explosives, or other stimuli expected to result in take and how anticipated adverse effects on individuals (in different ways and to varying degrees) may impact the population, species, or stock (specifically through effects on annual rates of recruitment or survival) through any of the following methods:
  - Behavioral observations in the presence of active sonar compared to observations in the absence of sonar (need to be able to accurately predict received level and report bathymetric conditions, distance from source, and other pertinent information);
  - Physiological measurements in the presence of active sonar compared to observations in the absence of tactical sonar (need to be able to accurately predict received level and report bathymetric conditions, distance from source, and other pertinent information);
  - Pre-planned and thorough investigation of stranding events that occur coincident to naval activities; and
  - Distribution and/or abundance comparisons in times or areas with concentrated active sonar versus times or areas without active sonar.
- An increased knowledge of the affected species; and
- An increase in our understanding of the effectiveness of certain mitigation and monitoring measures.

NMFS described an overview of Navy monitoring and research, highlighted recent findings, and explained the Navy's new approach to monitoring in the proposed rule (78 FR 6978, January 31, 2013; pages 7017–7020). Below is a summary of the Navy's Integrated Comprehensive Monitoring Program (ICMP) and the Navy's Strategic Planning Process for Marine Species Monitoring. A summary of the Navy's potential HSTT projects in 2014 is included in Response 2 of the Comments and Responses section of this

document and will be detailed through the Navy Marine Species Monitoring web portal (<http://www.navy-marinespeciesmonitoring.us/>).

*Integrated Comprehensive Monitoring Program (ICMP)*—The Navy's ICMP is intended to coordinate monitoring efforts across all regions and to allocate the most appropriate level and type of effort for each range complex based on a set of standardized objectives, and in acknowledgement of regional expertise and resource availability. The ICMP is designed to be flexible, scalable, and adaptable through the adaptive management and strategic planning processes to periodically assess progress and reevaluate objectives. Although the ICMP does not specify actual monitoring field work or projects, it does establish top-level goals that have been developed in coordination with NMFS. As the ICMP is implemented, detailed and specific studies will be developed which support the Navy's top-level monitoring goals. In essence, the ICMP directs that monitoring activities relating to the effects of Navy training and testing activities on marine species should be designed to accomplish one or more top-level goals. Monitoring will address the ICMP top-level goals through a collection of specific regional and ocean basin studies based on scientific objectives. Quantitative metrics of monitoring effort (e.g., 20 days of aerial surveys) will not be a specific requirement. The adaptive management process and reporting requirements will serve as the basis for evaluating performance and compliance, primarily considering the quality of the work and results produced, as well as peer review and publications, and public dissemination of information, reports and data. Details of the current ICMP are available online (<http://www.nmfs.noaa.gov/pr/permits/incidental.htm#applications> and at <http://www.navy-marinespeciesmonitoring.us/>).

*Strategic Planning Process for Marine Species Monitoring*—The Navy also developed the Strategic Planning Process for Marine Species Monitoring, which establishes the guidelines and processes necessary to develop, evaluate, and fund individual projects based on objective scientific study questions. The process uses an underlying framework designed around top-level goals, a conceptual framework incorporating a progression of knowledge, and in consultation with the Scientific Advisory Group and other regional experts. The Strategic Planning Process for Marine Species Monitoring

will be used to set intermediate scientific objectives, identify potential species of interest at a regional scale, and evaluate and select specific monitoring projects to fund or continue supporting for a given fiscal year. This process will also address relative investments to different range complexes based on goals across all range complexes, and monitoring would leverage multiple techniques for data acquisition and analysis whenever possible. The Strategic Planning Process for Marine Species Monitoring is also available on our Web site (<http://www.nmfs.noaa.gov/pr/permits/incidental.htm#applications>) and at <http://www.nmfs.noaa.gov/pr/permits/incidental.htm#applications>.

#### *Past and Current Monitoring in the HSTT Study Area*

NMFS has received multiple years' worth of annual exercise and monitoring reports addressing active sonar use and explosive detonations within the HRC, SOCAL Range Complex, and the SSTC. The data and information contained in these reports have been considered in developing mitigation and monitoring measures for the training and testing activities within the HSTT Study Area. The Navy's annual exercise and monitoring reports may be viewed at: <http://www.nmfs.noaa.gov/pr/permits/incidental.htm#applications> and <http://www.navy.marin-speciesmonitoring.us>. NMFS' summary of the Navy's monitoring reports was included in the proposed rule (78 FR 6978, January 31, 2013; pages 7018–7019).

#### *Monitoring for the HSTT Study Area*

2014 will be a transitional year for Navy monitoring so that ongoing data collection from the Navy's current HRC and SOCAL rulemakings can be completed. Therefore, monitoring in 2014 will be a combination of previously funded Fiscal Year 2013 (FY–13) “carry-over” projects and new FY–14 project starts. A more detailed description of the Navy's planned projects starting in 2014 (and some continuing from previous years) is available on NMFS Web site ([www.nmfs.noaa.gov/pr/permits/incidental.htm#applications](http://www.nmfs.noaa.gov/pr/permits/incidental.htm#applications)). The Navy will update the status of its monitoring program and funded projects through their Navy Marine Species Monitoring web portal: <http://www.navy.marin-speciesmonitoring.us/>. Potential HSTT projects for 2014 are summarized in Response 2 of the Comments and Responses section of this document. NMFS will provide one public comment period on the Navy's

monitoring program during the 5-year regulations. At this time, the public will have an opportunity (likely in the second year) to comment specifically on the Navy's HSTT monitoring projects and data collection to date, as well as planned projects for the remainder of the regulations.

Through the adaptive management process (including annual meetings), the Navy will coordinate with NMFS and the Marine Mammal Commission (Commission) to review and provide input for projects that will meet the scientific objectives that are used to guide development of individual monitoring projects. The adaptive management process will continue to serve as the primary venue for both NMFS and the Commission to provide input on the Navy's monitoring program, including ongoing work, future priorities, and potential new projects. The Navy will continue to submit annual monitoring reports to NMFS as part of the HSTT rulemaking and LOA requirements. Each annual report will contain a section describing the adaptive management process and summarize the Navy's anticipated monitoring projects for the next reporting year. Following annual report submission to NMFS, the final rule language mandates a 3-month NMFS review prior to each report being finalized. This will provide ample time for NMFS and the Commission to comment on the next year's planned projects as well as ongoing regional projects or proposed new starts. Comments will be received by the Navy prior to the annual adaptive management meeting to facilitate a meaningful and productive discussion. NMFS and the Commission will also have the opportunity for involvement at the annual monitoring program science review meetings and/or regional Scientific Advisory Group meetings. This will help NMFS and the Commission stay informed and understand the scientific considerations and limitations involved with planning and executing various monitoring projects.

#### **Adaptive Management**

Although substantial improvements have been made in our understanding of the effects of Navy training and testing activities (e.g., sonar, underwater detonations) on marine mammals, the science in this field is evolving fairly quickly. These circumstances make the inclusion of an adaptive management component both valuable and necessary within the context of 5-year regulations.

The reporting requirements associated with this rule are designed to provide

NMFS with monitoring data from the previous year to allow us to consider whether any changes are appropriate. NMFS, the Navy, and the Commission will meet to discuss the monitoring reports, Navy R&D developments, current science, and whether mitigation or monitoring modifications are appropriate. The use of adaptive management allows NMFS to consider new information from different sources to determine (with input from the Navy regarding practicability) on an annual or biennial basis if mitigation or monitoring measures should be modified (including additions or deletions). Mitigation measures could be modified if new data suggests that such modifications would have a reasonable likelihood of reducing adverse effects to marine mammals species or stocks and their habitat and if the measures are practicable.

The following are some of the possible sources of applicable data to be considered through the adaptive management process: (1) Results from monitoring and exercise and testing reports, as required by MMPA authorizations; (2) compiled results of Navy funded R&D studies; (3) results from specific stranding investigations; (4) results from general marine mammal and sound research; and (5) any information which reveals that marine mammals may have been taken in a manner, extent, or number not authorized by these regulations or subsequent LOAs.

#### **Reporting**

In order to issue an ITA for an activity, section 101(a)(5)(A) of the MMPA states that NMFS must set forth “requirements pertaining to the monitoring and reporting of such taking.” Effective reporting is critical both to compliance as well as ensuring that the most value is obtained from the required monitoring. NMFS described the proposed Navy reporting requirements in the proposed rule (78 FR 6978, January 31, 2013; page 7021). Since then, the Navy has expanded on those reports to include specific language for testing activities, which is detailed in the regulatory text at the end of this document. Reports from individual monitoring events, results of analyses, publications, and periodic progress reports for specific monitoring projects will be posted to the Navy's Marine Species Monitoring web portal: <http://www.navy.marin-speciesmonitoring.us> and NMFS' Web site: <http://www.nmfs.noaa.gov/pr/permits/incidental.htm#applications>. There are several different reporting requirements

that are further detailed in the regulatory text at the end of this document and summarized below.

#### *General Notification of Injured or Dead Marine Mammals*

Navy personnel will ensure that NMFS (the appropriate Regional Stranding Coordinator) is notified immediately (or as soon as clearance procedures allow) if an injured or dead marine mammal is found during or shortly after, and in the vicinity of, any Navy training or testing activities utilizing active sonar or underwater explosive detonations. The Navy will provide NMFS with species identification or a description of the animal(s), the condition of the animal(s) (including carcass condition if the animal is dead), location, time of first discovery, observed behaviors (if alive), and photographs or video (if available). The HSTT Stranding Response Plan contains further reporting requirements for specific circumstances (<http://www.nmfs.noaa.gov/pr/permits/incidental.htm#applications>).

#### *Vessel Strike*

Since the proposed rule, NMFS has added the following language to address monitoring and reporting measures specific to vessel strike. Most of this language comes directly from the Stranding Response Plan. This section has also been included in the regulatory text at the end of this document. In the event that a Navy vessel strikes a whale, the Navy shall do the following:

Immediately report to NMFS (pursuant to the established Communication Protocol) the:

- Species identification (if known);
- Location (latitude/longitude) of the animal (or location of the strike if the animal has disappeared);
- Whether the animal is alive or dead (or unknown); and
- The time of the strike.

As soon as feasible, the Navy shall report to or provide to NMFS, the:

- Size, length, and description (critical if species is not known) of animal;
- An estimate of the injury status (e.g., dead, injured but alive, injured and moving, blood or tissue observed in the water, status unknown, disappeared, etc.);
- Description of the behavior of the whale during event, immediately after the strike, and following the strike (until the report is made or the animal is no longer sighted);
- Vessel class/type and operational status;
- Vessel length;
- Vessel speed and heading; and

- To the best extent possible, obtain a photo or video of the struck animal, if the animal is still in view.

Within 2 weeks of the strike, provide NMFS:

- A detailed description of the specific actions of the vessel in the 30-minute timeframe immediately preceding the strike, during the event, and immediately after the strike (e.g., the speed and changes in speed, the direction and changes in direction, other maneuvers, sonar use, etc., if not classified);
- A narrative description of marine mammal sightings during the event and immediately after, and any information as to sightings prior to the strike, if available; and use established Navy shipboard procedures to make a camera available to attempt to capture photographs following a ship strike.

NMFS and the Navy will coordinate to determine the services the Navy may provide to assist NMFS with the investigation of the strike. The response and support activities to be provided by the Navy are dependent on resource availability, must be consistent with military security, and must be logistically feasible without compromising Navy personnel safety. Assistance requested and provided may vary based on distance of strike from shore, the nature of the vessel that hit the whale, available nearby Navy resources, operational and installation commitments, or other factors.

#### *Annual Monitoring and Exercise and Testing Reports*

As noted above, reports from individual monitoring events, results of analyses, publications, and periodic progress reports for specific monitoring projects will be posted to the *Navy's Marine Species Monitoring web portal* and NMFS' Web site as they become available. Progress and results from all monitoring activity conducted within the HSTT Study Area, as well as required Major Training Event exercise and testing activity, will be summarized in an annual report.

In the past, each annual report has summarized data for a single year. At the Navy's suggestion, the annual reports under this final rule will take a cumulative approach in that each report will compare data from that year to all previous years. For example, the third annual report will include data from the third year and compare it to data from the first and second years. This will provide an ongoing cumulative look at the Navy's annual monitoring and exercise and testing reports and eliminate the need for a separate comprehensive monitoring and exercise

summary report (as included in the proposed rule) at the end of the 5-year period. A draft of the annual reports will be submitted to NMFS for review in April of each year in order to cover the entire reporting period for the authorization. NMFS will review the reports and provide comments for incorporation within 3 months.

#### *Comments and Responses*

On January 13, 2013 (78 FR 6978), NMFS published a proposed rule in response to the Navy's request to take marine mammals incidental to training and testing activities in the HSTT Study Area and requested comments, information, and suggestions concerning the request. During the 30-day public comment period, NMFS received over 200 comments from private citizens, the Marine Mammal Commission (Commission), and several non-governmental organizations, including the Natural Resources Defense Council (NRDC), the Cascadia Research Collective (CRC), and Earthjustice (on behalf of the Center for Biological Diversity and Ocean Mammal Institute). Comments specific to section 101(a)(5)(A) of the MMPA and NMFS' analysis of impacts to marine mammals are summarized, sorted into general topic areas, and addressed below and/or throughout the final rule. Comments specific to the FEIS/OEIS, which NMFS participated in developing as a cooperating agency and adopted, or that were also submitted to the Navy during the DEIS/OEIS public comment period are addressed in Appendix E (Public Participation) of the FEIS/OEIS. Last, some commenters presented technical comments on the general behavioral risk function that are largely identical to those posed during the comment period for the HRC proposed rule, one of the predecessors to the HSTT rule. The behavioral risk function remains unchanged since then, and here we incorporate our responses to those initial technical comments (74 FR 1455, Acoustic Threshold for Behavioral Harassment section, page 1473). Full copies of the comment letters may be accessed at <http://www.regulations.gov>.

#### *Monitoring and Reporting*

*Comment 1:* The Commission recommended that we require the Navy to use passive and active acoustics to supplement visual monitoring during implementation of mitigation measures for all activities that could cause Level A harassment or mortality. Specifically, the Commission questioned why passive and active acoustic monitoring used during the Navy's Surveillance Towed Array Sensory System Low

Frequency Active (SURTASS LFA) activities is not applied here.

*Response 1:* The Navy requested Level A take of marine mammals for impulse and non-impulse sources during training and testing based on its acoustic analysis. The Navy also requested take of marine mammals by mortality for impulse sources, unspecified sources (impulse or non-impulse), and vessel strike. While it is impractical for the Navy to conduct passive acoustic monitoring during all training and testing activities, the Navy has engineered the use of passive acoustic detection for monitoring purposes, taking into consideration where the largest impacts could potentially occur, and the effectiveness and practicality of installing or using these devices. The Navy will use passive acoustic monitoring to supplement visual observations during Improved Extended Echo Ranging (IEER) sonobuoy activities, explosive sonobuoys using 0.6–2.5 pound (lb) net explosive weight, torpedo (explosive) testing, and sinking exercises, to detect marine mammal vocalizations. However, it is important to note that passive acoustic detections do not provide range or bearing to detected animals, and therefore cannot provide locations of these animals. Passive acoustic detections will be reported to Lookouts to increase vigilance of the visual surveillance.

The active sonar system used by SURTASS LFA is unique to the platforms that use SURTASS LFA. Moreover, this system requires the platforms that carry SURTASS LFA to travel at very slow speeds for the system to be effective. For both of these reasons it is not possible for the Navy to use this system for the platforms analyzed in the HSTT EIS/OEIS.

NMFS believes that the Navy's suite of mitigation measures (which include mitigation zones that exceed or meet the predicted maximum distance to PTS) will typically ensure that animals will not be exposed to injurious levels of sound. To date, the Navy has conducted and submitted 22 post-explosive monitoring reports for the HRC between 2009 and 2012, none of which show any evidence of injured marine mammals. In addition, within the SSTC portion of the HSTT Study Area, the Navy has conducted eight post-explosive monitoring events between 2012 and 2013, none of which show any evidence of injured marine mammals.

*Comment 2:* The Commission recommended that NMFS require the Navy to submit a proposed monitoring plan for public review and comment prior to issuance of final regulations.

*Response 2:* NMFS provided an overview of the Navy's Integrated Comprehensive Monitoring Program (ICMP) in the proposed rule (78 FR 6978, January 31, 2013). While the ICMP does not specify actual monitoring field work or projects, it does establish top-level goals that have been developed by the Navy and NMFS. As explained in the proposed rule, detailed and specific studies will be developed as the ICMP is implemented and funding is allocated.

Since the proposed rule was published, the Navy has provided a more detailed short-term plan for the first year of the rule. 2014 will be a transitional year with ongoing data collection straddling the shift from Phase I (metric-based) to Phase II Compliance Monitoring. Therefore, monitoring in 2014 will be a combination of previously funded FY–13 “carry-over” projects from Phase I and new FY–14 project starts under the vision for Phase II monitoring. A more detailed description of the Navy's planned projects starting in 2014 (and some continuing from previous years) is available on NMFS Web site ([www.nmfs.noaa.gov/pr/permits/incidental.htm#applications](http://www.nmfs.noaa.gov/pr/permits/incidental.htm#applications)).

Additionally, NMFS will provide one public comment period on the Navy's monitoring program during the 5-year regulations. At this time, the public will have an opportunity (likely in the second year) to comment specifically on the Navy's HSTT monitoring projects and data collection to date, as well as planned projects for the remainder of the regulations.

In summary, HSTT projects in 2014 may include analysis of passive acoustic data from Ecological Acoustic Recorders (EARs) around Niihau and Kaula Island; an exposure and response study of species exposed to mid-frequency active sonar during Naval training events around Kauai; post-training event aerial shoreline surveys for stranded marine mammals around Niihau and Kauai; post-training event ground-based shoreline surveys for stranded marine mammals following a Navy training event around Niihau; a pre-training event visual survey, cetacean tagging, and passive acoustic monitoring around Kauai and Kaula Island; a glider survey of the HRC; the use of marine mammal observers on guided missile destroyers and at Puuloa during underwater detonations. In addition, two SOCAL projects were already funded in FY–13 and field work will continue through 2014. Details of already funded projects are available through the Navy Marine Species Monitoring web portal (<http://www.navy-marinespeciesmonitoring.us/>).

). The Navy will update the status of their monitoring projects through this site, which serves as a public portal for information regarding all aspects of the Navy's monitoring program, including background and guidance documents, access to reports and data, and specific information on current monitoring projects. The public will also have the opportunity to review the Navy's monitoring reports, which will be posted and available for download every year from the Navy's Marine Species Monitoring web portal (<http://www.navy-marinespeciesmonitoring.us/>).

Through the adaptive management process (including annual meetings), the Navy will coordinate with NMFS and the Commission to review and revise, if required, the list of intermediate scientific objectives that are used to guide development of individual monitoring projects. As described previously in the Monitoring section of this document, NMFS and the Commission will also have the opportunity to attend monitoring program science review meetings and/or regional Scientific Advisory Group meetings.

The Navy will continue to submit annual monitoring reports to NMFS, which will describe the results of the adaptive management process and summarize the Navy's anticipated monitoring projects for the next reporting year. NMFS will have a 3-month review period to comment on the next year's planned projects, ongoing regional projects, and proposed new project starts. NMFS' comments will be submitted to the Navy prior to the annual adaptive management meeting to facilitate a meaningful and productive discussion between NMFS, the Navy, and the Commission.

*Comment 3:* One commenter recommended the use of remote control underwater video cameras to help monitor for marine mammals.

*Response 3:* The use of remote control underwater video cameras is not a practical means of monitoring during Navy training and testing activities due to the inability to observe a large enough range to protect marine mammals from acoustic or explosive effects; expansive monitoring areas; the lack of personnel and resources available; and safety and security concerns.

*Comment 4:* One commenter asked about the qualifications, training, and time schedules of observers.

*Response 4:* The Navy has Lookouts stationed onboard ships whose primary duty is to detect objects in the water, estimate the distance from the ship, and identify them as any number of



inanimate or animate objects that are significant to a Navy activity or as a marine mammal so that the mitigation measure can be implemented. Navy Lookouts undergo extensive training to learn these skills and the Navy's Marine Species Awareness Training is used to make them more aware of marine mammal species and behaviors. Detailed information on the Navy's Marine Species Awareness Training program, which speaks to qualifications and training, is also provided in Chapter 5 of the HSTT FEIS/OEIS. Lookouts are used continuously, throughout the duration of activities that involve the following: active sonar, Improved Extended Echo Ranging (IEER) sonobuoys, anti-swimmer grenades, positive control firing devices, time-delay firing devices, gunnery exercises (surface target), missile exercises (surface target), bombing exercises, torpedo (explosive) testing, sinking exercises, at-sea explosives testing, pile driving, vessels underway, towed in-water devices, and non-explosive practice munitions.

*Comment 5:* Several commenters proposed the use of seabed listening stations, modification of sonobuoys for passive acoustic detection, or other Navy detection devices to enhance marine mammal monitoring.

*Response 5:* While there are some established bottom-mounted hydrophone arrays in the Pacific Ocean, they cover a very small portion of the HSTT Study Area. The Navy has used passive acoustics in the past and continues to use arrays such as the Pacific Missile Range Facility in Hawaii and the Southern California Anti-Submarine Warfare Range in California to study animal movements and behavioral response to Navy training activities. Results from these studies are available in the Navy's annual monitoring reports through our Web site (<http://www.nmfs.noaa.gov/pr/permits/incidental.htm#applications>) or the Navy's (<http://www.navy.marinesthespeciesmonitoring.us/>).

Passive acoustic monitoring will also be conducted with Navy assets, such as sonobuoys, already participating in an activity (e.g., sinking exercises, torpedo (explosive) testing, and improved extended echo ranging sonobuoys). These assets would only detect vocalizing marine mammals within the frequency bands monitored by Navy personnel. Passive acoustic detections would not provide range or bearing to detected animals, and therefore cannot provide locations of these animals. However, passive acoustic detections would be reported to Lookouts posted in

aircraft to increase vigilance of their visual observation. Modifying sonobuoys to increase the bandwidth is considered impractical for the Navy because it would require significant modification to the sonobuoy receiving equipment at a substantial cost and reduce the effectiveness of the sonobuoy system's primary purpose—to detect submarines. It is impractical for the Navy to construct and maintain additional passive acoustic monitoring systems for each training and testing activity.

*Comment 6:* One commenter shared concerns about how sequestration will affect the Navy's marine mammal monitoring program and research efforts.

*Response 6:* The Navy is required to comply with the terms of the regulations and LOAs regardless of sequestration.

*Comment 7:* One commenter suggested that Navy Lookouts should be dedicated solely to the observation of marine mammals and turtles.

*Response 7:* The Navy has Lookouts stationed onboard ships whose primary duty is to detect objects in the water, estimate the distance from the ship, and identify them as any number of inanimate or animate objects that are significant to a Navy activity or as a marine mammal so that the mitigation measure can be implemented. Navy Lookouts undergo extensive training to learn these skills and the Navy's Marine Species Awareness Training is used to make them more aware of marine mammal species and behaviors. However, because Lookouts must be able to detect and identify multiple objects in the water to ensure the safety of the ship, they are not expected to solely observe for marine mammals and sea turtles.

*Comment 8:* One commenter suggested that small Rigid Hull Inflatable Boats (RHIBs) are not adequate for monitoring 900 or 1,200-meter mitigation zones.

*Response 8:* The only activity with a mitigation zone of larger than 900 yd where RHIBs are the primary means of monitoring the mitigation zone is for time-delay firing devices (TDFDs), which have a mitigation zone of 1,000 yd. All other diver-placed charges, which are the vast majority of underwater detonations, have smaller mitigation zones. All other activities with mitigation zones larger than 900 yd (i.e., missile exercises, bombing exercises, torpedo testing, etc.) use aircraft, larger surface craft, or a combination of assets (not just RHIBs) for monitoring.

For the TDFD mitigation zone, the Navy considered 1,000 yd (914 m) to be

the maximum distance that Lookouts in two small boats can effectively and realistically monitor. The Navy considered this limitation when proposing mitigation zones and available assets for each of their activities. Navy Lookouts are trained to detect objects in the water and it is in the Navy's best interest (for safety, security, and compliance with the MMPA) to ensure that mitigation zones can be properly monitored from each available vessel or boat. RHIBs are used during particular nearshore underwater detonation training activities. The Navy's RHIBs are agile enough and the boat drivers are experienced enough to conduct frequent circular sweeps around a given mitigation zone looking for marine mammals. Also, these kinds of training activities are not typically conducted if sea state is above a level 3.

*Comment 9:* NMFS recommended that the Navy use all available range assets for marine mammal monitoring.

*Response 9:* NMFS has worked with the Navy over the years to help develop the most effective mitigation protocols using the platforms and assets that are available for monitoring. The required mitigation measures in this document represent the maximum level of effort (e.g., numbers of Lookouts and passive sonobuoys) that the Navy can commit to observing mitigation zones given the number of personnel that will be involved and the number and type of assets and resources available. The Navy has determined that it is impractical to increase visual and passive acoustic observations for the purpose of mitigation.

The National Defense Authorization Act of 2004 amended the MMPA as it relates to military readiness activities (which these Navy activities are) and the incidental take authorization process such that "least practicable adverse impact" shall include consideration of personnel safety, practicality of implementation, and impact on the effectiveness of the "military readiness activity." As explained in Chapter 5 of the HSTT FEIS/OEIS, it is impractical for the Navy to increase the level of marine mammal monitoring. The Navy has a limited number of resources (e.g., personnel and other assets) and the monitoring requirements in this rulemaking represent the maximum level of effort that the Navy can commit to marine mammal monitoring.

#### Mitigation

*Comment 10:* The Commission requested that NMFS require the Navy to cease use of sound sources and not reinitiate them for (1) at least 15

minutes if small odontocetes or pinnipeds enter the mitigation zone and are not observed to leave; and (2) relevant time periods based on the maximum dive times of mysticetes or large- or medium-sized odontocetes if they enter the mitigation zone and are not observed to leave. Other commenters also suggested that activities should not resume until the animal is observed to exit the mitigation zone or the target has been repositioned more than 400 yd (366 m) away from the last marine mammal sighting; and that monitoring the mitigation zone for 30 minutes, before, during, and after the activity is insufficient for deep-diving species.

*Response 10:* Section 5.3.2 of the HSTT FEIS/OEIS details the mitigation measures in place for each type of activity. These mitigation measures are also provided in the regulatory text at the end of this document. In summary, depending on the specific activity type and following the shutdown or delay of acoustic activities, the Navy may resume activities if any one of the following conditions are met: (1) The animal is observed exiting the mitigation zone; (2) the animal is thought to have exited the mitigation zone based on a determination of its course and speed and the relative motion between the animal and the source; (3) the mitigation zone has been clear from any additional sightings for a period of 10 or 30 minutes (depending on whether aircraft is involved and specific fuel restrictions); (4) the intended target location has been repositioned more than 400 yd (366 m) away from the location of the last sighting; (5) the ship has transited more than 140 yd (128 m) (large-caliber gunnery exercises) or 2,000 yd (1.8 km) (active sonar) beyond the location of the last sighting; or (6) dolphins are bow riding and there are no other marine mammal sightings within the mitigation zone.

The Commission expressed concern regarding the Navy's ability to determine the relative position of an animal. Understanding relative motion is a critical skill for Navy personnel, who receive training in target and contact tracking, target and contact interception, multi-ship maneuvering drills, etc. While an animal may occasionally act unpredictably, it is more likely that the animal will be seen leaving the mitigation zone or Navy personnel will be able to track the animal's location.

With regard to maximum dive times, NMFS disagrees that the clearance time should be lengthened for deep-diving species for the following reasons: (1)

Just because an animal can dive for longer than 30 minutes does not mean that they always do, so a longer delay would only potentially add value in instances when animals had remained underwater for more than 30 minutes; and (2) The animal would need to have stayed in the immediate vicinity of the sound source for more than 30 minutes. Considering the maximum area that both the vessel and the animal could cover in that amount of time, it is improbable that this would randomly occur. For example, during a 1-hour dive by a beaked whale or sperm whale, a mid-frequency active sonar ship moving at a nominal speed of 10 knots could transit up to 10 nautical miles from its original location. Additionally, the times when marine mammals are diving deep (i.e., the times when they are under the water for longer periods of time) are the same times that a large portion of their motion is in the vertical direction, which means that they are far less likely to keep pace with a horizontally moving vessel. Moreover, considering that many animals have been shown to avoid both acoustic sources and ships without acoustic sources, it is improbable that a deep-diving cetacean (as opposed to a dolphin that might bow ride) would choose to remain in the immediate vicinity of the acoustic source; (3) Visual observers are not always able to differentiate species to the degree that would be necessary to implement this measure; and (4) Increasing clearance time is not operationally feasible for Navy activities that require aircraft surveillance because of fuel limitations. NMFS does not believe that increasing the clearance time based on maximum dive times will add to the protection of marine mammals in the vast majority of cases, and therefore, we have not required it.

*Comment 11:* The Commission recommended that NMFS require the Navy to either (1) adjust the size of the mitigation zone for mine neutralization activities using the average swim speed of the fastest swimming marine mammal occurring in the area where time-delay firing devices will be used and ensure that the zone is adequately monitored; or (2) authorize all model-estimated takes for Level A harassment and mortality for mine neutralization activities in which divers use time-delay firing devices.

*Response 11:* The Navy proposed a mitigation zone of 1,000 yards for all charge sizes (5, 10, and 29 lb) and for a maximum time-delay of 10 minutes. This is the maximum distance that Lookouts in two small boats can realistically monitor. The use of more

than two boats for monitoring during time-delay firing device events is impractical due to the Navy's limited personnel resources. The Navy's proposed mitigation zone covers the potential for mortality up to a 9-minute time delay (but not 10-minute). The proposed mitigation zone also covers the potential for injury up to a 5-minute time-delay for 10 and 29 lb charges, and a 6-minute time-delay for 5 lb charges, but not for time delays greater than 6 minutes for any charge size. As a result of the mitigation zone restriction and the Commission's recommendation, and based on the Navy's modeling results and mitigation effectiveness, the Navy has requested seven mortalities and 56 Level A injuries for any training or testing event (not just underwater detonations), in case of an unavoidable incident.

*Comment 12:* A few commenters recommended that the leeward side of the island of Hawaii out to a depth of 3,281 yd (3,000 m) should be off limits to Navy training and testing activities.

*Response 12:* As described in the proposed rule, there is evidence suggesting that several resident populations of marine mammals may be present off the leeward side of Hawaii. NMFS considers the nature, level, and spatial extent of activities expected to co-occur with resident populations in both the analysis and in the development of mitigation measures. Time-area restrictions may be considered in order to help ensure that these small populations, limited to a small area of preferred habitat, are not exposed to concentrations of activities within their ranges that have the potential to impact a large portion of the stock/species over longer amounts of time that could have detrimental consequences to the stock/species. Here, NMFS has reviewed the Navy's exercise reports and considered/discussed their historical level of activity in the area where resident populations of marine mammals are concentrated, found that it is very low, and concluded that time/area restrictions in this area would not further reduce the likelihood or magnitude of adverse impacts on marine mammal species or stocks in this location and are not necessary at this point. However, if future monitoring and exercise and testing reports suggest that increased operations overlap with these resident populations, NMFS will revisit the consideration of area limitations around these populations.

*Comment 13:* One commenter suggested that an alternate industrial shipping route could be created to reduce the risk of vessel strike to blue whales if the Navy would allow

shipping lanes south of the northern Channel Islands.

*Response 13:* The U.S. Coast Guard, rather than the Navy, designates commercial shipping lanes. The Channel Islands are north of the SOCAL Range Complex and are not part of the HSTT Study Area. Furthermore, there has not been a Navy ship strike to any marine mammal north of the SOCAL Range Complex over the last 10 years.

However, NOAA National Marine Sanctuaries recently worked with the U.S. Coast Guard to modify the International Maritime Organization's shipping lane approaches to the Los Angeles, Long Beach, and San Francisco Bay ports in order to reduce the co-occurrence of ships and whales in the Santa Barbara Channel and the San Francisco Bay area.

*Comment 14:* Several commenters suggested that the proposed mitigation measures were inadequate because observers do not always detect marine mammals and cannot see as far as sound travels.

*Response 14:* It is the duty of Navy Lookouts to detect marine mammals in the water and estimate the distance from the ship so that the mitigation measures (shutdown, powerdown, etc.) can be implemented. Navy Lookouts undergo extensive training to learn these skills and the Marine Species Awareness Training is used to augment this general training with information specific to marine mammals. However, the mitigation measures the Navy is implementing are designed primarily to avoid and minimize the likelihood of mortality and injury, which are associated with acoustic exposures above a certain level, and therefore it is not necessary to see as far as sound travels to successfully implement the mitigation measures.

*Comment 15:* Earthjustice suggested that NMFS did not propose any additional mitigation measures beyond what the Navy included in their application.

*Response 15:* NMFS worked closely with the Navy in the development of mitigation for training and testing both in the first 5-year rules and for this 2013 proposal. The measures that the Navy proposed reflect years of experience and consideration of extensive monitoring results. NMFS and the Navy considered a wide array of additional measures, both before and after the public comment period. A description of some of the additional measures that were considered, and how they were analyzed in the context of the "least practicable adverse impact on the species and/or stock" finding, is included in this document (see

Comments and Responses and Mitigation sections) as well as the Navy's HSTT FEIS/OEIS. As described, NMFS has determined that the Navy's proposed mitigation measures (especially when the adaptive management component is taken into consideration (see previous Adaptive Management discussion)), along with the additions detailed in the Mitigation section, are adequate means of effecting the least practicable adverse impacts on marine mammal species or stocks and their habitat, paying particular attention to rookeries, mating grounds, and areas of similar significance, while also considering personnel safety, practicality of implementation, and impact on the effectiveness of the military readiness activity.

*Comment 16:* Earthjustice suggested that Navy training and testing activities should be prohibited in the Hawaiian Islands Humpback National Marine Sanctuary during critical calving and mating months.

*Response 16:* Scientific evidence shows that there are well-known areas of high density for humpback whales within the Hawaiian Islands Humpback National Marine Sanctuary and in nearshore areas of the Main Hawaiian Islands. In recognition of the significance of the Hawaiian Islands for humpback whales, the Navy will continue their designation of a humpback whale cautionary area in Hawaiian waters. As explained in the proposed rule, this area consists of a 5-kilometer (3.1-mile) buffer zone having one of the highest concentrations of humpback whales during winter months. The Navy has to receive a very high level of clearance if training or testing use of mid-frequency active sonar is necessary between December 15 and April 15. To date, the Navy has never requested approval to conduct training or testing use of mid-frequency active sonar in the area during this time period. Additionally, the fact that high concentrations of marine mammals make conducting training and testing activities difficult and unsafe reduces the likelihood that the Navy will conduct training or testing in the higher density areas (with the exception of the PMRF Range, an essential training and testing asset) unless absolutely necessary.

The Navy has been collecting hull-mounted mid-frequency active sonar usage data in many areas of high-density humpback whale concentrations since 2009 and reporting to NMFS since 2010. The Navy has verified that, with the exception of the Pacific Missile Range Facility, there is limited use of any hull-mounted sonar (from training and

testing activities) overlapping with humpback whale high-density areas around the Main Hawaiian Islands.

*Comment 17:* Several commenters recommended that the Navy use more than one Lookout during all training and testing activities.

*Response 17:* The Navy will have more than one Lookout for several higher risk training and testing activities or where the ensonified area is larger, such as during mine countermeasure and neutralization activities involving time-delay firing devices; for some vessels using low-frequency active sonar or hull-mounted mid-frequency active sonar associated with ASW activities, depending on the size and status/location of the vessel; during mine neutralization activities involving diver placed charges of up to 100 lb (45 kg) net explosive weight; and during sinking exercises. Aircrew and divers may also be used as additional observers during mine countermeasure and neutralization activities. However, for the reasons stated below, the Navy cannot use more than one Lookout for all training and testing activities—however, a minimum of one Lookout would always be required.

The National Defense Authorization Act of 2004 amended the MMPA as it relates to military readiness activities (which these Navy activities are) and the incidental take authorization process such that "least practicable adverse impact" shall include consideration of personnel safety, practicality of implementation, and impact on the effectiveness of the "military readiness activity." As explained in Chapter 5 of the HSTT FEIS/OEIS, it is impractical for the Navy to increase visual observations for the purpose of mitigation beyond the amounts that have already been worked out in coordination with NMFS here. The Navy has a limited number of resources (e.g., personnel and other assets) and the mitigation requirements in this rulemaking represent the maximum level of effort that the Navy can commit to observing mitigation zones. Also, the use of additional Lookouts in association with lower risk activities with smaller ensonified areas would not be expected to provide as much of an additional protective value as is provided for the activities mentioned above.

*Comment 18:* Several commenters suggested that the Navy limit their activities to periods of good visibility. More specifically, NRDC suggested that all weapons firing in missile, bombing, and sinking exercises involving detonations exceeding 20 lb. net explosive weight take place during the

period 1 hour after sunrise to 30 minutes before sunset.

*Response 18:* The Navy explained in Chapter 5 of the HSTT FEIS/OEIS that avoiding or reducing active sonar at night and during periods of low visibility for the purpose of mitigation would result in an unacceptable impact on readiness. In summary, the Navy must train and test in a variety of conditions (including at night and in low-visibility) to adequately train for military operations and test systems and equipment in all appropriate conditions and ensure that systems and equipment operate as intended. However, certain activities, such as those involving explosives greater than 20 lb net explosive weight, are currently conducted during daylight hours only. The Navy does not anticipate impacts to the training or testing programs, as long as training or testing requirements do not change; however, the Navy needs to retain the ability to conduct these activities at night if emergent requirements dictate the need for this capability.

The Navy will use passive acoustic monitoring to supplement visual observations during Improved Extended Echo Ranging (IEER) sonobuoy activities, explosive sonobuoys using 0.6–2.5 lb net explosive weight, torpedo (explosive) testing, and sinking exercises, to detect marine mammal vocalizations. However, it is important to note that passive acoustic detections do not provide range or bearing to detected animals, and therefore cannot provide locations of these animals. Passive acoustic detections will be reported to Lookouts to increase vigilance of the visual surveillance.

*Comment 19:* One commenter suggested that Navy training and testing activities could be significantly reduced while still maintaining military readiness.

*Response 19:* The Navy has identified the level of training and testing requirements that are necessary to meet its legally mandated requirements. NMFS must decide whether to authorize the take of marine mammals incidental to an applicant's proposed action based on the factors contained in the MMPA; NMFS does not permit or authorize the underlying action itself. In this case, NMFS has determined that the Navy's training and testing activities will have a negligible impact on the affected species or stocks and has met all other statutory requirements, therefore, we plan to issue the requested MMPA authorization.

*Comment 20:* NRDC and other commenters recommended an expansion of the Navy's mitigation

zones during the use of mid-frequency active sonar to reflect international best practice (4 km) or the standard prescribed by the California Coastal Commission (2 km).

*Response 20:* The Navy developed mitigation zones to avoid or reduce the potential for onset of the lowest level of injury, PTS, out to the predicted maximum range. For mid-frequency active sonar, the Navy will implement a 6 dB power down at 1,000 yd (914 m), an additional 4 dB (total 10 dB) power down at 500 yd (457 m), and shutdown at 200 yd (183 m). Both powerdown criteria exceed the predicted average and maximum ranges to PTS. NMFS believes that these mitigation zone distances will help avoid the potential for onset of PTS in marine mammals and reduce the potential for TTS. These shutdown zones, combined with other mitigation measures, are expected to effect the least practicable adverse impact on marine mammal species or stocks and their habitat.

Furthermore, the Navy's mitigation zones represent the maximum area the Navy can observe based on the platform of observation, number of personnel that will be involved, and the number and types of assets and resources available. Increasing the size of observed mitigation zones for the purposes of mitigation would be impractical with regard to implementation of military readiness activities and result in an unacceptable impact on readiness.

*Comment 21:* NRDC recommended that the Navy use sonar and other active acoustic sources at the lowest practicable source level.

*Response 21:* The Navy utilizes sonar and other active acoustic sources to support a variety of missions. Primary uses of sonar include detection of and defense against submarines (anti-submarine warfare) and mines (mine warfare); safe navigation and effective communications; and oceanographic surveys. The source levels must be adequate to perform these tasks, but mitigation measures (e.g., powerdown and shutdown) will be implemented if marine mammals are within or approaching established zones. The Navy will submit annual exercise and testing reports to NMFS that summarize major training exercises, sinking exercises, and sound sources used. These reports will be made available to the public via NMFS' Web site and the U.S. Navy Marine Species Monitoring web portal.

*Comment 22:* NRDC suggested that the Navy delay or relocate activities when beaked whales are detected through passive acoustic monitoring,

even if potentially occurring beyond the established mitigation zone.

*Response 22:* This recommendation is impractical for the Navy because operators of passive acoustic systems may not be able to identify whether a vocalization is from a beaked whale. As stated previously, passive acoustic monitoring can neither provide range or bearing to detected animals, and therefore cannot provide locations of these animals. However, all passive acoustic detections will be reported to Lookouts to increase vigilance of the visual surveillance.

*Comment 23:* NRDC suggested that the Navy use gliders or other platforms for pre-activity monitoring to avoid significant aggregations of marine mammals and delay or relocate activities when significant aggregations of marine mammals are detected within the vicinity of an exercise.

*Response 23:* The development of passive acoustic detectors on gliders and other platforms is still in the research and development stages under funding from the Office of Naval Research and the Navy's new Living Marine Resources programs. While promising, many of the various technologies are still being tested and not ready for transition to compliance monitoring where a higher degree of performance is needed. Gliders, even if able to report in real-time, or even delayed near real-time, would only be able to document the presence of marine mammals, not the marine mammal distance from the glider or individual animal movement. In many places where Navy activity occurs, there are almost near constant small odontocete passive acoustic detections. Finally, gliders would only provide an indication that animals are in the area, but these same animals could easily move substantial distances over the course of just a few hours. In some cases, use of gliders in and around where Navy submarines also operate is an underwater safety hazard to the submarine and to the glider. Gliders and other passive acoustic platforms, therefore, are more appropriate for broad area searches within Navy ranges to document marine mammal seasonal occurrence, but are not practical as a mitigation tool.

The Navy will implement mitigation measures for all marine mammals regardless of species, if they approach or enter a mitigation zone, which were calculated to help avoid the potential for onset of PTS and reduce the potential for TTS.

*Comment 24:* NRDC suggested that the Navy use simulated geography and planning of ship tracks to reduce or

eliminate chokepoint exercises in near-coastal environments, particularly within canyons and channels or other important habitat. Similarly, NRDC suggested the use of dedicated aerial monitors during chokepoint exercises, major exercises, and near-coastal exercises.

*Response 24:* For decades, the Navy has been using simulated electronic depictions of land in some of its at-sea exercises. However, the types of exercises the commenter refers to are critical to realistic and effective training due to the unique sound propagation characteristics and they cannot be replicated by simulated geography. The Navy will implement mitigation for all training and testing activities to minimize any potential effects.

Specific aerial monitoring is not typically feasible given the limited duration of typical monitoring flights (less than 4 hours). In addition, there are significant flight safety considerations and airspace restrictions during major exercises when larger groups of military aircraft are present in high numbers at various altitudes.

It is important to note that the Navy does have a particular set of monitoring measures (intended to help reduce the chance of a stranding) that would be applied if circumstances are thought to make a stranding more likely (e.g., steep bathymetry, multiple vessels in a single area over an extended period of time, constricted channels or embayments). However, there are no areas with these features included in the HSTT Study Area.

*Comment 25:* NRDC stated that the Navy did not account for reverberation in its modeling and also suggested the use of additional powerdowns when significant surface ducting conditions coincide with other conditions that elevate risk (such as during exercises involving the use of multiple systems or in beaked whale habitat).

*Response 25:* The Navy's propagation model used for all non-impulsive modeling accommodates surface and bottom boundary interactions (including reverberation), but does not account for side reflections that would be a factor in a highly reverberant environment, such as a depression or canyon, or in a man-made structure, such as a dredged harbor. The details of the Navy's propagation models are provided in a supporting technical report for the HSTT EIS/OEIS ("The Determination of Acoustic Effects on Marine Mammals and Sea Turtles," *hstteis.com*).

Based on the lessons learned from five beaked whale stranding events, all of which took place outside of the HSTT Study Area, and occurred over

approximately a decade, exposure of beaked whales to mid-frequency active sonar in the presence of certain conditions (e.g., multiple units using tactical sonar, steep bathymetry, constricted channels, strong surface ducts, etc.) may result in strandings, potentially leading to mortality. Although these physical features are not present in the HSTT Study Area in aggregate, scientific uncertainty exists regarding what other factors, or combination of factors, may contribute to beaked whale strandings. To minimize risk to beaked whales, several conditions will be considered during exercise planning: (1) Areas of at least 1,000 m (1,094 yd) depth near a shoreline where there is rapid change in bathymetry on the order of 1,000–6,000 m (1,094–6,562 yd) occurring across a relatively short horizontal distance (e.g., 5 nm); (2) cases in which multiple ships or submarines ( $\geq 3$ ) are operating active sonar in the same area over extended periods of time ( $\geq 6$  hours) in close proximity ( $\leq 10$  nm apart); (3) an area surrounded by land masses, separated by less than 35 nm and at least 10 nm in length, or an embayment, wherein operations involving multiple ships/submarines ( $\geq 3$ ) employing active sonar near land may produce sound directed toward the channel or embayment that may cut off the lines of egress for marine mammals; and (4) though not as dominant a condition as bathymetric features, the historical presence of a strong surface duct (i.e., mixed layer of constant water temperature extending from the sea surface to 100 or more feet).

If a major exercise must occur in an area where the above conditions exist in the aggregate, these conditions must be fully analyzed in environmental planning documentation. The Navy will increase vigilance by undertaking the following additional protective measure: a dedicated aircraft (Navy asset or contracted aircraft) will undertake reconnaissance of the embayment or channel ahead of the exercise participants to detect marine mammals that may be in the area exposed to active sonar. Where practical, the advance survey should occur within about 2 hours prior to sonar use and periodic surveillance should continue for the duration of the exercise. Any unusual conditions (e.g., presence of marine mammals, groups of species milling out of habitat, and any stranded animals) shall be reported to the Officer in Tactical Command, who should give consideration to delaying, suspending, or altering the activity. All mitigation zone powerdown requirements described in the Mitigation section of

this document will apply. Finally, the post-exercise report must include specific reference to any event conducted in areas where the above conditions exist, with exact location and time/duration of the event and noting results of surveys conducted.

*Comment 26:* NRDC suggested the suspension or postponement of chokepoint exercises during surface ducting conditions and scheduling of such exercises during daylight hours.

*Response 26:* See response to Comment 16, 18, 24, and 39.

*Comment 27:* NRDC suggested the use of aerial surveys and ship-based surveys before, during, and after major exercises.

*Response 27:* As proposed, and detailed in the HSTT FEIS/OEIS, the Navy will implement pre-exercise aerial or vessel-based observation as a mitigation measure for Improved Extended Echo Ranging (IEER) sonobuoys and explosive buoys using 0.6–2.5 lb net explosive weight, mine countermeasure and neutralization activities using positive control firing devices involving explosives in bin E11 (501–650 lb net explosive weight), sinking exercises, bombing exercises, gunnery exercises, and missile exercises. Monitoring will continue throughout the duration of these exercises. This amount of monitoring represents the maximum level of effort that the Navy can commit to observing mitigation zones given the number of personnel and assets available. Surveys before, during, and after major exercises would require an inordinate amount of resources that are not available and would have a significant impact on readiness.

In addition to the monitoring required to implement mitigation, the Navy is also committed to a robust marine mammal monitoring program designed to answer specific questions about the effects of the Navy's activities on marine mammals. The Navy uses visual surveys (by trained protected species observers; from aircraft and vessels), passive acoustic monitoring devices, and tagging as some of the methods to best detect and evaluate any effects. See the Navy's monitoring reports at <http://www.navymarinespeciesmonitoring.us/>.

*Comment 28:* NRDC suggested the use of NMFS-certified observers for marine mammal detection and several commenters requested further information on the Navy's Lookout effectiveness study. More specifically, NRDC suggested that the Navy complete a Lookout effectiveness study comparing the abilities of Navy vessel-based Lookouts and third-party protected species observers. If Navy Lookouts are significantly less likely to

detect marine mammals, NRDC recommends the use of NMFS-certified Lookouts or other monitoring enhancements.

*Response 28:* The Navy has determined that the use of third-party observers (e.g., NMFS-certified protected species observers) in air or on surface platforms in lieu of or in addition to existing Navy Lookouts for the purposes of mitigation is impractical for the following reasons: the use of third-party observers would compromise security for some activities involving active sonar due to the requirement to provide advance notification of specific times and locations of Navy platforms; reliance on the availability of third-party personnel could impact training and testing flexibility; the presence of additional aircraft in the vicinity of naval activities would raise safety concerns; and there is limited space aboard Navy vessels. Furthermore, Navy personnel are extensively trained in spotting items on or near the water surface and receive more hours of training than many third-party personnel.

The Navy undertakes monitoring of marine mammals during training and testing activities and has mitigation procedures designed to minimize risk to these animals. One key component of this monitoring and mitigation is the shipboard Lookouts (also known as watchstanders), who are part of the standard operating procedure that ships use to detect objects (including marine mammals) within a specific area around the ship during events. The Lookouts are an element of the Navy's monitoring plan, as required by NMFS and specified in the LOAs. The goal is to detect marine mammals entering ranges of 200, 500, and 1,000 yd (183, 457, and 914 m) around the vessel, which correspond to distances at which various mitigation actions should be performed. In addition to the Lookouts, officers on the bridge search visually and sonar operators listen for marine mammal vocalizations. All of these observers together are referred to as the observation team.

In 2010, the Navy initiated a study designed to evaluate the effectiveness of the Navy Lookout team. The University of St. Andrews, Scotland, under contract to the Navy, developed an initial data collection protocol for use during the study. Between 2010 and 2012, trained Navy marine mammal observers collected data during nine field trials as part of a "proof of concept" phase. The goal of the proof of concept phase was to develop a statistically valid protocol for quantitatively analyzing the

effectiveness of Lookouts during Navy training exercises. Field trials were conducted in the HRC, SOCAL Range Complex, and Jacksonville Range Complex onboard one frigate, one cruiser, and seven destroyers.

Preliminary analysis of the proof of concept data is ongoing. The Navy is also working to finalize the data collection process for use during the next phase of the study. While data was collected as part of this proof of concept phase, those data are not fairly comparable because protocols were being changed and assessed, nor are those data statistically significant. Therefore, it is improper to use these data to draw any conclusions on the effectiveness of Navy Lookouts at this time.

In addition, given the distance from shore and especially the dynamic and moving nature of Major Training Events (MTEs) where sonar platforms can be widely dispersed and then move on to another area, aerial or ship-based civilian monitoring concurrent to MTEs would not be logistically practical or safe. Before and after surveys would only duplicate similar marine mammal sightings that have already been conducted under the previous HRC and SOCAL rulemakings. During the period from 2009 to 2012, the Navy has visually surveyed approximately 100,000 nm of ocean within HRC and SOCAL with marine mammal sightings described in annual monitoring reports as well as posted electronically on public online data portals. While contributing to the body of science on marine mammal occurrence, these broad area surveys are less informative for monitoring of Navy impacts to marine mammals. The Navy's revised HSTT monitoring plan consists of more focused objective-oriented studies to address both species-specific occurrence and determine impact or lack of impact from training and testing activities.

*Comment 29:* NRDC recommended that the Navy comply with underwater detonation and gunnery exercise mitigation measures as set forth in NMFS' final rule for the SOCAL Range Complex.

*Response 29:* The mitigation measures for underwater detonation and gunnery exercises in NMFS' final rule for the SOCAL Range Complex have been carried over to HSTT (i.e., buffer zones around the intended target, monitoring before and during the exercise, avoidance of sighted marine mammals). There have been some slight modifications to the TDFD mitigation to account for resource limitations in the number of available boats and Lookouts.

*Comment 30:* NRDC recommended the use of dedicated aerial monitoring for all Navy explosive activities using time-delay firing devices and/or all activities involving explosives greater than 20 lb net explosive weight.

*Response 30:* Time-delay firing device events can occur over several hours and the exact detonation time is dependent on multiple variables including, but not limited to, weather, background traffic, training requirements, delays for mitigation, etc., that make it impractical and unsafe to have aircraft surveys. Time-delay firing device events also typically occur near commercial and military airspace that would pose a serious risk to the survey and non-survey aircraft.

Mitigation during explosive events (greater than 20 lb net explosive weight) already includes the use of available aircraft for mitigation monitoring. However, these activities can occur offshore and over several hours duration, making a dedicated aerial survey platform unsafe and impractical. The Navy has mitigation zones in place designed to minimize potential effects from all explosive activities.

*Comment 31:* NRDC suggested avoidance and reduction in the use of time-delay firing devices in favor of explosives with positive controls.

*Response 31:* The Navy has explained their use of time-delay firing devices in previous documents (LOA application for the Silver Strand Training Complex, LOA application for the Hawaii Range Complex, and the HSTT FEIS/OEIS). The Navy relies on both time-delay and positive control to initiate underwater detonations, depending on the training event and objectives. The Navy has cited time-delay firing devices as the simplest, safest, least expensive, most operationally acceptable method of initiating an underwater detonation. They are preferred due to their light weight, low magnetic signature, and reduced risk of accidental detonation from nearby radios or other electronics. Time-delay firing devices allow sufficient time for personnel to swim outside of the detonation plume radius and human safety buffer zone after the timer is set. The Navy considers it critical that personnel qualify annually with necessary time-delay certification, maintain proficiency, and train to face real-world scenarios that require the use of time-delay firing devices. However, the Navy does strive to use positive control detonation whenever feasible depending on the training need. Within the SSTC portion of HSTT for instance, during the last year of the 86 completed underwater detonations with charge weights between 10–20 lb net explosive

weight, only two TDFDs were used; the remaining 84 detonations used positive control.

Time-delay firing devices raised concern in 2011, when three or four long-beaked common dolphins were killed in an explosion during an underwater detonation training event. About 5 minutes remained on a time-delay fuse when a pod of long-beaked common dolphins was observed, but attempts to guide the dolphins away from the area were unsuccessful. Following the event, the Navy worked with NMFS to develop a more robust monitoring and mitigation plan to ensure that marine mammal mortality and injury would not occur during activities that involve time-delay firing devices. NMFS incorporated additional mitigation and monitoring measures into the appropriate authorizations. Those additions are being carried over to the HSTT rule, with some modifications to the mitigation zone and number of observers due to the impracticality of the initial changes. As detailed in the proposed rule, NMFS believes that the Navy's modifications will still reduce the potential for injury and mortality because (1) the mitigation zone exceeds the predicted ranges to TTS and PTS; (2) the number of Lookouts for a 1,000-yd (915-m) mitigation zone would not change; (3) the maximum net explosive weight would decrease; (4) monitoring 30 minutes before, during, and 30 minutes after the activity would still take place; and (5) time-delay firing device activities are only conducted during daylight hours.

*Comment 32:* NRDC suggested that the Navy should evaluate before each major exercise whether reductions in sonar are possible, given the readiness status of the strike groups involved.

*Response 32:* The Navy only uses active sonar for validated training requirements, so this type of pre-exercise evaluation is unnecessary.

*Comment 33:* NRDC recommended that the Navy establish a plan and timetable for maximizing synthetic training in order to reduce the use of active sonar training.

*Response 33:* As described in section 2.5.1.4 of the HSTT FEIS/OEIS, the Navy currently uses computer simulation for training and testing whenever possible. Computer simulation can provide familiarity and complement live training and testing; however, it cannot provide the fidelity and level of training necessary to prepare naval forces for deployment.

The Navy is required to provide a ready and capable force. In doing so, the Navy must operationally test major

platforms, systems, and components of these platforms and systems in realistic combat conditions before full-scale production can occur. Substituting simulation for live training and testing fails to meet the Navy's statutory requirement to properly prepare forces for national defense.

*Comment 34:* NRDC recommended that specific mitigation requirements be prescribed for individual classes (or sub-classes) of training and testing activities in order to maximize mitigation given varying sets of operational needs.

*Response 34:* NMFS has already worked with the Navy to develop mitigation by activity type to reduce potential impacts on marine mammals. The regulatory text of this document details the different types of mitigation required for different activities.

*Comment 35:* NRDC recommended that the Navy submit timely, regular reports to NMFS, state coastal management authorities, and the public to describe and verify use of mitigation measures during training and testing activities.

*Response 35:* The Navy will be required to submit annual reports and the unclassified portions of these reports will be made available to the public through NMFS' Web site. The reports will include a description of the mitigation measures implemented during major training exercises and will also include an evaluation of the effectiveness of any mitigation measure implemented.

*Comment 36:* One commenter suggested that there are sufficient resources to identify important areas off California for large whales and the potential impacts could be reduced if the Navy avoided using these areas.

*Response 36:* As addressed in Response 12, while NMFS acknowledges that there are important areas for fin and blue whales that overlap with the SOCAL Range Complex, these areas are also adjacent to the Navy's only west coast underwater instrumented training range. This range has been in operation for decades and is considered mission-critical by the Navy for ASW training and testing. In addition, nearby infrastructure supports multiple warfare mission areas used concurrently with sonar and explosive use. The Navy has indicated that establishment of a time-area closure within this region is not practical. However, the Navy has also stated that given the closeness to shore, relatively shallow water, and lack of other nearby training infrastructure, Major Training Events (MTEs) are not typically planned in this vicinity.

Additionally, the Navy has further strengthened mitigation measures intended to reduce the likelihood of a ship strike (adding at least a 500-yd (457-m) exclusion zone for whales during vessel movement), which are particularly important in areas where greater concentrations of marine mammals may be encountered.

NMFS has carefully evaluated the Navy's proposed suite of mitigation measures and considered a broad range of other measures (including those recommended during the public comment period) in the context of ensuring that NMFS prescribes the means of effecting the least practicable adverse impact on the affected marine mammal species and stocks and their habitat. Our evaluation of potential measures included consideration of the following factors in relation to one another: the manner in which, and the degree to which, the successful implementation of the required mitigation measures is expected to reduce the likelihood and/or magnitude of adverse impacts to marine mammal species and stocks and their habitat; the proven or likely efficacy of the measures; and the practicability of the suite of measures for applicant implementation, including consideration of personnel safety, practicality of implementation, and impact on the effectiveness of the military readiness activity.

The Navy's list of monitoring projects for the SOCAL Range Complex has been finalized and is available on the Navy's marine species monitoring Web site (<http://www.navy.marinestpeciesmonitoring.us/>). This list of 2013–2014 projects includes studies of blue and fin whale vocalizations from numerous passive acoustic devices within the SOCAL Range Complex. In addition, long-term satellite tag tracking of fin and blue whales will enhance understanding of residence times within the SOCAL Range Complex as well as within other areas of their Pacific Ocean range. Through this data collection, review of other new science, and the Adaptive Management process, NMFS and the Navy will continue to regularly evaluate whether there are other appropriate practicable measures that could further reduce impacts to marine mammals in Southern California.

*Comment 37:* Several commenters recommended additional mitigation, including exclusion zones and time-area closures, and suggested that NMFS did not provide any additional mitigation to the Navy's proposed measures in order to reduce impacts on marine mammals.



*Response 37:* Exclusion zones (termed “mitigation zones” in the proposed rule and this document) are already in place for the Navy’s training and testing activities. Training and testing activities require continuous access to large areas consisting potentially of thousands of square miles of ocean and air space to provide naval personnel the ability to train with and develop competence and confidence in their capabilities and their entire suite of weapons and sensors. Exercises may change mid-stream based on evaluators’ assessment of performance and other conditions including weather or mechanical issues. This means that the designation of time-area closures is not practicable in some cases, and NMFS and the Navy evaluate mitigation of this nature on a case-by-case basis and within the context of the Navy’s overall suite of mitigation.

NMFS has been heavily involved in developing the Navy’s suite of mitigation measures since 2007. Many of the Navy’s proposed mitigation measures were a result of NMFS’ input over the past 5 years. It is also important to note that the NDAA of 2004 amended the MMPA to require the consideration of personnel safety, practicality of implementation, and impact on the effectiveness of the “military readiness activity” when determining the “least practicable adverse impact.” Mitigation measures that the Navy considered, but could not implement, are included in the FEIS/OEIS.

However, the Navy has designated a Humpback Whale Cautionary Area that is effective between December 15 and April 15, which essentially restricts certain Navy activities within a certain time and location. Conducting exercises with mid-frequency active sonar within the Humpback Whale Cautionary Area between December 15 and April 15 requires approval for the use of hull-mounted mid-frequency active sonar from a four-star Admiral, the highest ranking officer in the U.S. Pacific Fleet. Since 2009 (when the current rule for the HRC was issued), the Navy has never requested this approval.

The Navy addresses numerous other mitigation measures in section 5.3 of the HSTT FEIS/OEIS that were considered but eliminated for various reasons. We address other areas that were considered off Hawaii and Southern California in responses to Comments 12, 16, and 36 above.

*Comment 38:* Several commenters suggested that the Navy’s activities should be moved to pelagic sea depths, away from continental shelves and islands to reduce impacts on marine mammals.

*Response 38:* As stated in section 5.3 of the HSTT FEIS/OEIS, the Navy has eliminated from consideration alternative training and testing locations because there are no other potential locations where land ranges, operating areas, undersea terrain and ranges, testing ranges, and military airspace combine to provide the venues necessary for the training and testing realism and effectiveness required to train and certify naval forces ready for combat operations. Training and testing in shallow water is an essential component to maintaining military readiness. Sound propagates differently in shallow water and operators must learn to train in this environment. Additionally, submarines have become quieter through the use of improved technology and have learned to hide in the higher ambient noise levels of shallow coastal waters. In real world events, it is likely that sailors would be working in, and therefore must train in, and use systems that have been tested in, these types of environments.

However, as described in Response 28 above, in order to reduce impacts to humpback whales in the Hawaiian Islands, the Navy has designated the Humpback Whale Cautionary area between December 15 and April 15, which includes shallow water environments. In addition, following the implementation of the rule and issuance of LOAs, the adaptive management process will also provide a mechanism for considering if modifications to mitigation measures are necessary in the future.

*Comment 39:* NRDC recommended that the Navy avoid or reduce their activities during months with historically significant surface ducting conditions.

*Response 39:* The Navy’s activities must be conducted during all months and in a variety of conditions in order for the Navy to meet its mission. The Navy’s training schedules are driven by deployment requirements, which are established by the Department of Defense and the President of the United States. These schedules are dynamic, based on real-world events, ship availability, and numerous others factors that prevent the Navy’s activities from being able to limit at sea training to only certain months. Similarly, Navy testing schedules are driven by Fleet maintenance, repair, and modernization needs; and the delivery of Navy ships, aircraft, and systems to support these training and deployment requirement, and cannot be limited to certain months. Therefore, the Navy’s MMPA authorization must support year-round training and testing.

*Comment 40:* NRDC recommended that the Navy delay activities or implement powerdowns during significant surface ducting conditions.

*Response 40:* Avoiding or reducing active sonar during strong surface ducts for the purpose of mitigation would increase safety risks to personnel, be impractical with regard to implementation of military readiness activities, and result in unacceptable impacts on readiness for the following reasons: The Navy must train in the same manner as it will fight. Anti-submarine warfare can require a significant amount of time to develop the “tactical picture,” or an understanding of the battle space (e.g., area searched or unsearched, identifying false contacts, and understanding the water conditions). Training in surface ducting conditions is a critical component to military readiness because sonar operators need to learn how sonar transmissions are altered due to surface ducting, how submarines may take advantage of them, and how to operate sonar effectively in this environment. Furthermore, avoiding surface ducting would be impractical to implement because ocean conditions contributing to surface ducting change frequently, and surface ducts can be of varying duration. Surface ducting can also lack uniformity and may or may not extend over a large geographic area, making it difficult to determine where to reduce power and for what periods.

*Comment 41:* NRDC recommended that the Navy plan their ship tracks to avoid embayments and provide escape routes for marine mammals.

*Response 41:* As noted in Response 15, the Navy has a particular set of monitoring measures (intended to help reduce the chance of a stranding) that would be applied if circumstances are thought to make a stranding more likely (e.g., steep bathymetry, multiple vessels in a single area over an extended period of time, constricted channels or embayments). However, there are no areas with these features in aggregate included in the HSTT Study Area.

*Comment 42:* NRDC recommended that the Navy be required to implement mitigation prescribed by state regulators, by the courts, by other navies or research centers, or from past Navy actions.

*Response 42:* NMFS and the Navy have worked together on developing a comprehensive suite of mitigation measures to reduce the impacts from Navy training and testing activities on marine mammal species or stocks and their habitat. During the process of developing mitigation measures, NMFS and the Navy considered all potentially



applicable mitigation measures. NMFS has determined that the Navy's proposed mitigation measures, along with the Planning Awareness Areas, Stranding Response Plan, and Adaptive Management are adequate means of effecting the least practicable adverse impacts on marine mammal species or stocks and their habitat, paying particular attention to rookeries, mating grounds, and areas of similar significance, while also considering personnel safety, practicality of implementation, and impact on the effectiveness of the military readiness activity. The justification for this conclusion is discussed in the Mitigation Conclusions section of the proposed rule (78 FR 6978, January 31, 2013; page 7016).

*Comment 43:* One commenter stated that there is no compelling case for why Navy activities need to occur in areas of high humpback whale concentrations around Hawaii.

*Response 43:* Due to the combination of installed MIW targets, range instrumentation, and unique shallow water bathymetry, these areas represent an important training and testing capability within the HRC and must be available to support deploying forces year round. However, it is likely that the demonstrated low use of hull-mounted mid-frequency active sonar within these areas will continue in the foreseeable future. See Response 7 of this section.

#### Acoustic Thresholds

*Comment 44:* The Commission recommended that NMFS require the Navy to adjust all acoustic and explosive thresholds for low-, mid-, and high-frequency cetaceans by the appropriate amplitude factor (e.g., 16.5 or 19.4 dB), if the Type II weighting functions from Figure 6 of Finneran and Jenkins (2012) are to be used.

*Response 44:* The acoustic and explosive thresholds were adjusted based on weighting the exposures from the original research from which the thresholds were derived with the Type II weighing functions. The weighted threshold is not derived by a simple amplitude shift.

The high-frequency cetacean onset TTS threshold is based on the onset-TTS threshold derived from data in Lucke *et al.* (2009) for impulsive exposures. This threshold was subsequently adjusted in Finneran and Jenkins (2012) to reflect Type II high-frequency cetacean weighting. Therefore, a simple 19.4 dB adjustment to the thresholds presented in Southall *et al.* (2007) is not appropriate.

At the time the acoustic criteria and thresholds were developed, no direct

measurements of TTS due to non-impulsive sound exposures were available for any high-frequency cetacean; therefore, the relationship between onset-TTS sound exposure level (SEL)-based thresholds (Type II weighted) for mid-frequency cetaceans exposed to impulsive and non-impulsive sounds (beluga data) was used to derive the onset-TTS threshold for high-frequency cetaceans exposed to non-impulsive sounds (6-dB difference). The derived high-frequency cetacean non-impulsive onset TTS threshold is consistent with data recently published by Kastelein, *et al.* (2012) on TTS measured after exposing a harbor porpoise to non-impulsive sounds.

*Comment 45:* The Commission requested an explanation of why data from Kastak *et al.* (2005) was used as the basis for explosive thresholds in pinnipeds and for the extrapolation process and factors used as the basis for associated TTS thresholds.

*Response 45:* The same offset between impulsive and non-impulsive TTS found for the only species where both types of sound were tested (beluga) was used to convert the Kastak *et al.* (2005) data (which used non-impulsive tones) to an impulsive threshold. This method is explained in Finneran and Jenkins (2012) and Southall *et al.* (2007).

*Comment 46:* The Commission recommended that NMFS require the Navy to provide the predicted average and maximum ranges for all impact criteria (behavioral response, TTS, PTS, onset slight lung injury, onset slight gastrointestinal injury, and onset mortality), all activities, and all functional hearing groups.

*Response 46:* The Navy discusses range to effects in sections 3.4.3.2.1.1 and 3.4.3.2.2.1 of the HSTT FEIS/OEIS. The active acoustic tables in section 3.4.3.2.1.1 illustrate the ranges to PTS, TTS, and behavioral response. The active acoustic tables for PTS and TTS show ranges for all functional hearing groups and the tables for behavioral response show ranges for low-, mid-, and high-frequency cetaceans. The active acoustic source class bins used to assess range to effects represent some of the most powerful sonar sources and are often the dominant source in an activity. The explosives table in section 3.4.3.2.2.2 illustrates the range to effects for onset mortality, onset slight lung injury, onset slight gastrointestinal tract injury, PTS, TTS, and behavioral response. The explosives table shows ranges for all functional hearing groups. The source class bins used for explosives range from the smallest to largest amount of net explosive weight. These ranges represent conservative

estimates (i.e., longer ranges) based on assuming all impulses are 1-second in duration. In fact, most impulses are much shorter and contain less energy. Therefore, these ranges provide realistic maximum distances over which the specific effects would be possible.

NMFS believes that these representative sources provide adequate information to analyze potential effects on marine mammals. Because the Navy conducts training and testing in a variety of environments having variable acoustic propagation conditions, variations in acoustic propagation conditions are considered in the Navy's acoustic modeling and the quantitative analysis of acoustic impacts. Average ranges to effect are provided in the HSTT FEIS/OEIS to show the reader typical zones of impact around representative sources.

*Comment 47:* One commenter suggested, based on Kastelein *et al.* (2012), that using sound exposure level (SEL) may sometimes underestimate the amount of TTS experienced by a marine mammal.

*Response 47:* The basic assumption of using the SEL metric with TTS thresholds is that the equal energy hypothesis (EEH) holds true in all situations (i.e., if the SELs of two sources are similar, a sound from a lower level source with a longer exposure duration may have similar risks to a sound from a higher level source with a shorter exposure duration). It is known from marine mammal and terrestrial mammal data that this is not always the case, especially in situations of long exposure periods with lower sound pressure levels. However, the EEH also does not account for any possible recovery between intermittent exposures and that non-impulsive, intermittent sources typically require higher SELs to induce TTS compared to continuous exposures of the same duration (Mooney *et al.*, 2009; Finneran *et al.*, 2010). Additionally, Kastelein *et al.* (2012b) expose animals to continuous durations of 7.5 minutes and longer, which do not necessarily reflect exposure durations expected for the majority of Navy sources.

*Comment 48:* One commenter claimed that a statement in the proposed rule suggested that NMFS believes that data from bottlenose dolphins and beluga whales represent the full diversity of mid-frequency cetaceans.

*Response 48:* The commenter is referring to a paper by Finneran and Jenkins (2012) titled "Criteria and Thresholds for Navy Acoustic Effects Analysis." The authors do not claim that bottlenose dolphins and beluga

encompass the full diversity of mid-frequency odontocetes. Rather, they state that these two species are diverse. Because both species showed similar TTS thresholds, and because TTS data has not been collected for other mid-frequency cetaceans, the TTS thresholds for bottlenose dolphins and belugas were applied to all mid-frequency cetaceans.

*Comment 49:* One commenter suggested that low-frequency cetaceans should be split into two groups because the blue and fin whales (and possibly sei whales) are more low-frequency specialists than others.

*Response 49:* NMFS does not plan on splitting low-frequency cetaceans into two groups. Although there is some variation among the 13 species of marine mammals identified in the proposed rule as “low-frequency” cetaceans, these species all fall within the “low-frequency” functional hearing group identified by Southall *et al.* (2007) where functional hearing is estimated to occur between approximately 7 Hz and 22 kHz.

*Comment 50:* One commenter referred specifically to the criteria and thresholds used for TTS as described in a paper by Finneran and Jenkins (2012): “Criteria and Thresholds for Navy Acoustic Effects Analysis Technical Report.” The commenter believes that scientific literature is at odds with the conclusions made in the Navy document and referred to the following quote on page 18 of the technical report: “This means the (Type I) weighted exposure SEL for harbor seals under water is 183 dB re 1  $\mu$ Pa $^2$ s.” However, Kastelein *et al.* (2012a) note for harbor seals that “[while] TTS onset (6 dB) is predicted to occur at 183 dB re 1  $\mu$ Pa $^2$ s . . . [i]n the present study, statistically significant TTS, at ca. 2.5 dB, began to occur at SELs of ~170 [136 dB SPL, 60 min.] and 178 dB re 1  $\mu$ Pa $^2$ s [148 dB SPL, 15 min.], but actual TTS onset is probably at lower SELs.” The Kastelein *et al.* (2012a) study used two young (4–5 year old) female harbor seals, whereas the 183 dB figure originates from a study (Kastak *et al.* 2005) using one male that was 14 years old. Kastelein *et al.* (2012a) found that even for the same seal, “thresholds changed [hearing became slightly less sensitive (3 dB) for 4 kHz test signals and slightly more sensitive (2 dB) for 5.7 kHz test signals] over time in the control sessions.” The commenter claims the authors caution that “[m]odeling TTS from exposure SPLs and duration (as done by Finneran *et al.* 2010) would require more data points, e.g., at lower and higher exposure SPLs, to find the SPL and duration thresholds at which TTS starts.

It would be risky to fit a formula to the 14 SEL data points found in the present study because the TTS results of the two seals differ, and because this study shows that harbor seals’ TTSs may reach asymptote after certain exposure durations.” The highest TTS in the Kastelein *et al.* (2012a) study was 10 dB produced by 148 dB re 1  $\mu$ Pa at 120 and 240 minute exposures. The authors also stressed that the TTS may have an ecological impact, “. . . reduc[ing] the audibility of ecologically and socially important sounds for seals. For example, a TTS of 6 dB would halve the distance at which the seal suffering that TTS would be able to detect another seal, a vociferous fish, or a predator acoustically. . . .”

*Response 50:* There are some distinct differences between the Kastelein *et al.* (2012a) study and the Kastak *et al.* (2005) study, from which the current pinniped TTS onset criterion was derived, including differences associated with the sex and age of individuals tested, different background noise levels, and differences in experimental procedure, as well as different center frequency of exposure stimuli. It should be noted that a threshold shift of 6 dB is considered the minimum threshold shift clearly larger than any day-to-day or session-to-session variation in a subject’s normal hearing ability (Schlundt *et al.* 2000; Finneran *et al.* 2000; Finneran *et al.* 2002). Southall *et al.* (2007) also defined TTS onset as a 6 dB shift in threshold. Similarly, for humans, the National Institute for Occupational Safety and Health (1998) regards the range of audiometric testing variability to be approximately 5 dB. Additionally, despite Kastelein *et al.* (2012a) indicating possible ecological impacts associated with TTS, they also say “Recovery from small TTSs (up to 10 dB), such as those caused by the sound exposures in the present study, is very fast (within 60 min). Reduced hearing for such a short period probably has little effect on the total foraging period of a seal, as long as TTS occurs infrequently.”

It should also be noted that the Navy’s acoustic analysis indicated that predicted TTS in harbor seals was typically caused by higher sound pressure levels (greater than 160 dB re 1  $\mu$ Pa) over much shorter total durations (on the order of a few seconds) than the exposure regime used by Kastelein *et al.* (2012a). Therefore, the most appropriate dataset of Kastelein *et al.* (2012a) to derive a TTS threshold for harbor seals that is relevant to the way Navy sound sources are used is the dataset that uses the highest exposure level (i.e., 148 dB

re 1  $\mu$ Pa). According to Figure 9 of Kastelein *et al.* (2012a) a 6-dB hearing threshold shift (i.e., a reliably detectable TTS) would occur at an sound exposure level of approximately 182–183 dB re 1  $\mu$ Pa $^2$ s. Therefore, the Kastelein *et al.* (2012a) results agree with the harbor seal TTS-inducing sound levels found by Kastak *et al.* (2005) and the phocid seal TTS thresholds currently used by the Navy in its acoustic analysis as described in Finneran and Jenkins (2012).

*Comment 51:* One commenter referred specifically to the criteria and thresholds used for behavioral effects as described in a paper by Finneran and Jenkins (2012) “Criteria and Thresholds for Navy Acoustic Effects Analysis Technical Report.” The commenter referred to the following quote on page 22 of the technical report: “The BRF [Behavioral Response Function] relies on the assumption that sound poses a negligible risk to marine mammals if they are exposed to SPL below a certain “basement value.” The commenter referred to the basement value of 120 dB, but claims that the reasoning and literature interpretation behind the basement value is weak. The commenter then provided NMFS with examples from other studies in support of her argument. For example, she referred to a study by Miller *et al.* (2012) involving controlled exposures of naval sonar to killer whales, pilot whales, and sperm whales. They scored responses based on behavioral severity scores of 1–3 (not likely to influence vital rates; 4–6 (could affect vital rates), and 7–9 (likely to influence vital rates). In 83 percent of LFAS (1–2 kHz) exposure sessions, the response was at a maximum severity of 4 or greater (could or likely to affect vital rates). Behavioral severity scores of 5, 6, and 7 occurred with received levels of 90–99 dB in killer whales. Since many responses occurred at received levels below 120 dB, Miller *et al.* (2012) postulate that killer whales may be particularly sensitive “. . . with some groups responding strongly to sonar at received SPLs just loud enough to be audible.” The commenter claims that in sperm whales, behavioral severity scores of 4 and 6 happened at received levels of 120–129 dB. Miller *et al.* (2012) note that “. . . there is little indication in our results of a dose-response pattern in which higher severity changes are less common at lower received levels and more common at higher received levels. Instead, we scored behavioral responses to have occurred across a wide range of received levels. Seven scored responses to sonar started at received SPLs of < 110 dB re: 1  $\mu$ Pa”.

They add that “. . . though there was an overall tendency for increased risk of a severe behavioral response above 120 to 130 dB re: 1  $\mu$ Pa received SPLmax, our results do imply that any signal audible to the animal can represent some risk of a behavioral response at any severity level between 0 and 7.” LFAS (1–2 kHz) exposure resulted in both a greater number and more severe scored responses than for mid-frequency active sonar (6–7 kHz), despite the behavioral and electrophysiological audiograms of three killer whales showing 10–40 dB less sensitivity at 1–2 kHz than 6–7 kHz. Taxonomically similar species also didn’t react more similarly to naval sonar, leading Miller *et al.* (2012) to caution that “. . . great care [must be applied] during the extrapolation of results from experimental studies on a particular species to other closely related species.”

**Response 51:** Behavioral responses can be complex and highly variable and may be influenced strongly by the context of exposure (e.g., sound source within a close proximity of a few kilometers) and exposure history of the individual, among several of other factors, including distance from the source, as has been discussed by Southall *et al.* (2007), Southall *et al.* (2012), and Ellison *et al.* (2011), among others. These responses were observed in animals that were being followed and approached by multiple ships, including the one with the sound source. However, no control was conducted that measured the response of animals to the presence of multiple ships without a sonar source. Killer whales in particular have demonstrated avoidance behavior and other severe behavioral responses to being surrounded by multiple vessels (e.g., Erbe 2002, Kruse 1991, and Noren *et al.* 2009). There are several advantages associated with playback studies, like Miller *et al.* (2012) (i.e., highly controlled exposure, baseline behavioral data before exposure is available, etc.). However, an important consideration is that these situations may not always accurately reflect how an individual would behaviorally respond to an actual sound source that is often either much further away at comparable received levels or whose movement is independent from an individual’s movement (i.e., not intentionally approaching an individual). For example, DeRuiter *et al.* (2013) recently observed that beaked whales (considered a particularly sensitive species) exposed to playbacks of U.S. tactical mid-frequency sonar from 89 to 127 dB at close distances responded

notably (i.e., alter dive patterns), while individuals did not behaviorally respond when exposed to the similar received levels from actual U.S. tactical mid-frequency sonar operated at much further distances. Miller *et al.* (2012) even points out that “the approach of the vessel from a starting distance of 6 to 8 km probably led to a more intense exposure than would be typical for actual exercises, where the motion of sonar vessels is independent of whale location. All of these factors make the experiments a realistic though possibly worse than normal scenario for sonar exposures from real navy activities.” Similarly, we addressed Tyack *et al.* (2011) in the proposed rule (78 FR 6978, January 31, 2013), which indicates that beaked whales responded to mid-frequency signals at levels below 140 dB. In summary, a greater sample size is needed before robust and definitive conclusions can be drawn.

**Comment 52:** One commenter suggested that NMFS is inconsistent in applying behavioral response data from a few individuals to all mid-frequency cetaceans, but not applying behavioral response data from harbor porpoises to all high-frequency cetaceans. Another commenter further suggested that instead of distinguishing sensitive species and identifying separate thresholds, NMFS should instead include the data from the more sensitive species into the general threshold, thus lowering it. Last, one commenter suggested that the 140-dB threshold for beaked whales is not low enough because Tyack *et al.* (2011) shows that some beaked whales are taken below 140 dB.

**Response 52:** NMFS approach is consistent and appropriate for sensitive species. NMFS believes that the behavioral response data used to inform the behavioral response curve is the best data to generally predict behavioral response across odontocetes. However, two exceptions to the use of the general behavioral response curve, for particularly sensitive species, have been established based on the best available science. A lower behavioral response threshold of 120 dB SPL is used for harbor porpoises because data suggest that this particular species is likely sensitive to a wide range of anthropogenic sounds at lower received levels than other species, at least for initial exposures. There are no data to indicate whether other or all high-frequency cetaceans are as sensitive to anthropogenic sound as harbor porpoises are and therefore the general odontocete curve is applied to other high-frequency species. Similarly, beaked whales are considered

particularly sensitive both because of their involvement in several strandings associated with mid-frequency active sonar exercises in certain circumstances, and because of additional newer information showing certain behavioral responses at lower levels (Tyack *et al.*, 2011) and therefore, NMFS and the Navy have utilized a lower behavioral response threshold of 140 dB.

Regarding the suggestion that the data from Tyack *et al.* (2011) support the use of a behavioral threshold below 140 dB, NMFS disagrees. While Tyack *et al.* (2011) does report tagged whales ceasing clicking when exposed to levels slightly below 140 dB, they also report that some beaked whales exposed above 140 dB did not stop clicking, and further assert that “our results support a similar criterion of about 140 dB SPL [sound pressure level] for beaked whale exposure to mid-frequency sounds.” More importantly, as noted above, DeRuiter *et al.* (2013) recently reported on the importance of context (for example, the distance of a sound source from the animal) in predicting behavioral responses as supported by observations that beaked whales exposed to playbacks of U.S. tactical mid-frequency active sonar (such as those used in Tyack *et al.* (2011)) from 89 to 127 dB at close distances responded notably (i.e., altered dive patterns), while individuals did not behaviorally respond when exposed to similar received levels from actual U.S. tactical mid-frequency active sonar operated at much further distances.

Behavioral responses of species to sound should not be confused with a particular functional hearing group’s perception of loudness at specific frequencies. Behavioral responses can be highly variable and depend on a multitude of species-specific factors (including context, etc.), while hearing abilities are based on anatomy and physiology, which is more likely to be conserved across similar species making extrapolations of auditory abilities more appropriate.

**Comment 53:** One commenter cited Melcon *et al.* 2012 to suggest that behavioral responses in marine mammals could occur below 120 dB (NMFS’ acoustic threshold for Level B harassment from non-impulse sources).

**Response 53:** First, it is important to note that not all marine mammal behavioral responses rise to the level of a “take” as considered under section 101(a)(5)(A) of the MMPA. NMFS’ analysis of the Navy’s activities does not state that marine mammals will not respond behaviorally to sounds below 120 dB; rather, the 120 dB level is taken

as the estimated received level below which the risk of significant change in a biologically important behavior approaches zero for the risk assessment for sonar and other active acoustic sources.

As stated in the proposed rule, the studies that inform the basement value of 120 dB are from data gathered in the field and related to several types of sound sources (of varying similarity to active sonar) after applying the behavioral response function. These sound sources include: vessel noise, drilling and machinery playback, low-frequency M-sequences (sine wave with multiple phase reversals) playback, tactical low-frequency active sonar playback, drill ships, Acoustic Thermometry of Ocean Climate (ATOC) source, and non-pulse playbacks. These studies generally indicate no (or very limited) responses to received levels in the 90 to 120 dB range and an increasing likelihood of avoidance and other behavioral effects in the 120 to 160 dB range. It is important to note that contextual variables play a very important role in the reported responses and the severity of effects are not linear when compared to received level. Melcon *et al.* (2012) also reported that “probability of D calls given MFA sonar decreased significantly with increasing received level” and decreases seemed to start at levels around 120 dB. Additionally, whales were found to start vocalizing again once sonar ceased. Melcon *et al.*’s (2012) findings do not necessarily apply to every low-frequency cetacean in every scenario and results should be considered merely beyond the application to the BRF (i.e., within overall analysis) to more accurately determine the potential consequences of decreased feeding calls in various scenarios with overlapping Navy MFA exercises (e.g., in Melcon *et al.*, 2012 study there was an overlap of 9 percent of the total hours analyzed where MFA sonar was detected).

*Comment 54:* One commenter pointed out the increases in a beluga whale’s average heart rate during acoustic playbacks (Lyamina *et al.*, 2011).

*Response 54:* The commenter referenced this paper in the context of acoustic criteria and thresholds for behavioral effects. It is important to note that this study was done on a beluga whale in captivity, captured two months prior to the experiment, and constrained to a stretcher. In natural circumstances (i.e., the wild), the animal would be able to move away from the sound source. Contextual variables such as distance, among numerous other factors, play a large role in determining behavioral effects to marine mammals from

acoustic sources. This study is difficult to directly apply to the anticipated behavioral effects of the Navy’s impulsive and non-impulsive sound sources on marine mammals because there are some distinct differences between the sound source used in this study and Navy sources. For one, the frequency of the sound source in the Lyamina *et al.* (2011) study ranged from 19 to 108 kHz (trying to test effects in range of best hearing), which is outside the frequency range of the majority of Navy sonar hours. Additionally, exposures that led to a response in this study were of 1-minute continuous duration, which again does not mimic exposure durations for the majority of Navy sources.

*Comment 55:* One commenter believes that certain studies are at odds with the conclusions made by NMFS and the Navy and referred specifically to the criteria and thresholds used for behavioral effects as described in a paper by Finneran and Jenkins (2012) “Criteria and Thresholds for Navy Acoustic Effects Analysis Technical Report.” The commenter referred to the following quote on page 24 of the technical report: “an (unweighted) SPL of 120 dB re 1  $\mu$ Pa is used for harbor porpoises as a threshold to predict behavioral disturbance.” In support of her position, the commenter referred to text from a study by Kastelein *et al.* (2012c), “[F]or 1–2 kHz sweeps without harmonics, a 50 percent startle response rate occurred at mean received levels of 133 dB re 1  $\mu$ Pa; for 1–2 kHz sweeps with strong harmonics at 99 dB re 1  $\mu$ Pa; for 6–7 kHz sweeps without harmonics at 101 dB re 1  $\mu$ Pa.” Thus, according to the commenter, the presence of harmonics in sonar signals increases their detectability by harbor porpoises. Moreover, the startle response rate increased with increasing mean received level. This study and others show that there is no clear-cut relationship between the startle response and hearing threshold. To cause no startle response, single emissions (once every 3 minutes) had to be below a mean received level of 112 dB for 1–2 kHz sweeps without harmonics, below a mean received level of 80 dB for the same sweeps with harmonics, and below a mean received level of 83 dB for 6–7 kHz sweeps without harmonics (Kastelein *et al.* 2012c). Harmonics can be reduced by lowering sonar signals’ source levels. Harmonics can also be perceived to be even louder than the fundamental frequencies of sonars and therefore could influence harbor porpoise behavior more (Kastelein *et al.* 2012c).

*Response 55:* All harbor porpoises exposed to (unweighted) sound pressure levels equal to or greater than 120 dB are considered behaviorally harassed. Since this metric is unweighted, the entire frequency content of the signal (including potential harmonics) are considered when comparing the received sound level with the behavioral threshold. Behavioral responses can be variable, with a number of factors affecting the response, including the harmonics associated with a sound source, as demonstrated by Kastelein *et al.* (2012c). The presence of harmonics in the 1–2 kHz sweep had two related effects: (1) They increased the frequency range of the tonal (made it more high frequency); and therefore (2) they made the overall spectrum more broadband, with energy over 90 dB re 1  $\mu$ Pa from about 1–11 kHz, rather than the narrowband energy of the sweeps without harmonics (Kastelein *et al.* 2012). However, as Kastelein points out, “both the spectrum and the received level of an underwater noise appear to determine the effect the sound has . . .” and as harmonics are related to the intensity of the sound, in most cases harmonics will not be perceived by an animal unless the intensity of the sound is already well over background levels. In addition, Kastelein *et al.* (2012) define a startle response as a “short-latency defensive response that protects animals in the brief period (up to a few 100 ms) before cognitive evaluation of a situation can take place to allow an adaptive response”, and further states “After about one strong tail movement, the animal’s behavior returned to normal. The animal did not avoid the area near the transducer during sessions any more than usual.” Therefore, this startle response did not indicate a behavioral disturbance. Furthermore, these sounds were below true ambient noise levels (as would be found outside of an artificially quiet pool) and are not likely to be produced at those levels outside of an artificial environment (e.g., tonals with harmonics would be at received levels far above the conservative 120 dB level used by NMFS and the Navy).

Southall *et al.* (2007) indicate a startle response is “a brief, transient event [that] is unlikely to persist long enough to constitute significant disturbance.” The 120 dB (unweighted) behavioral threshold used for harbor porpoises is associated with Level B harassment under the MMPA. Thus, the mere presence of a startle response, without any further information on whether an animal perceives and behaviorally responds to a sound as a threat, is not

considered a behavioral response that rises to the level of behavioral harassment.

*Comment 56:* One commenter referred specifically to the criteria and thresholds used for TTS as described in a paper by Finneran and Jenkins (2012) "Criteria and Thresholds for Navy Acoustic Effects Analysis Technical Report." The commenter referred to the following quote on page 20 of the technical report: "Since no studies have been designed to intentionally induce PTS in marine mammals, onset-PTS levels for marine mammals must be estimated using available information . . . Data from Ward *et al.* (1958) reveal a linear relationship between TTS and SEL with growth rates of 1.5 to 1.6 dB TTS per dB increase in SEL. This value for the TTS growth rate is larger than those experimentally measured in a dolphin exposed to 3 and 20 kHz tones (Finneran and Schlundt, 2010), and so appears to be a protective value to use for cetaceans." The commenter then cites the following studies in support of her belief that recent literature is at odds with the conclusions made by the Navy and NMFS. According to the commenter, Kastak *et al.* (2008) and Reichmuth (2009) found that a harbor seal exposed to a maximum received sound pressure of 184 dB re 1  $\mu$ Pa with a duration of 60 seconds (SEL=202 dB re 1  $\mu$ Pa2s) a second time, showed an initial threshold shift in excess of 48 dB at 5.8 kHz, a half-octave above the fatiguing tone (4.1 kHz pure tone). This occurred suddenly with no warning, after "a level of no measurable effect," following progressive gradual increases in noise exposure level, i.e. this was a nonlinear response, in contrast to what is written above in the "Criteria and Thresholds for U.S. Navy Acoustic and Explosive Effects Analysis." A permanent threshold shift of 7 to 10 dB remained after two years (Reichmuth 2009). Reichmuth notes that ". . . tonal noise exposures, not commonly studied in terrestrial models of hearing, may be of particular concern with respect to residual auditory effects."

*Response 56:* The commenter cites the TTS growth rate used for cetaceans; however, the reported TTS growth rate for a pinniped was used to develop the onset PTS threshold for all pinnipeds (including harbor seals). The onset PTS threshold used in this analysis is lower than the SEL reported in Kastak *et al.* (2008).

*Comment 57:* One commenter suggested that TTS should be considered a form of injury.

*Response 57:* NMFS developed acoustic criteria that estimate at what received level (when exposed to sonar

or explosive detonations) TTS (Level B harassment) would occur. A number of investigators have measured TTS in marine mammals. These studies measured hearing thresholds in trained marine mammals before and after exposure to intense sound. For example, Ward (1997) suggested that TTS is within the normal bounds of physiological variability and tolerance and does not represent physical injury. In addition, Southall *et al.* (2007) indicates that although PTS is a tissue injury, TTS is not because the reduced hearing sensitivity following exposure to intense sound results primarily from fatigue, not loss, of cochlear hair cells and supporting structures, and is reversible. Accordingly, NMFS considers TTS to be a form of Level B harassment rather than Level A harassment (injury).

NMFS is aware of recent studies by Kujawa and Liberman (2009) and Lin *et al.* (2011). These studies found that despite completely reversible threshold shifts that leave cochlear sensory cells intact, large threshold shifts could cause synaptic level changes and delayed cochlear nerve degeneration in mice and guinea pigs, respectively. NMFS notes that the high level of TTS that led to the synaptic changes shown in these studies is in the range of the high degree of TTS that Southall *et al.* (2007) used to calculate PTS levels. It is not known whether smaller levels of TTS would lead to similar changes. NMFS, however, acknowledges the complexity of noise exposure on the nervous system, and will re-examine this issue as more data become available.

*Comment 58:* With regards to the development of marine mammal auditory weighting functions, one commenter believes that there is insufficient recognition that at high enough amplitudes, the curves for hearing impairment are quite flat across all frequencies (suggesting that audiograms are irrelevant at these levels).

*Response 58:* The exposure levels where hearing impairment becomes flat across broad auditory frequency ranges are typically associated with high risks of permanent hearing loss and where the threshold of pain occurs. Auditory weighting functions are being applied to levels where the onset of TTS and PTS occur. Additionally, the peak pressure metric criteria (part of dual criteria for most sound sources) does not take weighting functions into consideration (i.e., this metric is unweighted), which offers additional protection from exposure to sounds that have the potential to have extremely high amplitudes.

## Effects Analysis

*Comment 59:* The Commission requested information regarding how the Navy determined takes that occur when multiple source types are used simultaneously.

*Response 59:* The Navy treated events involving multiple source types (e.g., acoustic vs. explosive) as separate events and did not sum the sound exposure levels. In most cases, explosives and sonar are not used during the same activities and therefore are unlikely to affect the same animals over the same time period.

The Navy summed energy for multiple exposures of similar source types. For sonar, including use of multiple systems within any scenario, energy is accumulated within the following four frequency bands: low-frequency, mid-frequency, high-frequency, and very high-frequency. After the energy has been summed within each frequency band, the band with the greatest amount of energy is used to evaluate the onset of PTS or TTS. For explosives, including use of multiple explosives in a single scenario, energy is summed across the entire frequency band. This process is detailed in a technical report titled "The Determination of Acoustic Effects on Marine Mammals and Sea Turtles" on the HSTT EIS Web site (<http://www.hstteis.com>).

*Comment 60:* A few commenters recommended that insular stocks of bottlenose dolphins in Hawaii be assessed on a stock-by-stock basis to estimate take and determine negligible impacts.

*Response 60:* Since 2009, multiple stocks of bottlenose dolphin (Hawaii pelagic; Kauai and Niihau; Oahu; 4-Island Region; and Hawaii Island) have been designated around Hawaii. NMFS' science centers and the Navy have been working to evaluate potential methods for estimating impacts on a stock-by-stock basis. The Navy, in consultation with NMFS, has revised take estimates of the Hawaii bottlenose dolphin. Because there is not published NMFS-derived density data for the multiple stocks of Hawaii bottlenose dolphins, the Navy could not quantitatively model affects to each of the stocks. However, the Navy was able to distribute Hawaii bottlenose dolphin takes from its LOA application to each of the five stocks based on NMFS' derived estimates of relative population size. The breakdown of those takes is included in Tables 18 and 20 of this document, as well as the regulatory text at the end of this document.

*Comment 61:* One commenter suggested that species population estimates should be based on minimum population estimates.

*Response 61:* NMFS considered the best population estimates when assessing impacts to marine mammal populations from Navy activities because we believe these provided the most accurate estimate based on the best available science.

*Comment 62:* One commenter claimed that the Navy's proposed activities are likely to result in jeopardy of the continued existence of ESA-listed species.

*Response 62:* Pursuant to section 7 of the Endangered Species Act, the Navy consulted with NMFS on its proposed action and NMFS consulted internally on the issuance of LOAs under section 101(a)(5)(A) of the MMPA. The purpose of that consultation was to determine whether the proposed action is likely to result in jeopardy of the continued existence of a species. In the Biological Opinion, NMFS concluded that the issuance of the rule and two LOAs are likely to adversely affect, but are not likely to jeopardize the continued existence of the threatened and endangered species under NMFS' jurisdiction and are not likely to result in the destruction or adverse modification of critical habitat that has been designated for endangered or threatened species in the HSTT Study Area. The Biological Opinion for this action is available on NMFS' Web site (<http://www.nmfs.noaa.gov/pr/permits/incidental.html#applications>).

*Comment 63:* One commenter stated that the Navy's proposed activities are not just "incidental," but serious and potentially catastrophic.

*Response 63:* In section 101(a)(5)(A) and (D) of the MMPA, incidental is defined as an unintentional, but not unexpected, taking. In other words, the Navy's activities are considered incidental because they may result in the unintentional taking of marine mammals. The term incidental does not refer to the type or level of impacts that an activity may have on marine mammals.

*Comment 64:* One commenter suggested that the authorized take numbers should reflect the Navy's inability to mitigate for onset of TTS during every activity.

*Response 64:* As discussed in the proposed rule, TTS is a type of Level B harassment. In the Estimated Take of Marine Mammal section of the proposed rule (78 FR 6978, January 31, 2013; pages 7021–7030), we quantify the effects that might occur from the specific training and testing activities

that the Navy proposes in the HSTT Study Area, which includes the number of takes by Level B harassment (behavioral harassment, acoustic masking and communication impairment, and TTS). Through this rulemaking, NMFS has authorized the Navy to take marine mammals by Level B harassment incidental to Navy training and testing activities in the HSTT Study Area. In order to issue an incidental take authorization, we must set forth the "permissible methods of taking pursuant to such activity, and other means of effecting the least practical adverse impact on such species or stock and its habitat, paying particular attention to rookeries, mating grounds, and areas of similar significance." We have determined that the mitigation measures implemented under this rule reduce the potential impacts to marine mammals from training and testing activities.

The Navy developed activity-specific mitigation zones based on the Navy's acoustic propagation model. Each recommended mitigation zone is intended to avoid or reduce the potential for onset of the lowest level of injury, PTS, out to the predicted maximum range. Mitigating to the predicted maximum range to PTS consequently also mitigates to the predicted maximum range to onset mortality (1 percent mortality), onset slight lung injury, and onset slight gastrointestinal tract injury, since the maximum range to effects for these criteria are shorter than for PTS. Furthermore, in most cases, the predicted maximum range to PTS also covers the predicted average range to TTS. In some instances, the Navy recommended mitigation zones that are larger or smaller than the predicted maximum range to PTS based on the associated effectiveness and operational assessments presented in section 5.3.2 (Mitigation Zone Procedural Measures) of the HSTT FEIS/OEIS. NMFS worked closely with the Navy in the development of the recommendations and carefully considered them prior to adopting them in this final rule. The mitigation zones contained in this final rule represent the maximum area the Navy can effectively observe based on the platform of observation, number of personnel that will be involved, and the number and type of assets and resources available. As mitigation zone sizes increase, the potential for reducing impacts decreases. For instance, if a mitigation zone increases from 1,000 to 4,000 yd. (914 to 3,658 m), the area that must be observed increases sixteen-fold. The mitigation measures contained in

this final rule balance the need to reduce potential impacts with the Navy's ability to provide effective observations throughout a given mitigation zone. Implementation of mitigation zones is most effective when the zone is appropriately sized to be realistically observed. The Navy does not have the resources to maintain the additional Lookouts or observer platforms that would be needed to effectively observe mitigation zones of increased size.

*Comment 65:* One commenter cited Madsen *et al.* (2006) to suggest that airgun use could cause whales to stop feeding.

*Response 65:* NMFS referenced Madsen *et al.* (2006) in the behavioral disturbance (specifically, foraging) section of the proposed rule. However, airguns used during Navy testing are small (up to 60 in<sup>3</sup>) compared to the airgun arrays used in Madsen *et al.* (2006), which ranged from 1,680 in<sup>3</sup> to 2,590 in<sup>3</sup>. The results from Madsen *et al.* (2006) cannot be directly tied to the expected impacts from the Navy's limited use of small airguns during testing activities. The Navy will only use airguns an average of five times per year. Furthermore, airgun usage in the Study Area is a component of pierside integration swimmer defense activities, which occur pierside in San Diego and do not overlap with any major feeding areas.

*Comment 66:* One commenter noted that it is not always possible to differentiate between marine mammal habituation of a sound and hearing impairment.

*Response 66:* We do not have a perfect understanding of marine mammal behavioral responses, but we have sufficient information (based on multiple MFA sonar-specific studies, marine mammal hearing/physiology/anatomy, and an extensive body of studies that address impacts from other anthropogenic sources) to be able to assess potential impacts and design mitigation and monitoring measures to ensure that the Navy's action will avoid injury and mortality whenever possible, have the least practicable adverse impact on marine mammal species and stocks and their habitat, and have a negligible impact on the affected species and stocks.

In the Potential Effects of Specified Activities on Marine Mammals section of the proposed rule (78 FR 6978, January 31, 2013; pages 6997–7011), we included a qualitative discussion of the different ways that Navy training and testing activities involving active sound sources may potentially affect marine mammals, which was based on MFA

sonar-specific studies and other studies addressing impacts from non-mid-frequency active sonar anthropogenic sources.

*Comment 67:* One commenter noted that the behavioral harassment analysis in the proposed rule (78 FR 6978, January 31, 2013; page 7034) shows that from 120–138 dB and 174–198 dB, very few low-frequency and mid-frequency cetaceans are behaviorally harassed. The commenter suggested that this is counter to the literature and requests an explanation for why high-frequency cetaceans are not included.

*Response 67:* The number of behavioral harassments is determined from the behavioral risk function criteria. At the lower received levels, the probability is significantly decreased and results in lower numbers. The distance to higher received levels is relatively small, therefore encompassing a relatively small area. Since only a small area is ensonified, there is less chance for exposure. Additionally, it is possible that an animal could experience TTS at higher received levels, and if the animal has already been counted under TTS it would not be reflected in the table. As depicted in Table 3.4–12 of the HSTT FEIS/OEIS, the behavioral response function table also applies to high-frequency cetaceans.

To the commenter's last point, the portion of the table labeled "Mid-frequency Cetaceans" (Table 21) should actually be labeled "Mid- and High-frequency Cetaceans." There is one single behavioral harassment curve applied to both mid- and high-frequency cetaceans and Table 21 lists the breakdown of takes for that curve.

*Comment 68:* One commenter noted that NMFS should highlight declines in beaked whales off California and that Navy sonar impacts are one of two leading hypotheses for their decline.

*Response 68:* The commenter cited Moore and Barlow (2013) when referring to declines in beaked whales off California. Moore and Barlow (2013) have noted a decline in beaked whale populations in a broad area of the Pacific Ocean out to 300 nautical miles from the coast and extending from the Canadian-U.S. border to the tip of Baja Mexico. There are scientific caveats and limitations to the data used for that analysis, as well as oceanographic and species assemblage changes not thoroughly addressed in Moore and Barlow (2013). The authors suggest Navy sonar as one possible explanation for the apparent decline in beaked whale numbers over that broad area. However, in the small portion of the Pacific coast overlapping with the

SOCAL Range Complex (where the Navy has been intensively training and testing with sonar and other systems for decades), long-term residency by individual Cuvier's beaked whales and higher densities of beaked whales have been documented. While it is possible that a downward trend in beaked whales may have gone unnoticed in the SOCAL Range Complex (due to a lack of survey precision) or that beaked whale densities may have been higher before the Navy began using sonar earlier in the 1900's, there is no data to suggest that beaked whale numbers have declined in the SOCAL Range Complex and as Moore and Barlow (2013) point out, it remains clear that the Navy range in Southern California continues to support high densities of beaked whales.

*Comment 69:* One commenter pointed out the stable or declining blue whale population off California (Calambokidis *et al.*, 2009) and that the SOCAL-Behavioral Response Study demonstrates that playback of low levels of sonar-like sounds disrupt blue whale feeding behavior during deep feeding. However, the reason for this shift is not fully understood and the commenter believes that key feeding areas should be avoided by the Navy.

*Response 69:* Calambokidis *et al.* (2009) suggest that the blue whale population off California has not actually declined; but that the whales have shifted away from feeding off California to feeding in other areas much farther north and south. It is important to note that while 1991–2005 may show a slight decline in detections of blue whales from shipboard visual surveys, the corresponding mark-recapture photo identification analysis shows a 3 percent increase in blue whales (Carretta *et al.*, 2013). The commenter specifically cites Goldbogen *et al.*, 2013, which shows blue whale feeding disruption in response to pseudo random noise and simulated sonar signals. It is important to note that this behavior was observed in response to exposure to pseudo random noise and not a simulated sonar signal. Once again, this study shows the complexity of behavioral responses to acoustic sources and the importance of contextual variables.

Again, while NMFS agrees that there are important areas for fin and blue whales that overlap with the SOCAL Range Complex, these areas are also adjacent to the Navy's only west coast underwater instrumented training range. This range has been in operation for decades and is considered mission-critical by the Navy for ASW training and testing. In addition, nearby

infrastructure supports multiple warfare mission areas used concurrently with sonar and explosive use. The Navy has determined that establishment of a time-area closure within this region is not practical. However, the Navy has stated that given the closeness to shore, relatively shallow water, and lack of other nearby training infrastructure, major training events are not typically planned in this vicinity.

As previously stated in Response 36, the Navy had two passive acoustic monitoring devices in the water offshore La Jolla and San Clemente Island to record blue, fin, and Cuvier's beaked whale vocalization rates in the presence of anthropogenic sounds. This analysis is continuing through 2015 and results will be posted on the Navy's marine species monitoring Web site: <http://www.navy.marinespeciesmonitoring.us/>. Additional monitoring projects are planned for the SOCAL Range Complex, but have not yet been finalized.

*Comment 70:* Several commenters suggested that the Navy grossly underestimates the effects of its activities on the marine environment and that NMFS fails to consider longer term effects or conduct a population-level analysis.

*Response 70:* NMFS disagrees that impacts to marine mammals from the Navy's training and testing activities are grossly underestimated. The Navy's model uses the best available science to analyze impacts and often overestimates the potential effects of their activities by considering the worst case scenario (e.g., modeling for the loudest sound source within a source bin). The Navy also analyzed the potential environmental impacts of their activities, including on marine mammal populations, in the HSTT FEIS/OEIS.

NMFS considers population-level effects under our "least practicable adverse impact" standard and also when making a negligible impact determination. The Analysis and Negligible Impact Determination section of this final rule explicitly addresses the effects of the 5-year activity on populations, considering: when impacts occur in known feeding or reproductive areas; the number of mortalities; the status of the species; and other factors. Further, NMFS' duty under the "least practicable adverse impact" standard is to design mitigation targeting those impacts on individual marine mammals that are most likely to lead to adverse population-level effects. These mitigation measures are discussed in detail both in the Mitigation section of this final rule and also considered in the Negligible Impact Determination section.



*Comment 71:* Several commenters suggested that NMFS failed to analyze the cumulative effects of the Navy's activities.

*Response 71:* Section 101(a)(5)(A) of the MMPA requires NMFS to make a determination that the harassment incidental to a specified activity will have a negligible impact on the affected species or stocks of marine mammals, and will not result in an unmitigable adverse impact on the availability of marine mammals for taking for subsistence uses. Neither the MMPA nor NMFS' implementing regulations specify how to consider other activities and their impacts on the same populations. However, consistent with the 1989 preamble for NMFS' implementing regulations (54 FR 40338, September 29, 1989), the impacts from other past and ongoing anthropogenic activities are incorporated into the negligible impact analysis via their impacts on the environmental baseline (e.g., as reflected in the density/distribution and status of the species, population size and growth rate, and ambient noise).

In addition, cumulative effects are addressed in the Chapter 4 of the HSTT FEIS/OEIS and NMFS' Biological Opinion for this action. These documents provided NMFS with information regarding other activities in the action area that affect marine mammals, an analysis of cumulative impacts, and other information relevant to the determination made under the MMPA.

*Comment 72:* One commenter claimed that NMFS' negligible impact determination is not accurate because the Navy's activities will result in hearing loss for 1,600 marine mammals and mortality of 130 marine mammals.

*Response 72:* Based on our analysis of the effects of the specified activity on marine mammals and their habitat, and dependent on the implementation of mitigation and monitoring measures, we have found that the total taking from Navy training and testing will have a negligible impact on the affected species and stocks. First, the negligible impact finding is made for each individual species and the numbers the commenter cites are totals for all 39 species, i.e., the numbers are not nearly that large for any individual species. Second, in some cases, as described throughout the document, the estimated takes by mortality and injury are not always expected to occur but rather are authorized to ensure that the Navy is in compliance for the maximum that could occur. Last, PTS is a reduction in hearing sensitivity within a particular frequency band (which often occurs

naturally as animals age)—NMFS would not expect that complete hearing loss would result from exposure to Navy activities, as it would require an animal stay in very close proximity to a loud source for an extended period of time. As a result, we have promulgated regulations for these activities that prescribe the means of effecting the least practicable adverse impact on marine mammal species or stocks and their habitat and set forth requirements pertaining to the monitoring and reporting of that taking.

*Comment 73:* One commenter requested a list of unexploded ordnances, mitigation measures for unexploded ordnances, and the impacts on marine mammals from unexploded ordnances.

*Response 73:* The HSTT FEIS/OEIS addresses the potential impacts from the introduction of things like unexploded ordnance into the water column. As stated in the previous response, the HSTT DEIS/OEIS was made available to the public on May 11, 2012 and was referenced in our notice of receipt (77 FR 60678, October 4, 2012) and proposed rule (78 FR 6978, January 31, 2013). In summary, and as included in the Marine Mammal Habitat section of the proposed rule, chemical, physical, or biological changes in sediment or water quality would not be detectable. In the event of an ordnance failure, the energetic materials it contained would remain mostly intact. The explosive materials in failed ordnance items and metal components from training and testing would leach slowly and would quickly disperse in the water column. Unexploded ordnances are unlikely to affect marine mammals or their habitat.

*Comment 74:* One commenter suggested that while no reported cases of harmful effects to humpback whales off the Hawaiian Islands have been attributed to mid-frequency active sonar, thorough monitoring has not taken place and marine mammal strandings and deaths at sea are only detected in 2 percent of all cases (Williams *et al.*, 2011).

*Response 74:* The Navy has been conducting mid-frequency active sonar around Hawaii for decades, and during that time there have been no reported cases of negative impacts to humpback whales from Navy activities. NMFS believes that the Navy's required mitigation measures will result in the least practicable adverse impacts to marine mammal species or stocks and their habitat in the area. Williams *et al.* (2011) does not provide a definitive amount of detected marine mammal deaths; rather, based on data from the Gulf of Mexico, they suggest that on

average, carcasses are recovered from 2 percent of cetacean deaths. Comment 3 of the Mitigation section also addresses the limited amount of Navy activity on the leeward side of the island of Hawaii.

*Comment 75:* The Commission recommended that NMFS authorize the total number of model-estimated Level A harassment and mortality takes rather than reducing the estimated numbers of Level A harassment and mortality takes based on the Navy's proposed post-model analysis. Specifically, the Commission was concerned that the Navy did not provide a basis for the assumption that animals would avoid repeated sound exposure (including sensitive species) or that the implementation of mitigation would prevent Level A harassment.

*Response 75:* The Navy's post-model assessment process was developed using the best available science and in coordination with NMFS, and appropriately accounts for mitigation and avoidance behavior. Relying solely on the output of the Navy Acoustic Effects Model presents an overestimate of acoustic impacts for higher order effects such as injury or mortality for the following reasons:

(1) Sensitive species (i.e., beaked whales and harbor porpoises) are modeled as if they would remain stationary and tolerate any very close anthropogenic encounters, although these species are known to avoid anthropogenic activity (see HSTT FEIS/OEIS Section 3.4.3.1.2.6 Behavioral Reactions).

(2) Implementation of mitigation is not currently modeled; however, the Navy has developed mitigation measures in cooperation with NMFS that are considered effective at reducing environmental impacts while being operationally feasible (see HSTT FEIS/OEIS Chapter 5, Standard Operating Procedures, Mitigation, and Monitoring).

(3) Animals are assumed to remain horizontally stationary in the model and tolerate any disturbing or potentially injurious sound exposure, although animals have been observed to avoid sound sources with high source levels (see HSTT FEIS/OEIS Section 3.4.3.1.2.5 Behavioral Reactions).

(4) The model estimates the potential for mortality based on very conservative criteria (see HSTT FEIS/OEIS Section 3.4.3.1.4.8, Mortality and Injury from Explosives). With the implementation of proven mitigation and decades of historical information from conducting training and testing in the Study Area, the likelihood of mortality is very low.

The Navy has required that any "incident" (marine mammal mortality



or otherwise) be reported since the 1990s. In that time, only four marine mammal mortalities have been reported in the Atlantic Fleet Training and Testing (AFTT) and HSTT Study Area from training and testing activities. While it is possible that some mortalities may have gone undetected, it is highly unlikely that they would reach the high level of Level A harassments and mortalities as suggested by the raw model results.

The Navy's quantitative analysis of acoustic impacts is discussed in HSTT FEIS/OEIS Section 3.4.3.1.6, Quantitative Analysis, as well as in Section 6.3 of the Navy's LOA application. Specifically, post-model analysis taking into account sensitive species' avoidance of anthropogenic activity is discussed in HSTT FEIS/OEIS Section 3.4.3.1.7, Marine Mammal Avoidance of Sound Exposures. Background information discussing harbor porpoise and beaked whale sensitivity to vessels and aircraft is discussed in HSTT FEIS/OEIS Section 3.4.3.1.2.6, Behavioral Reactions. Reactions due to repeated exposures to sound-producing activities are discussed in HSTT FEIS/OEIS Section 3.4.3.1.2.7, Repeated Exposures.

The Navy's model-estimated effects (without consideration of avoidance or mitigation) are provided in a technical report ("Determination of Acoustic Effects on Marine Mammal and Sea Turtles") available at <http://www.hstteis.com>. In addition to the information already contained within the HSTT FEIS/OEIS, and in response to public comments, the Navy has prepared a Technical Report which describes the process for the post-modeling analysis in further detail. The "Analysis of Animal Avoidance, Behavior, and Mitigation Effectiveness Technical Report" is available at <http://www.hstteis.com>.

**Comment 77:** The Commission raised concerns regarding the Navy's approach to adjusting its take estimates based on both mitigation effectiveness scores and  $g(0)$ —the probability that an animal on a vessel's or aircraft's track line will be detected. Specifically, the Commission questioned how the Navy determined the appropriate adjustment factors because the information needed to judge mitigation effectiveness has not been made available. The Commission also stated that the Navy did not provide the criteria (i.e., the number and types of surveillance platforms, number of Lookouts, and sizes of the respective zones) needed to elicit the three mitigation effectiveness scores and pointed out that the simple detection of a marine mammal does not guarantee

that mitigation measures will be effective.

**Response 77:** The Navy Acoustic Effects Model currently does not have the ability to account for mitigation or horizontal animal movement; either as representative animal movements or as avoidance behavior (see HSTT FEIS/OEIS Section 3.4.3.1.6.4, Model Assumptions and Limitations). While the Navy will continue to incorporate best available science and modeling methods into future versions of the Navy Acoustic Effects Model, it was appropriate to perform post-model analysis to account for mitigation and avoidance behavior not captured by the Navy Acoustic Effects Model.

A summary of the current status of the Navy's Lookout effectiveness study and why the data cannot be used in the analysis was added in Section 5.3.1.2.4, Effectiveness Assessment for Lookouts, of the HSTT FEIS/OEIS. Both NMFS and the Navy believe consideration of marine mammal sightability and activity-specific mitigation effectiveness in its quantitative analysis is appropriate in order to provide decision makers a reasonable assessment of potential impacts under each alternative. A comprehensive discussion of the Navy's quantitative analysis of acoustic impacts, including the post-model analysis to account for mitigation and avoidance, is presented in the Navy's LOA application. The assignment of mitigation effectiveness scores and the appropriateness of consideration of sightability using detection probability,  $g(0)$ , when assessing the mitigation in the quantitative analysis of acoustic impacts is discussed in HSTT FEIS/OEIS Section 3.4.3.1.8, Implementing Mitigation to Reduce Sound Exposures. Additionally, the activity category, mitigation zone size and number of Lookouts is provided in HSTT FEIS/OEIS Tables 5.3–2 and 5.4–1. In addition to the information already contained within the HSTT FEIS/OEIS, and in response to public comments, the Navy has prepared a Technical Report which describes the process for the post-modeling analysis in further detail. The "Analysis of Animal Avoidance, Behavior, and Mitigation Effectiveness Technical Report" is available at <http://www.hstteis.com>.

NMFS believes that detection of a marine mammal within the Navy's relatively small mitigation zones will help prevent animals from being exposed to sound levels that constitute Level A harassment (injury). The Navy's relatively small mitigation zones help increase the likelihood that an animal will be detected before incurring PTS.

During the entire reporting period for the Hawaii Range Complex (January 2009 to August 2012), there were zero instances during Major Training Exercises (MTEs) where a ship neglected to mitigate adequately for a marine mammal sighted by the watchstander team within 1,000 yd. During the same reporting period for the SOCAL Range Complex, adequate mitigation was conducted over 98 percent of the time during MTEs for marine mammals sighted by the watchstander team within 1,000 yd.

Details on implementation of mitigation can be found in the annual exercise reports provided to NMFS and briefed annually to NMFS and the Commission. The annual exercise reports can be found at <http://www.navy-marinespeciesmonitoring.us/> and at <http://www.nmfs.noaa.gov/pr/permits/incidental.htm#applications>. For more information on how mitigation is implemented see HSTT FEIS/OEIS Chapter 5.

**Comment 78:** The Commission further stated that the Navy's post-model analysis approach is confusing because the Navy is inconsistent in its use of the terms "range to effects zone" and "mitigation zone," which are not the same. More importantly, some of the mitigation zones are smaller than the estimated range to effects zones.

**Response 78:** The terms "range to effects zone" and "mitigation zone" are used appropriately in the discussion of mitigation in both the Navy's LOA application and in HSTT FEIS/OEIS Section 5.3.2 (Mitigation Zone Procedural Measures). In summary, the range to effects zone is the distance over which the specific effects would be expected, and the mitigation zone is the distance that the Lookout will be implementing mitigation within and is developed based on the range to effects distance for injury (i.e. PTS).

In all cases, the mitigation zones encompass the ranges to PTS for the most sensitive marine mammal functional hearing group (see HSTT FEIS/OEIS Table 5.3–2), which is usually the high-frequency cetacean hearing group. Therefore, the mitigation zones are even more protective for the remaining functional hearing groups (i.e., low-frequency cetaceans, mid-frequency cetaceans, and pinnipeds), and likely cover a larger portion of the potential range to onset of TTS. The Navy believes that ranges to effect for PTS that are based on spherical spreading best represent the typical range to effects near a sonar source; therefore, the ranges to effects for sonar presented in Table 11–1 of the Navy's LOA application have been revised as

shown in Table 5.3–2 of the HSTT FEIS/OEIS. The predicted ranges to onset of PTS for a single ping are provided for each marine mammal functional hearing group in Table 3.4–11 of the HSTT FEIS/OEIS. The single ping range to onset of PTS for sonar in Sonar Bin MF1 (i.e., AN/SQS–53), the most powerful source bin analyzed, is no greater than 109 yd (100 m) for any marine mammal functional hearing group. Furthermore, as discussed in Section 3.4.3.2.1.1 (Range to Effects) of the HSTT FEIS/OEIS, there is little overlap of PTS footprints from successive pings, indicating that in most cases, an animal predicted to receive PTS would do so from a single exposure (i.e., ping). Additional discussion regarding consideration of mitigation in the quantitative analysis of sonar and other active acoustic sources is provided in HSTT FEIS/OEIS Section 3.4.3.2.1.2, Avoidance Behavior and Mitigation Measures as Applied to Sonar and Active Acoustic Sources.

*Comment 79:* The Commission noted that although the Navy states that Lookouts will not always be effective at avoiding impacts to all species, it bases its  $g(0)$  estimates on seasoned researchers conducting the associated surveys, not Navy Lookouts whose observer effectiveness has yet to be determined.

*Response 79:* A summary of the current status of the Navy's Lookout effectiveness study and why the data cannot be used in the analysis has been added in Section 5.3.1.2.4, Effectiveness Assessment for Lookouts, of the HSTT FEIS/OEIS. NMFS believes that consideration of marine mammal sightability and activity-specific mitigation effectiveness in the Navy's quantitative analysis is appropriate in order to provide a reasonable assessment of potential impacts under each alternative. A comprehensive discussion of the Navy's quantitative analysis of acoustic impacts, including the post-model analysis to account for mitigation and avoidance, is presented in the Navy's LOA application. Currently, the  $g(0)$  probabilities are the only quantitative measures available for estimating mitigation effectiveness.

However, the differences between Navy training and testing events and systematic line-transect marine mammal surveys suggest that the use of  $g(0)$ , as a sightability factor to quantitatively adjust model-predicted effects based on mitigation, is likely to result in an underestimate of the protection afforded by the implementation of mitigation. For instance, mitigation zones for Navy training and testing events are significantly smaller (typically less than

1,000 yd radius) than the area typically searched during line-transect surveys, which includes the maximum viewable distance out to the horizon. In some cases, Navy events can involve more than one vessel or aircraft (or both) operating in proximity to each other or otherwise covering the same general area, potentially resulting in more observers looking at the mitigation zone than the two primary observers used in marine mammal surveys upon which  $g(0)$  is based. Furthermore, a systematic marine mammal line-transect survey is designed to sample broad areas of the ocean, and generally does not retrace the same area during a given survey. In contrast, many Navy training and testing activities involve area-focused events (e.g., anti-submarine warfare tracking exercise), where participants are likely to remain in the same general area during an event. In other cases, Navy training and testing activities are stationary (i.e., pierside sonar testing or use of dipping sonar), which allows Lookouts to focus on the same area throughout the activity. Both of these circumstances result in a longer observation period of a focused area with more opportunities for detecting marine mammals than are offered by a systematic marine mammal line-transect survey that only passes through an area once. Additional discussion regarding the use of detection probability,  $g(0)$ , in the consideration of mitigation in the quantitative analysis is provided in HSTT FEIS/OEIS Section 3.4.3.1.8, Implementing Mitigation to Reduce Sound Exposures.

*Comment 80:* The Commission and others voiced concern that the Navy's post-model analysis cannot account for the magnitude of adjustment to take estimates from what was originally presented in the draft HSTT EIS/OEIS to what was presented in the proposed rule (78 FR 6978, January 31, 2013) and that the public does not have enough information to comment on this issue.

*Response 80:* A comprehensive discussion of the Navy's acoustic impact analysis, including modeling and post-model analysis, is in Section 3.4.3.1.6, Quantitative Analysis, of the HSTT FEIS/OEIS. The information presented in the proposed rule and the Navy's LOA application was sufficient to notify the public of the post-modeling analysis and provide the public an opportunity to comment. However, in response to public comments, in addition to the information already contained within the HSTT FEIS/OEIS and the Navy's LOA application, the Navy also prepared a Technical Report which describes the process for the post-modeling analysis in further detail. The

"Analysis of Animal Avoidance Behavior and Mitigation Effectiveness Technical Report" is available at <http://www.hstteis.com>. This report demonstrates that the differences in predicted impacts due to the post-modeling analysis and the corrections in modeling the proposed action made after publication of the HSTT DEIS/OEIS were not substantial changes in the proposed action that will significantly affect the environment in a manner not already considered in the HSTT DEIS/OEIS.

*Comment 81:* One commenter included several criticisms of the behavioral threshold used to assess impacts from airguns and pile driving, including that it is outdated and uses an inappropriate metric.

*Response 81:* NMFS is committed to the use of the best available science and, as noted in the summary at the beginning of the final rule, is in the process of updating and revising our acoustic thresholds. As has always been our process, we will solicit public input on revised draft thresholds before making any changes in the acoustic thresholds that applicants are required to use. The process for establishing new acoustic guidance is outlined on our Web site: <http://www.nmfs.noaa.gov/pr/acoustics/guidelines.htm>. Until revised criteria are finalized (after both public and peer review), ensuring the inclusion and appropriate interpretation of any newer information, applicants should continue to use NMFS' current acoustic thresholds.

#### *Vessel Strikes*

*Comment 82:* The Commission recommended that NMFS require the Navy to use its spatially and temporally dynamic simulation models to estimate strike probabilities for specific activities.

*Response 82:* The Navy considered using a dynamic simulation model to estimate strike probability. However, the Navy determined that the use of historical data was a more appropriate way to analyze the potential for strike. The Navy's strike probability analysis in the HSTT FEIS/OEIS is based on data collected from historical use of vessels, in-water devices, and military expended materials, and the likelihood that these items may have the potential to strike an animal. This data accounts for real-world variables over the course of many years and is considered more accurate than model results.

*Comment 83:* NRDC recommended the application of ship-speed restrictions (10 knots) for Navy support vessels and/or other vessels while transiting high-value habitat for baleen

whales and endangered species, or other areas of biological significance and/or shipping lanes (e.g., the Santa Barbara Channel).

*Response 83:* The Navy typically chooses to run vessels at slower speeds for efficiency and to conserve gas; however, some exercises, tests, or military needs require the Navy to exceed 10–15 knots. The Santa Barbara Channel, specifically, is not part of the HSTT Study Area; rather, it overlaps with the Navy's target and missile launch activities at San Nicolas Island, which do not include vessels and were analyzed in NMFS' 2009 EA and final rule (74 FR 26580, June 3, 2009).

#### General Opposition

*Comment 84:* Several commenters expressed general opposition to Navy activities and NMFS' issuance of an MMPA authorization.

*Response 84:* NMFS appreciates the commenters' concern for the marine environment. However, the MMPA directs NMFS to issue an incidental take authorization if certain findings can be made. NMFS has determined that the Navy's training and testing activities will have a negligible impact on the affected species or stocks and, therefore, we plan to issue the requested MMPA authorization.

#### Other

*Comment 85:* One commenter stated that the Navy's activities can be conducted inside and outside of designated ranges and that there is essentially no boundary for their activities.

*Response 85:* The National Defense Authorization Act of 2004 (NDAA) (Pub. L. 108–136) removed the "specified geographical region" limitation of the MMPA as it applies to a "military readiness activity." However, the Navy did designate a Study Area that includes three existing range complexes (Southern California (SOCAL) Range Complex, Hawaii Range Complex (HRC), and Silver Strand Training Complex (SSTC)). In addition, the Study Area includes other areas where training and testing activities occur including the pierside locations in San Diego Bay and Pearl Harbor, the transit corridor between SOCAL and Hawaii, and throughout the San Diego Bay.

*Comment 86:* One commenter asked if NMFS would address issues raised in Dr. Lubchenco's 2010 letter to the Center for Environmental Quality, which noted a lack of knowledge on effects of sonar to marine mammals and the difficulties of limiting impacts from sonar where mitigation efforts depend on visual sightings.

*Response 86:* The Navy's LOA application and the HSTT FEIS/OEIS clearly discuss the potential impacts on marine mammals when exposed to sonar. The Navy has worked, and will continue to work, as an active partner to investigate the extent and severity of the impacts on marine mammals and how to reduce them. With respect to monitoring effectiveness, neither the Navy nor NMFS have indicated that monitoring (and the associated mitigation) will eliminate impacts. The MMPA requires that NMFS implement the means of effecting the least practicable adverse impacts on marine mammal species or stocks and their habitat, and NMFS has determined that required monitoring and associated mitigation measures accomplish this.

*Comment 87:* One commenter voiced concern about stranding networks not being equipped or willing to deal with the influx of marine mammals if NMFS' authorizes the Navy's activities.

*Response 87:* The National Marine Mammal Stranding Network consists of over 120 organizations who partner with NMFS to investigate marine mammal strandings. Given the current fiscal environment, NMFS has needed to make tough budget choices, including reducing and defunding valuable programs. With the reduction in federal funding, response resources may be limited in some geographic regions.

In 2011, NMFS and the Navy signed a National Memorandum of Understanding (MOU) that established a framework for the Navy to assist NMFS with response to, and investigation of, Uncommon Stranding Events (USEs) during major training exercises by providing in-kind services to NMFS. The MOU is implemented through Regional Stranding Investigation Assistance Plans and outlines the region-specific Navy services that are available to assist with USE responses. As resources are available, the stranding network has and will continue to respond to marine mammal strandings.

*Comment 88:* One commenter claimed that Navy activities taking place in Hawaii and Southern California must be separated in NMFS' regulations.

*Response 88:* The Navy designated a Study Area that includes three existing range complexes (SOCAL Range Complex, HRC, and SSTC). In addition, the Study Area includes other areas where training and testing activities occur including the pierside locations in San Diego Bay and Pearl Harbor, the transit corridor between SOCAL and Hawaii, and throughout the San Diego Bay. Combining the Navy's activities at each of these range complexes has no effect on how we analyze the impacts of

Navy training and testing activities on marine mammals.

*Comment 89:* One commenter suggested that the Navy should not be allowed to increase their activities while the impacts on marine mammals are not fully documented or understood.

*Response 89:* It is important to note that, as stated in the Navy's LOA application and the proposed rule, the expansion of the HSTT Study Area from previous analyses is not an increase in areas where the Navy will train and test, but merely an expansion of the area to be included in our analysis and resulting authorization. Both NMFS and the Navy have a responsibility to use the best available science to support our analyses and decisions under the MMPA and NEPA. However, because the best available science is constantly changing and our current knowledge of marine mammal behavioral response is limited, NMFS utilizes an adaptive management approach. In so doing, we are able to continuously assess impacts and incorporate new mitigation or monitoring measures when necessary.

*Comment 90:* One commenter asked about the effects of missile launches on air and water quality; how much aluminum oxide is released by rockets and missile launches and the effects on marine life; and the effects of hazardous materials discharged from Navy vessels on marine life.

*Response 90:* The HSTT FEIS/OEIS addresses all potential impacts to the human environment, which is available online at <http://www.hstteis.com>. The HSTT DEIS/OEIS was made available to the public on May 11, 2012 and was referenced in our notice of receipt (77 FR 60678, October 4, 2012) and the proposed rule (78 FR 6978, January 31, 2013).

*Comment 91:* One commenter asked why the Navy does not plan to suspend sonar operations during gray whale and fish migration periods.

*Response 91:* The Navy will implement mitigation measures for all marine mammals, including gray whales, if they approach or enter a mitigation zone. NMFS does not think that mitigation specific to gray whale migration is necessary because mitigation measures are already in place to help avoid the potential for onset of PTS and reduce the potential for TTS. Furthermore, suspending sonar operations during migration periods of any marine mammal may negatively impact the effectiveness of Navy training and testing activities; these activities must be conducted during all months of the year and in a variety of conditions for the Navy to meet its mission.

The concern regarding fish migration is outside the purview of the MMPA. Impacts to fish spawning grounds and habitat use are dealt with under the Magnuson-Stevens Fishery Conservation and Management Act as it relates to Essential Fish Habitat.

*Comment 92:* One commenter asked about the impacts of testing new electromagnetic weapons systems on marine mammals and what studies have been done.

*Response 92:* The Navy did not request MMPA authorization for takes resulting from electromagnetic stressors. Data regarding the influence of magnetic fields and electromagnetic fields on cetaceans is inconclusive. Dolman *et al.* (2003) provides a literature review of the influences of marine wind farms on cetaceans. The literature focuses on harbor porpoises and dolphin species because of their nearshore habitats. Teilmann *et al.* (2002) evaluated the frequency of harbor porpoise presence at wind farm locations around Sweden (the electrical current conducted by undersea power cables creates an electromagnetic field around those cables). Although electromagnetic field influences were not specifically addressed, the presence of cetacean species implies that at least those species are not repelled by the presence of electromagnetic fields around undersea cables associated with offshore wind farms. Based on the available literature, no evidence of electrosensitivity in marine mammals was found except recently in the Guiana dolphin (Czech-Dama *et al.*, 2011). Based on the available literature, no evidence suggests any magnetic sensitivity for polar bears, sea otters, sea lions, fur seals, walrus, earless seals, and Sirenia (Normandeau *et al.*, 2011). As described in the discussion below, some literature suggests that some cetaceans (whales, dolphin, and porpoises) may be sensitive to changes in magnetic fields; however, NMFS concurred with the Navy that the available data did not support the need for MMPA authorization at this time.

*Comment 93:* Earthjustice suggested that the Navy's DEIS/OEIS is fatally flawed because it fails to consider a "no action" alternative.

*Response 93:* The Council on Environmental Quality regulations require that agencies develop and analyze a range of alternatives to the proposed action, including a No Action Alternative. The No Action Alternative serves as a baseline description from which to compare the potential impacts of the proposed action. The Council on Environmental Quality provides two interpretations of the No Action

Alternative, depending on the proposed action. One interpretation would mean the proposed action would not take place. For example, this interpretation would be used if the proposed action was the construction of a facility where a facility did not previously exist. The second interpretation, which applies to the HSTT FEIS/OEIS, allows the No Action Alternative to be the continuation of the present course of action until that action is changed. The purpose of a "No Action Alternative" is to ensure that agencies compare the potential impacts of the proposed action to the potential impacts of maintaining the status quo.

The HSTT FEIS/OEIS includes a "No Action Alternative" where the Navy would continue baseline training and testing activities, as defined by existing Navy environmental planning documents, including the FEISs for the Hawaii Range Complex, the Southern California Range Complex, and the Silver Strand Training Complex. The baseline testing activities also include those testing events that historically occur in the Study Area and have been subject to previous analyses. However, the No Action Alternative fails to meet the purpose of and need for the Navy's proposed action because it would not allow the Navy to meet current and future training and testing requirements necessary to achieve and maintain military readiness.

*Comment 94:* One commenter suggested that activities in the HSTT DEIS/OEIS that were determined to "not involve stressors that could result in harassment of marine mammals" should be further addressed.

*Response 94:* The Navy requested authorization to take marine mammals incidental to activities that have the potential to cause harassment, injury, or mortality. Other activities are discussed in the HSTT FEIS/OEIS and outside the scope of this analysis.

*Comment 95:* NRDC recommended that the Navy avoid fish spawning grounds and important habitat for fish species potentially vulnerable to significant behavioral change, such as wide-scale displacement within the water column or changes in breeding behavior.

*Response 95:* While NMFS considers impacts to prey species as a component of marine mammal habitat, these concerns are mostly outside the purview of the MMPA. Impacts to fish spawning grounds and habitat use are dealt with under the Magnuson-Stevens Fishery Conservation and Management Act (MSFCMA) as it relates to Essential Fish Habitat (EFH). The Navy determined that their activities may adversely affect

EFH; therefore, the Navy concluded that a consultation under the MSFCMA was necessary. NMFS Pacific Islands Regional Office determined that adverse effects to EFH could be avoided and minimized given that the Navy factors the listed sensitive EFH and Habitat Areas of Particular Concerns into decisions as areas to avoid when conducting HSTT activities that result in more than minimal impact to seafloor. NMFS Southwest Regional Office determined that the proposed conservation measures are sufficient to avoid, minimize, or offset impacts to EFH and had no additional conservation recommendations.

*Comment 96:* NRDC recommended that the Navy dedicate research and technology development to reduce the impacts of active acoustic sources on marine mammals.

*Response 96:* As stated in the Ongoing Navy Research section of the proposed rule (78 FR 6978, January 31, 2013; pages 7019–7020), the Navy provides a significant amount of funding and support to marine research. In summary, from 2004 to 2012, the Navy provided over \$230 million for marine species research and currently sponsors 70 percent of all U.S. research concerning the effects of human-generated sound on marine mammals and 50 percent of such research conducted worldwide. The Navy's research and development efforts have significantly improved our understanding of the effects of Navy-generated sound in the marine environment. These studies have supported the modification of acoustic criteria to more accurately assess behavioral impacts to beaked whales and the thresholds for auditory injury for all species, and the adjustment of mitigation zones to better avoid injury. In addition, Navy scientists work cooperatively with other government researchers and scientists, universities, industry, and non-governmental conservation organizations in collecting, evaluating, and modeling information on marine resources.

*Comment 97:* NRDC recommended that the Navy agree to additional clean-up and retrieval of the massive amount of discarded debris and expended materials associated with its proposed activities.

*Response 97:* The Navy conducted a full analysis of the potential impacts of military expended materials on marine mammals and will implement several mitigation measures to help avoid or reduce those impacts. This analysis is contained throughout Chapter 3 (Affected Environment and Environmental Consequences) of the HSTT FEIS/OEIS. The Navy determined

that military expended materials related to training exercises under a worst-case scenario will not impact more than 0.00009 percent of the available soft bottom habitat annually within any of the range complexes. The Navy has standard operating procedures in place to reduce the amount of military expended materials to the maximum extent practical, including recovering targets and associated parachutes.

#### Estimated Take of Marine Mammals

In the Estimated Takes of Marine Mammals section of the proposed rule, NMFS described the potential effects to marine mammals from active sonar and underwater detonations in relation to the MMPA regulatory definitions of Level A and Level B harassment (78 FR 6978, January 31, 2013; pages 7021–7030). That information has not changed and is not repeated here.

Tables 13 and 14 provide a summary of non-impulsive and impulsive

thresholds to TTS and PTS for marine mammals. A detailed explanation of how these thresholds were derived is provided in the HSTT DEIS/OEIS Criteria and Thresholds Technical Report (<http://www.hstteis.com/DocumentsandReferences/HSTTDocuments/SupportingTechnicalDocuments.aspx>) and summarized in Chapter 6 of the Navy's LOA application (<http://www.nmfs.noaa.gov/pr/permits/incidental.htm#applications>).

TABLE 13—ONSET TTS AND PTS THRESHOLDS FOR SONAR AND OTHER ACTIVE ACOUSTIC SOURCES

Group	Species	Onset TTS	Onset PTS
Low-Frequency Cetaceans .....	All mysticetes .....	178 dB re 1μPa2-sec(LF <sub>II</sub> ) .....	198 dB re 1μPa2-sec(LF <sub>II</sub> ) .....
Mid-Frequency Cetaceans .....	Most delphinids, beaked whales, medium and large toothed whales.	178 dB re 1μPa2-sec(MF <sub>II</sub> ) .....	198 dB re 1μPa2-sec(MF <sub>II</sub> ) .....
High-Frequency Cetaceans .....	Porpoises, <i>Kogia</i> spp. ....	152 dB re 1μPa2-sec(HF <sub>II</sub> ) .....	172 dB re 1μPa2-secSEL (HF <sub>II</sub> ) .....
Phocidae In-water .....	Harbor, Hawaiian monk, elephant seals.	183 dB re 1μPa2-sec(P <sub>WI</sub> ) .....	197 dB re 1μPa2-sec(P <sub>WI</sub> ) .....
Otariidae & Obodeniidae In-water ..	Sea lions and fur seals .....	206 dB re 1μPa2-sec(O <sub>WI</sub> ) .....	220 dB re 1μPa2-sec(O <sub>WI</sub> ) .....
Mustelidae In-water .....	Sea otters.		

LF<sub>II</sub>, MF<sub>II</sub>, HF<sub>II</sub>: New compound Type II weighting functions; P<sub>WI</sub>, O<sub>WI</sub>: Original Type I (Southall *et al.* 2007) for pinniped and mustelid in water.

TABLE 14—IMPULSIVE SOUND EXPLOSIVE CRITERIA AND THRESHOLDS FOR PREDICTING PHYSIOLOGICAL EFFECTS

Group	Species	Behavior		Slight Injury			Mortality
		Behavioral (for ≥2 pulses/24 hours)	TTS	PTS	GI Tract	Lung	
Low-frequency Cetaceans.	All mysticetes .....	167 dB SEL (LF <sub>II</sub> )	172 dB SEL (LF <sub>II</sub> ) or 224 dB Peak SPL.	187 dB SEL (LF <sub>II</sub> ) or 230 dB Peak SPL.	237 dB SPL or 104 psi.	Equation 1 ...	Equation 2
Mid-frequency Cetaceans.	Most delphinids, medium and large toothed whales.	167 dB SEL (MF <sub>II</sub> )	172 dB SEL (MF <sub>II</sub> ) or 224 dB Peak SPL.	187 dB SEL (MF <sub>II</sub> ) or 230 dB Peak SPL.			
High-frequency Cetaceans.	Porpoises and <i>Kogia</i> spp..	141 dB SEL (HF <sub>II</sub> )	146 dB SEL (HF <sub>II</sub> ) or 195 dB Peak SPL.	161 dB SEL (HF <sub>II</sub> ) or 201 dB Peak SPL.			
Phocidae .....	Hawaiian monk, elephant, and harbor seal.	172 dB SEL (P <sub>WI</sub> )	177 dB SEL (P <sub>WI</sub> ) or 212 dB Peak SPL.	192 dB SEL (P <sub>WI</sub> ) or 218 dB Peak SPL.			
Otariidae .....	Sea lions and fur seals.	195 dB SEL (O <sub>WI</sub> )	200 dB SEL (O <sub>WI</sub> ) or 212 dB Peak SPL.	215 dB SEL (O <sub>WI</sub> ) or 218 dB Peak SPL.			
Mustelidae .....	Sea otters.						

Equation 1: =  $39.1M^{1/3} (1+[D_{Rm}/10.081])^{1/2}$   
Pa-sec

Equation 2: =  $91.4M^{1/3} (1+[D_{Rm}/10.081])^{1/2}$   
Pa-sec

Where:

M = mass of the animals in kg

D<sub>Rm</sub> = depth of the receiver (animal) in meters

$$R = \frac{1 - \left( \frac{L - B}{K} \right)^{-A}}{1 - \left( \frac{L - B}{K} \right)^{-2A}}$$

Where:

R = Risk (0–1.0)

L = Received level (dB re: 1 μPa)

B = Basement received level = 120 dB re: 1 μPa

K = Received level increment above B where 50-percent risk = 45 dB re: 1 μPa

A = Risk transition sharpness parameter = 10 (odontocetes and pinnipeds) or 8 (mysticetes)

Existing NMFS criteria was applied to sounds generated by pile driving and airguns (Table 16).

TABLE 16—THRESHOLDS FOR PILE DRIVING AND AIRGUNS

Species groups	Underwater vibratory pile driving criteria (sound pressure level, dB re 1 $\mu$ Pa)		Underwater impact pile driving and airgun criteria (sound pressure level, dB re 1 $\mu$ Pa)	
	Level A injury threshold	Level B disturbance threshold	Level A injury threshold	Level B disturbance threshold
Cetaceans (whales, dolphins, porpoises).	180 dB rms .....	120 dB rms .....	180 dB rms .....	160 dB rms.
Pinnipeds (seals) .....	190 dB rms .....	120 dB rms .....	190 dB rms .....	160 dB rms.

*Take Request*

The HSTT FEIS/OEIS considers all training and testing activities to occur in the Study Area that have the potential to result in the MMPA defined take of marine mammals. The stressors associated with these activities included the following:

- Acoustic (sonar and other active non-impulse sources, explosives, pile driving, swimmer defense airguns, weapons firing, launch and impact noise, vessel noise, aircraft noise);
- Energy (electromagnetic devices);
- Physical disturbance or strikes (vessels, in-water devices, military expended materials, seafloor devices);
- Entanglement (fiber optic cables, guidance wires, parachutes);
- Ingestion (munitions, military expended materials other than munitions); and

- Indirect stressors (risk to monk seals from Navy California sea lions from the transmission of disease or parasites).

The Navy determined, and NMFS agrees, that three stressors could potentially result in the incidental taking of marine mammals from training and testing activities within the Study Area: (1) Non-impulsive stressors (sonar and other active acoustic sources), (2) impulsive stressors (explosives, pile driving and removal, and airguns), and (3) vessel strikes. Non-impulsive and impulsive stressors have the potential to result in incidental takes of marine mammals by harassment, injury, or mortality. Vessel strikes have the potential to result in incidental take from direct injury and/or mortality. It is important to note that the Navy's take estimates represent the number of exposures—not the number of

individual marine mammals that may be affected by training and testing activities. Some individuals may be harassed multiple times while other individuals may only be harassed once. Multiple exposures are especially likely in areas where resident populations overlap with stationary activities.

*Training Activities*—Based on the Navy's model and post-model analysis (described in detail in Chapter 6 of their LOA application), Table 18 summarizes the authorized take for training activities for an annual maximum year (a notional 12-month period when all annual and non-annual events could occur) and the summation over a 5-year period (annual events occurring five times and non-annual events occurring three times). Table 19 summarizes the authorized take for training activities by species.

TABLE 17—SUMMARY OF ANNUAL AND 5-YEAR TAKES REQUESTED AND AUTHORIZED FOR TRAINING ACTIVITIES

MMPA Category	Source	Training activities	
		Annual authorization sought <sup>1</sup>	5-Year authorization sought <sup>2</sup>
Injury or Mortality .....	Impulse .....	7 mortalities applicable to any small odontocete (i.e., dolphin) or pinniped species <sup>3</sup> .	35 mortalities applicable to any small odontocete (i.e., dolphin) or pinniped species over five years.
	Unspecified <sup>4</sup> .....	2 mortalities to beaked whales <sup>4</sup> .....	10 mortalities to beaked whales over five years <sup>4</sup>
	Vessel strike .....	No more than 4 large whale injuries or mortalities in any given year <sup>5</sup> .	No more than 12 large whale injuries or mortalities over five years over five years <sup>5</sup>
Level A .....	Impulse and Non-Impulse.	266—Species specific data shown in Table 19.	1,314—Species specific data shown in Table 19.
Level B .....	Impulse and Non-Impulse.	1,690,698—Species specific data shown in Table 19.	8,396,806—Species specific data shown in Table 19.

<sup>1</sup> These numbers constitute the total for an annual maximum year (a notional 12-month period when all annual and non-annual events could occur) in which a RIMPAC exercise and Civilian Port Defense events would occur in Hawaii and SOCAL.

<sup>2</sup> These numbers constitute the summation over a 5-year period with annual events occurring five times and non-annual events occurring three times.

<sup>3</sup> No more than four of any one species. This authorization by mortality does not include Hawaiian monk seals or Guadalupe fur seals.

<sup>4</sup> The Navy's NAEMO model did not quantitatively predict these mortalities. Navy, however, is seeking this particular authorization given sensitivities these species may have to anthropogenic activities. Request includes two *Ziphiidae* beaked whale annually to include any combination of Cuvier's beaked whale, Baird's beaked whale, Longman's beaked whale, and unspecified *Mesoplodon* spp. (not to exceed 10 beaked whales total over the 5-year length of requested authorization).

<sup>5</sup> The Navy cannot quantifiably predict that proposed takes from training will be of any particular species, and therefore seeks take authorization for any combination of large whale species (gray whale, fin whale, blue whale, humpback whale, Bryde's whale, sei whale, minke whale, or sperm whale), but of the four takes per year no more than two of any one species of blue whale, fin whale, Western North Pacific gray whale, humpback whale, sei whale, or sperm whale is requested.

TABLE 18—SPECIES-SPECIFIC TAKE REQUEST AND AUTHORIZATION FROM MODELING ESTIMATES OF IMPULSIVE AND NON-IMPULSIVE SOURCE EFFECTS FOR ALL TRAINING ACTIVITIES

Species	Stock	Annually <sup>1</sup>			Total over 5-Year Rule <sup>2</sup>		
		Level B	Level A	Mortality	Level B	Level A	Mortality
Blue whale .....	Eastern North Pacific .....	4,145	0	0	20,725	0	0
	Central North Pacific .....	180	0	0	834	0	0
Fin whale .....	California, Oregon, & Washington.	1,528	0	0	7,640	0	0
	Hawaiian .....	191	0	0	891	0	0
Humpback whale .....	California, Oregon, & Washington.	1,081	0	0	5,405	0	0
	Central North Pacific .....	8,192	0	0	40,960	0	0
Sei whale .....	Eastern North Pacific .....	146	0	0	730	0	0
	Hawaiian .....	484	0	0	2,266	0	0
Sperm whale .....	California, Oregon, & Washington.	1,958	0	0	9,790	0	0
	Hawaiian .....	1,374	0	0	6,130	0	0
Guadalupe fur seal .....	Mexico .....	2,603	0	0	13,015	0	0
Hawaiian monk seal .....	Hawaiian .....	1,292	0	0	6,334	0	0
Bryde's whale .....	Eastern Tropical Pacific ....	112	0	0	560	0	0
	Hawaiian .....	137	0	0	637	0	0
Gray whale .....	Eastern North Pacific .....	9,533	2	0	47,665	10	0
	Western North Pacific .....	10	0	0	50	0	0
Minke whale .....	California, Oregon, & Washington.	359	0	0	1,795	0	0
	Hawaiian .....	447	0	0	2,235	0	0
Baird's beaked whale .....	California, Oregon, & Washington.	4,420	0	0	22,100	0	0
Blainville's beaked whale ..	Hawaiian .....	10,316	0	0	48,172	0	0
Bottlenose dolphin .....	California coastal .....	351	0	0	1,755	0	0
	California, Oregon & Washington offshore.	26,618	0	0	133,090	0	0
	Hawaii pelagic .....	3,942	0	0	19,709	0	0
	Oahu .....	728	0	0	3,641	0	0
	4-Islands region .....	188	0	0	938	0	0
	Kauai and Niihau .....	180	0	0	901	0	0
	Hawaii Island .....	125	0	0	625	0	0
Cuvier's beaked whale .....	California, Oregon, & Washington.	13,353	0	0	66,765	0	0
	Hawaiian .....	52,893	0	0	248,025	0	0
Dwarf sperm whale .....	Hawaiian .....	22,359	46	0	101,291	214	0
Dall's porpoise .....	California, Oregon, & Washington.	36,891	47	0	184,455	235	0
False killer whale .....	Main Hawaiian Islands Insular.	49	0	0	220	0	0
	Hawaii Pelagic .....	480	0	0	2,116	0	0
	Northwestern Hawaiian Islands.	177	0	0	776	0	0
Fraser's dolphin .....	Hawaiian .....	2,009	0	0	8,809	0	0
Killer whale .....	Eastern North Pacific offshore/transient.	321	0	0	1,605	0	0
	Hawaiian .....	182	0	0	822	0	0
Kogia spp. ....	California .....	12,943	33	0	64,715	165	0
Long-beaked common dolphin.	California .....	73,088	2	0	365,440	10	0
Longman's beaked whale	Hawaiian .....	3,666	0	0	17,296	0	0
Melon-headed whale .....	Hawaiian .....	1,511	0	0	6,733	0	0
Mesoplodon beaked whales <sup>3</sup> .	California, Oregon, & Washington.	1,994	0	0	9,970	0	0
Northern right whale dolphin.	California, Oregon, & Washington.	51,596	1	0	257,980	5	0
Pacific white-sided dolphin	California, Oregon, & Washington.	38,451	1	0	192,255	5	0
Pantropical spotted dolphin.	Hawaiian .....	10,887	0	0	48,429	0	0
Pygmy killer whale .....	Hawaiian .....	571	0	0	2,603	0	0
Pygmy sperm whale .....	Hawaiian .....	229	0	0	1,093	0	0
Risso's dolphin .....	California, Oregon, & Washington.	86,504	1	0	432,520	5	0
	Hawaiian .....	1,085	0	0	4,887	0	0
Rough-toothed dolphin .....	Hawaiian .....	5,131	0	0	22,765	0	0
Short-beaked common dolphin.	California, Oregon, & Washington.	999,282	70	* 3	4,996,410	350	* 15

TABLE 18—SPECIES-SPECIFIC TAKE REQUEST AND AUTHORIZATION FROM MODELING ESTIMATES OF IMPULSIVE AND NON-IMPULSIVE SOURCE EFFECTS FOR ALL TRAINING ACTIVITIES—Continued

Species	Stock	Annually <sup>1</sup>			Total over 5-Year Rule <sup>2</sup>		
		Level B	Level A	Mortality	Level B	Level A	Mortality
Short-finned pilot whale ....	California, Oregon, & Washington.	308	0	0	1,540	0	0
	Hawaiian .....	9,150	0	0	40,760	0	0
Spinner dolphin <sup>4</sup> .....	Hawaii Stock Complex .....	2,576	0	0	11,060	0	0
Striped dolphin .....	California, Oregon, & Washington.	3,545	0	0	17,725	0	0
	Hawaiian .....	3,498	0	0	15,422	0	0
California sea lion .....	U.S. Stock .....	126,841	25	* 4	634,205	125	* 20
Northern fur seal .....	San Miguel Island .....	20,083	5	0	100,415	25	0
Harbor seal .....	California .....	5,899	11	0	29,495	55	0
Northern elephant seal ....	California Breeding .....	22,516	22	0	112,580	110	0

<sup>1</sup> These numbers constitute the total for an annual maximum year (a notional 12-month period when all annual and non-annual events could occur) in which a RIMPAC exercise and Civilian Port Defense events would occur in Hawaii and SOCAL.

<sup>2</sup> These numbers constitute the summation over a 5-year period with annual events occurring five times and non-annual events occurring three times.

<sup>3</sup> *Mesoplodon* spp. in SOCAL for the undifferentiated occurrence of five *Mesoplodon* species (*M. carlhubbsi*, *M. ginkgodens*, *M. perrini*, *M. peruvianus*, *M. stejnegeri*) but does not include Blainville's beaked whale listed separately above.

\* These mortalities are considered in Table 18 as an unspecified "any small odontocete and pinniped species."

<sup>4</sup> No more than 1,166 of Hawaii Island stock, 887 of Kauai/Niihau stock, and 524 of Oahu/4-Islands stock may be taken during training activities.

*Testing Activities*—Table 19 summarizes the Navy's take request and NMFS' authorization for testing activities and Table 20 specifies the Navy's take request and NMFS' authorization for testing activities by species from the modeling estimates.

TABLE 19—SUMMARY OF ANNUAL AND 5-YEAR TAKES REQUESTED AND AUTHORIZED FOR TESTING ACTIVITIES

MMPA category	Source	Testing activities	
		Annual authorization sought	5-Year authorization sought
Injury or Mortality .....	Impulse .....	19 mortalities applicable to any small odontocete (i.e., dolphin) or pinniped species <sup>1</sup> .	95 mortalities applicable to any small odontocete (i.e., dolphin) or pinniped species over five years. <sup>2</sup>
	Vessel strike .....	No more than 2 large whale injuries or mortalities in any given year <sup>3</sup> .	No more than 3 large whale injuries or mortalities over five years. <sup>3</sup>
Level A .....	Impulse and Non-Impulse.	145—Species specific data shown in Table 21.	725—Species specific data shown in Table 21.
Level B .....	Impulse and Non-Impulse.	238,886—Species specific data shown in Table 20 <sup>4</sup> .	1,194,430—Species specific data shown in Table 20. <sup>4</sup>

<sup>1</sup> No more than four of any one of the following stocks/species: Hawaii Stock Complex of bottlenose dolphins, Fraser's dolphin, Pantropical spotted dolphin, Hawaiian stock of Risso's dolphin, rough-toothed dolphin, spinner dolphin, Hawaiian stock of striped dolphin. No more than 13 of any of the following stocks/species: CA/OR/WA offshore stock of bottlenose dolphin, Dall's porpoise, long-beaked common dolphin, northern right whale dolphin, Pacific white-sided dolphin, CA/OR/WA stock of Risso's dolphin, CA/OR/WA stock of short-beaked common dolphin, CA/OR/WA stock of striped dolphin, California sea lion, northern fur seal, harbor seal, and northern elephant seal.

<sup>2</sup> This authorization by mortality does not include Hawaiian monk seals or Guadalupe fur seals.

<sup>3</sup> Navy cannot quantifiably predict that the proposed takes from testing (a total of two in a given year or over the course of 5-years) will be of any particular species, and therefore seeks take authorization for any combination of large whale species (gray whale, fin whale, blue whale, humpback whale, Bryde's whale, sei whale, minke whale, or sperm whale), but of the two takes in any given year, no more than one of each species of blue whale, fin whale, Western North Pacific gray whale, humpback whale, sei whale, or sperm whale is requested.

<sup>4</sup> Following publication of the proposed rule, the Navy identified an addition error in non-impulsive source takes for testing activities. The error resulted in too few Level B harassment takes of central North Pacific humpback whales. Table 20 and the regulatory text of this document have been revised accordingly (six takes added annually, 30 over the 5-year period).

TABLE 20—SPECIES-SPECIFIC TAKES REQUESTED AND AUTHORIZED FROM MODELING ESTIMATES OF IMPULSIVE AND NON-IMPULSIVE SOURCE EFFECTS FOR ALL TESTING ACTIVITIES

Species	Stock	Annually			Total over 5-year rule		
		Level B	Level A	Mortality	Level B	Level A	Mortality
Blue whale .....	Eastern North Pacific .....	413	0	0	2,065	0	0
	Central North Pacific .....	15	0	0	75	0	0
Fin whale .....	California, Oregon, & Washington.	202	0	0	1,010	0	0
	Hawaiian .....	23	0	0	115	0	0
Humpback whale .....	California, Oregon, & Washington.	101	0	0	505	0	0



TABLE 20—SPECIES-SPECIFIC TAKES REQUESTED AND AUTHORIZED FROM MODELING ESTIMATES OF IMPULSIVE AND NON-IMPULSIVE SOURCE EFFECTS FOR ALL TESTING ACTIVITIES—Continued

Species	Stock	Annually			Total over 5-year rule		
		Level B	Level A	Mortality	Level B	Level A	Mortality
Sei whale .....	Central North Pacific .....	826	0	0	4,130	0	0
	Eastern North Pacific .....	21	0	0	105	0	0
	Hawaiian .....	30	0	0	150	0	0
Sperm whale .....	California, Oregon, & Washington.	146	0	0	730	0	0
	Hawaiian .....	117	0	0	585	0	0
Guadalupe fur seal .....	Mexico .....	269	0	0	1,345	0	0
Hawaiian monk seal .....	Hawaiian .....	358	0	0	1,790	0	0
Bryde's whale .....	Eastern Tropical Pacific ....	5	0	0	25	0	0
	Hawaiian .....	13	0	0	65	0	0
Gray whale .....	Eastern North Pacific .....	2,570	1	0	12,850	5	0
	Western North Pacific .....	2	0	0	10	0	0
Minke whale .....	California, Oregon, & Washington.	49	0	0	245	0	0
	Hawaiian .....	30	0	0	150	0	0
Baird's beaked whale .....	California, Oregon, & Washington.	1,045	0	0	5,225	0	0
	Hawaiian .....	960	0	0	4,800	0	0
Blainville's beaked whale ..	California coastal .....	769	0	0	3,845	0	0
	California, Oregon & Washington offshore.	2,407	0	0	12,035	0	0
Bottlenose dolphin .....	Hawaii pelagic .....	257	0	0	1,286	0	0
	Oahu .....	48	0	0	238	0	0
	4-islands region .....	12	0	0	61	0	0
	Kauai and Niihau .....	12	0	0	59	0	0
	Hawaii Island .....	8	0	0	41	0	0
	California, Oregon, & Washington.	2,319	0	0	11,595	0	0
Cuvier's beaked whale .....	Hawaiian .....	4,549	0	0	22,745	0	0
	Hawaiian .....	2,376	28	0	11,880	140	0
Dwarf sperm whale .....	California, Oregon, & Washington.	5,215	32	0	26,075	160	0
	Hawaii Insular .....	4	0	0	20	0	0
False killer whale .....	Hawaii Pelagic .....	37	0	0	185	0	0
	Northwest Hawaiian Islands.	14	0	0	70	0	0
Fraser's dolphin .....	Hawaiian .....	45	0	0	225	0	0
Killer whale .....	Eastern North Pacific off-shore/transient.	53	0	0	265	0	0
	Hawaiian .....	14	0	0	70	0	0
Kogia spp. ....	California .....	1,232	6	0	6,160	30	0
Long-beaked common dolphin.	California .....	47,851	2	0	239,255	10	0
Longman's beaked whale	Hawaiian .....	436	0	0	2,180	0	0
Melon-headed whale .....	Hawaiian .....	124	0	0	620	0	0
Mesoplodon beaked whales <sup>1</sup> .	California, Oregon, & Washington.	345	0	0	1,725	0	0
Northern right whale dolphin.	California, Oregon, & Washington.	5,729	1	0	28,645	5	0
Pacific white-sided dolphin	California, Oregon, & Washington.	4,924	1	0	24,620	5	0
Pantropical spotted dolphin.	Hawaiian .....	685	2	0	3,425	10	0
Pygmy killer whale .....	Hawaiian .....	61	0	0	305	0	0
Pygmy sperm whale .....	Hawaiian .....	117	1	0	585	5	0
Risso's dolphin .....	California, Oregon, & Washington.	8,739	1	0	43,695	5	0
	Hawaiian .....	113	0	0	565	0	0
Rough-toothed dolphin .....	Hawaiian .....	410	0	0	2,050	0	0
Short-beaked common dolphin.	California, Oregon, & Washington.	122,748	40	* 13	613,740	200	* 65
Short-finned pilot whale ....	California, Oregon, & Washington.	79	0	0	395	0	0
	Hawaiian .....	797	0	0	3,985	0	0
Spinner dolphin <sup>2</sup> .....	Hawaii Stock Complex .....	167	1	0	835	5	0
Striped dolphin .....	California, Oregon, & Washington.	998	0	0	4,990	0	0
	Hawaiian .....	269	1	0	1,345	5	0
California sea lion .....	U.S. Stock .....	13,038	17	* 6	65,190	85	* 30

TABLE 20—SPECIES-SPECIFIC TAKES REQUESTED AND AUTHORIZED FROM MODELING ESTIMATES OF IMPULSIVE AND NON-IMPULSIVE SOURCE EFFECTS FOR ALL TESTING ACTIVITIES—Continued

Species	Stock	Annually			Total over 5-year rule		
		Level B	Level A	Mortality	Level B	Level A	Mortality
Northern fur seal .....	San Miguel Island .....	1,088	3	0	5,440	15	0
Harbor seal .....	California .....	892	3	0	4,460	15	0
Northern elephant seal .....	California Breeding .....	2,712	5	0	13,560	25	0

<sup>1</sup> *Mesoplodon* spp. in SOCAL for the undifferentiated occurrence of five *Mesoplodon* species (*M. carlhubbsi*, *M. ginkgodens*, *M. perrini*, *M. peruvianus*, *M. stejnegeri*) but does not include Blainville's beaked whale listed separately above.

<sup>2</sup> No more than 76 of Hawaii Island stock, 57 of Kauai/Niihau stock, and 34 of Oahu/4-Islands stock may be taken during testing activities.

\* These mortalities are considered in Table 19 as an unspecified "any small odontocete (i.e., dolphin) and pinniped species."

Of note, in the regulatory text, NMFS quantifies take by presenting the 5-year totals for each species for harassment (combined Level A and Level B for training and testing) and for mortality (training and testing combined). The specific types of harassment expected annually, and whether they will occur during training or testing, will continue to be specified in the LOAs as described in the preamble. This less specific language in the regulations will provide potential flexibility in the event that a change in activities or our analysis of impacts results in changes in the anticipated types, numbers, or distribution of take. If such a change were to occur, NMFS would conduct an analysis to determine whether the changes fall within the scope of impacts contemplated by the rule and also whether they still result in a negligible impact. If the changes are expected to result in impacts that fall within the scope of the rule and if we still anticipate a negligible impact to result, NMFS would propose the issuance of a revised LOA and publish a **Federal Register** notice announcing our findings and requesting public comments. If not, the changes would need to be addressed through a new or amended rulemaking.

#### Marine Mammal Habitat

The Navy's training and testing activities could potentially affect marine mammal habitat through the introduction of sound into the water column, impacts to the prey species of marine mammals, bottom disturbance, or changes in water quality. Each of these components was considered in the HSTT FEIS/OEIS. Based on the information in the Marine Mammal Habitat section of the proposed rule (78 FR 6978, January 31, 2013; pages 7030–7033) and the supporting information included in the HSTT FEIS/OEIS, NMFS has determined that training and testing activities would not have adverse or long-term impacts on marine mammal habitat. Important marine mammal habitat areas are also addressed in the Comments and

Responses section and the Cetacean and Sound Mapping section of this document. In summary, expected effects to marine mammal habitat will include elevated levels of anthropogenic sound in the water column; short-term physical alteration of the water column or bottom topography; brief disturbances to marine invertebrates; localized and infrequent disturbance to fish; a limited number of fish mortalities; and temporary marine mammal avoidance.

#### Analysis and Negligible Impact Determination

Pursuant to NMFS' regulations implementing the MMPA, an applicant is required to estimate the number of animals that will be "taken" by the specified activities (i.e., takes by harassment only, or takes by harassment, injury, and/or death). This estimate informs the analysis that NMFS must perform to determine whether the activity will have a "negligible impact" on the affected species or stock. Level B (behavioral) harassment occurs at the level of the individual(s) and does not assume any resulting population-level consequences, though there are known avenues through which behavioral disturbance of individuals can result in population-level effects. For example, New *et al.* (2013) developed a model to assess the link between feeding energetics of beaked whales (family *Ziphiidae*) and their requirements for survival and reproduction.

A negligible impact finding is based on the lack of likely adverse effects on annual rates of recruitment or survival (i.e., population-level effects). An estimate of the number of Level B harassment takes, alone, is not enough information on which to base an impact determination. In addition to considering estimates of the number of marine mammals that might be "taken" through behavioral harassment, NMFS must consider other factors, such as the likely nature of any responses (their intensity, duration, etc.), the context of any responses (critical reproductive

time or location, migration, etc.), as well as the number and nature of estimated Level A harassment takes, the number of estimated mortalities, and effects on habitat. Generally speaking, and especially with other factors being equal, the Navy and NMFS anticipate more severe effects from takes resulting from exposure to higher received levels (though this is in no way a strictly linear relationship throughout species, individuals, or circumstances) and less severe effects from takes resulting from exposure to lower received levels.

The Navy's specified activities have been described based on best estimates of the maximum amount of sonar and other acoustic source use or detonations that the Navy will conduct. There may be some flexibility in that the exact number of hours, items, or detonations may vary from year to year, but take totals are not authorized to exceed the 5-year totals indicated in Tables 19 and 21. Furthermore the Navy's take request is based on their model and post-model analysis. The requested number of Level B takes does not equate to the number of individual animals the Navy expects to harass (which is lower), but rather to the instances of take (i.e., exposures above the Level B harassment threshold) that will occur. Depending on the location, duration, and frequency of activities, along with the distribution and movement of marine mammals, individual animals may be exposed multiple times to impulse or non-impulse sounds at or above the Level B harassment threshold. However, the Navy is currently unable to estimate the number of individuals that may be taken during training and testing activities. The model results estimate the total number of takes that may occur to a smaller number of individuals. While the model shows that an increased number of exposures may take place (compared to the 2009 rulemakings for HRC and the SOCAL Range Complex), the types and severity of individual responses to training and testing activities are not expected to change.

Taking the above into account, considering the Analysis and Negligible Impact Determination section of the proposed rule (78 FR 6978, January 13, 2013; pages 7033–7040), and dependent upon the implementation of mitigation measures, NMFS has determined that the Navy's training and testing activities will have a negligible impact on the marine mammal species and stocks present in the Study Area.

#### *Species-Specific Analysis*

In the discussions below, the "acoustic analysis" refers to the Navy's model results and post-model analysis. Using the best available information, including marine mammal density estimates, marine mammal depth occurrence distributions, oceanographic and environmental data, marine mammal hearing data, and criteria and thresholds for levels of potential effects, and in coordination with NMFS, the Navy performed a quantitative analysis to estimate the number of marine mammals that could be harassed by acoustic sources or explosives used during Navy training and testing activities. Marine mammal densities used in the model may overestimate actual densities when species data is limited and for species with seasonal migrations (e.g., humpbacks, blue whales, Hawaiian stock of fin whales, sei whales, gray whales). The quantitative analysis consists of computer modeled estimates and a post-model analysis to determine the number of potential mortalities and harassments. The model calculates sound energy propagation from sonars, other active acoustic sources, and explosives during naval activities; the sound or impulse received by animal dosimeters representing marine mammals distributed in the area around the modeled activity; and whether the sound or impulse received by a marine mammal exceeds the thresholds for effects. It is important to note that the Navy's take estimates represent the total number of takes and not the number of individuals taken, as a single individual may be taken multiple times over the course of a year.

Although this more complex computer modeling approach accounts for various environmental factors affecting acoustic propagation, the current software tools do not consider the likelihood that a marine mammal would attempt to avoid repeated exposures to a sound or avoid an area of intense activity where a training or testing event may be focused. Additionally, the software tools do not consider the implementation of mitigation (e.g., stopping sonar

transmissions when a marine mammal is within a certain distance of a ship or range clearance prior to detonations). In both of these situations, naval activities are modeled as though an activity would occur regardless of proximity to marine mammals and without any horizontal movement by the animal away from the sound source or human activities (e.g., without accounting for likely animal avoidance). The initial model results overestimate the number of takes (as described previously). The final step of the quantitative analysis of acoustic effects is to consider the implementation of mitigation and the possibility that marine mammals would avoid continued or repeated sound exposures. Mitigation and marine mammal avoidance primarily reduce impacts by reducing Level A harassment to Level B harassment. NMFS provided input to the Navy on this process and the Navy's qualitative analysis is described in detail in section 6.3 of their LOA application (<http://www.nmfs.noaa.gov/pr/permits/incidental.htm#applications>). A detailed explanation of this analysis is also provided in the technical report Analysis of Animal Avoidance Behavior and Mitigation Effectiveness Technical Report (<http://hstteis.com/DocumentsandReferences/HSTTDocuments/SupportingTechnicalDocuments.aspx>).

**Mysticetes**—The Navy's acoustic analysis indicates that numerous exposures of mysticete species to sound levels likely to result in Level B harassment may occur, mostly from sonar and other active acoustic stressors associated with mostly training and some testing activities in the HSTT Study Area. Of these species, humpback, blue, Western North Pacific gray, fin, and sei whales are listed as endangered under the ESA. Level B takes are anticipated to be in the form of behavioral harassment and no injurious takes of humpback, blue, Western North Pacific gray, fin, or sei whales from sonar, or other active acoustic stressors are expected. The majority of acoustic effects to mysticetes from sonar and other active sound sources during training activities would be primarily from anti-submarine warfare events involving surface ships and hull-mounted mid-frequency active sonar. Most Level B harassments to mysticetes from sonar would result from received levels between 144 and 162 SPL. High-frequency systems are not within mysticetes' ideal hearing range and it is unlikely that they would cause a significant behavioral reaction. The only mysticete species that may be

exposed to sound or energy from explosions resulting in the possibility of PTS is the Eastern North Pacific stock of gray whale. Exposures would occur in the SOCAL Range Complex during the cool season. However, nearly all of the Navy's proposed mitigation zones for explosive activities extend beyond the predicted maximum range to PTS. The only exception is in the case of 61–100 lb (27.7–45.4 kg; E8) net explosive weight charges for mine countermeasure and neutralization activities using positive control; the mitigation zone for these activities extend to the predicted maximum range to PTS. The implementation of mitigation and the sightability of mysticetes (due to their large size) reduce the potential for a significant behavioral reaction or a threshold shift to occur. Furthermore, gray whales in particular should be easier to sight because they will be migrating through the HSTT Study Area and there is often more than one whale in an area at the same time.

In addition to Level B takes, the Navy is requesting no more than 12 large whale injuries or mortalities over 5 years (no more than four large whale mortalities in a given year) due to vessel strike during training activities and no more than three large whale injuries or mortalities over 5 years (no more than two large whale injuries or mortalities in any given year) due to vessel strike during testing activities. However, no more than three injuries or mortalities of any of the following species would be authorized to occur in a given year between both training and testing activities (two injuries or mortalities from training and one injury or mortality from testing): blue whale, fin whale, humpback whale, sei whale, and sperm whale. The Navy provided a detailed analysis of strike data in section 6.3.4 of their LOA application. Marine mammal mortalities were not previously authorized by NMFS in the 2009 rulemakings for HRC and the SOCAL Range Complex. However, over a period of 20 years (1991 to 2010), there have been 16 Navy vessel strikes in the SOCAL Range Complex and five Navy vessel strikes in HRC. No single 5-year period exceeded ten whales struck within SOCAL and HRC. The number of injuries or mortalities from vessel strike is not expected to be an increase over the past decade, but rather NMFS is authorizing these takes for the first time.

Areas of high humpback whale density in the HRC were discussed earlier in this document. Since humpback whales migrate to the north in the summer, impacts are predicted only for the cool season in the HSTT Study Area. While the humpback

breeding areas around Hawaii are important, NMFS has determined that mid-frequency active sonar training in these areas is rare and infrequent during the cool season and any resulting impacts to individuals are not expected to affect annual rates of recruitment or survival. As discussed in the Mitigation section of this document, the Navy has agreed that training exercises utilizing mid-frequency active sonar in the designated Humpback Whale Cautionary Area from December 15 to April 15 would require a much higher level of approval than is normal practice in planning and conducting mid-frequency active sonar training. To date, the Navy has never requested approval to conduct training or testing use of mid-frequency active sonar in the area during this time period. Furthermore, no reported cases of harmful effects to humpback whales attributed to mid-frequency active sonar use have occurred during the Navy's 40-plus years of training in the waters off the Hawaiian Islands and Coincident with this use of mid-frequency active sonar, abundance estimates reflect an annual increase in the humpback whale stock (Mobley 2001a, 2004). A recent long-term study of humpback whales in Hawaiian waters shows long-term fidelity to the Hawaiian winter grounds, with many showing sighting spans ranging from 10 to 32 years (Herman *et al.*, 2011). The overall abundance of humpback whales in the north Pacific has continued to increase and is now greater than some pre-whaling abundance estimates (Barlow *et al.*, 2011). The California, Oregon, Washington stock of humpback whales uses the waters within the Southern California portion of the HSTT Study Area as a summer feeding ground.

There are also important feeding areas for fin and blue whales that overlap with the SOCAL Range Complex, adjacent to and in the vicinity of the Navy's only west coast underwater instrumented training range. However, the Navy has stated that given the closeness to shore, relatively shallow water, and lack of other nearby training infrastructure, major training events are not typically planned in this vicinity. The implementation of mitigation and sightability of these large whales is expected to reduce the potential for harassment.

**Sperm Whales**—The Navy's acoustic analysis indicates that 3,595 annual exposures of sperm whales to sound levels likely to result in Level B harassment may occur in the HSTT Study Area from sonar or other active acoustic stressors during training and testing activities. No modeled effects are

expected from explosives. Level B takes are anticipated to be in the form of behavioral harassment and no injurious takes of sperm whales from sonar, other active acoustic stressors, or explosives are requested or proposed for authorization. Sperm whales have shown resilience to acoustic and human disturbance, although they may react to sound sources and activities within a few kilometers. Sperm whales that are exposed to activities that involve the use of sonar and other active acoustic sources may alert, ignore the stimulus, avoid the area by swimming away or diving, or display aggressive behavior. Some (but not all) sperm whale vocalizations might overlap with the frequency range for the onset of TTS from active sonar, which could temporarily decrease an animal's sensitivity to the calls of conspecifics or returning echolocation signals. However, as noted previously, NMFS does not anticipate TTS of a long duration or severe degree to occur as a result of exposure to MFAS/HFAS. The majority of Level B takes are expected to be in the form of mild responses. There are no modeled effects expected on sperm whales from explosives. No areas of specific importance for reproduction or feeding for sperm whales have been identified in the HSTT Study Area.

**Pygmy and Dwarf Sperm Whales**—The Navy's acoustic analysis indicates that 25,081 exposures of pygmy and dwarf sperm whales to sound levels likely to result in Level B harassment may occur from sonar and other active acoustic stressors and explosives associated with training and testing activities in the HRC. In SOCAL, the two *Kogia* species are managed as a single stock and management unit and up to 14,175 exposures to sound levels likely to result in Level B harassment may occur from sonar and other active acoustic stressors and explosives associated with training and testing activities. The Navy's acoustic analysis also indicates that 74 exposures of dwarf sperm whale and one exposure of pygmy sperm whale to sound levels likely to result in Level A harassment may occur from active acoustic stressors and explosions in HRC and 39 exposures of *Kogia* to sound levels likely to result in Level A harassment may occur from active acoustic stressors or explosions in SOCAL. Behavioral responses can range from a mild orienting response, or a shifting of attention, to flight and panic. These species tend to avoid human activity and presumably anthropogenic sounds. Pygmy and dwarf sperm whales may

startle and leave the immediate area of activity, reducing the potential impacts. Significant behavioral reactions seem more likely than with most other odontocetes; however, it is unlikely that animals would receive multiple exposures over a short period of time, allowing animals to recover lost resources (e.g., food) or opportunities (e.g., mating). Therefore, long-term consequences for individual *Kogia* or their respective populations are not expected. Furthermore, many explosions actually occur upon impact with above-water targets. However, sources such as these were modeled as exploding at 1 meter depth, which overestimates the potential effects.

Data from several sources, which are summarized and cited on NOAA's Cetacean and Sound Mapping Web site ([cetsound.noaa.gov](http://cetsound.noaa.gov)) indicate that there are likely resident populations of dwarf sperm whales (among other species) off the western side of the Big Island of Hawaii. As discussed earlier, we highlight the potential presence of resident populations in the interest of helping to support decisions that ensure that these small populations, limited to a small area of preferred habitat, are not exposed to concentrations of activities within their ranges that have the potential to impact a large portion of the stock/species over longer amounts of time that could have detrimental consequences to the stock/species. However, NMFS has reviewed the Navy's exercise reports and considered/discussed their historical level of activity in the area where these resident populations are concentrated, which is very low, and concluded that time/area restrictions would not afford much reduction of impacts in this location and are not necessary at this point. If future monitoring and exercise and testing reports suggest that increased operations are overlapping more significantly with these resident populations, NMFS would revisit the consideration of temporal limitations around these populations through the adaptive management process.

**Dall's Porpoise**—The Navy's acoustic analysis indicates that 42,106 exposures of Dall's porpoise to sound levels likely to result in Level B harassment may occur from sonar and other active acoustic stressors and explosives associated with training and testing activities in the SOCAL Range Complex. The analysis also indicates that 79 exposures to sound levels likely to result in Level A harassment may occur from sonar and other active acoustic stressors.

Predicted impacts to odontocetes from activities from sonar and other active

acoustic sources are mostly from anti-submarine warfare events involving surface ships and hull mounted sonar. For high-frequency cetaceans, such as Dall's porpoise, ranges to TTS for multiple pings can, under certain conditions, reach over 10 km from a source. Activities involving ASW training often involve multiple participants and activities associated with the event. Dall's porpoise may avoid the area for the duration of the event and then return, allowing the animal to recover from any energy expenditure or missed resources. However, the Navy's proposed mitigation has a provision that allows the Navy to continue operation of mid-frequency active sonar if the animals are clearly bow-riding even after the Navy has initially maneuvered to try and avoid closing with the animals. Since these animals sometimes bow-ride, they could potentially be exposed to levels associated with TTS. Some dolphin vocalizations might overlap with the frequency range for the onset of TTS from active sonar (2–20 kHz), which could potentially temporarily decrease an animal's sensitivity to the calls of conspecifics or returning echolocation signals. However, for the reasons described in the beginning of this section, NMFS does not anticipate TTS of a long duration or severe degree to occur as a result of exposure to MFA/HFAS.

Ranges to PTS are on average about 855 meters from the largest explosive (Bin E12) for a high-frequency cetacean such as Dall's porpoise, which is less than the proposed mitigation zone for most explosive source bins. The metrics used to estimate PTS from explosives are based on the animal's mass; the smaller an animal, the more susceptible that individual is to these effects. In the Navy's analysis, all individuals of a given species were assigned the weight of that species' newborn calf. Since many individual Dall's porpoise are obviously larger than a newborn calf, this assumption causes the acoustic model to overestimate the potential effects. Threshold shifts do not necessarily affect all hearing frequencies equally, so some threshold shifts may not interfere with an animal hearing biologically relevant sound. Odontocetes, such as Dall's porpoise, may further minimize sound exposure during avoidance due to directional hearing. No areas of specific importance for reproduction or feeding for Dall's porpoise have been identified in the HSTT Study Area.

**Beaked Whales**—The Navy's acoustic analysis indicates that numerous exposures of beaked whale species to

sound levels likely to result in Level B harassment may occur from sonar and other active acoustic stressors associated with training and testing activities. Research and observations show that if beaked whales are exposed to sonar or other active acoustic sources they may startle, break off feeding dives, and avoid the area of the sound source to levels of 157 dB (McCarthy *et al.*, 2011). Furthermore, in research done at the Navy's instrumented tracking range in the Bahamas, animals leave the immediate area of the anti-submarine warfare training exercise, but return within a few days after the event ends. At the Bahamas range and at Navy instrumented ranges in the HSTT Study Area that have been operating for decades (in Hawaii north of Kauai and in SOCAL west of San Clemente Island), populations of beaked whales appear to be stable. The analysis also indicates that no exposures to sound levels likely to result in Level A harassment would occur. However, while the Navy's model did not quantitatively predict any mortalities of beaked whales, the Navy is requesting a limited number of takes by mortality given the sensitivities these species may have to anthropogenic activities. Almost 40 years of conducting similar exercises in the HSTT Study Area without observed incident indicates that injury or mortality are not expected to occur as a result of Navy activities.

As noted in the Comments and Responses section, a recent paper by Moore and Barlow (2013) reported a decline in beaked whale populations in a broad area of the Pacific Ocean. In summary, there is no data to suggest that beaked whale numbers have declined in the SOCAL Range Complex and as Moore and Barlow (2013) point out, it remains clear that the Navy range in Southern California continues to support high densities of beaked whales.

Some beaked whale vocalizations might overlap with the frequency range for the onset of TTS from active sonar (2–20 kHz), which could potentially temporarily decrease an animal's sensitivity to the calls of conspecifics or returning echolocation signals. However, NMFS does not anticipate TTS of a long duration or severe degree to occur as a result of exposure to active sonar. No beaked whales are predicted to be exposed to active sonar sound levels associated with PTS or injury. No areas of specific importance for reproduction or feeding for beaked whales have been identified in the HSTT Study Area.

As discussed previously, scientific uncertainty exists regarding the

potential contributing causes of beaked whale strandings and the exact behavioral or physiological mechanisms that can potentially lead to the ultimate physical effects (stranding and/or death) that have been documented in a few cases. Although NMFS does not expect injury or mortality of any of these species to occur as a result of the active sonar training exercises, there remains the potential for the operation of mid-frequency active sonar to contribute to the mortality of beaked whales. Consequently, NMFS intends to authorize mortality and we consider the 10 potential mortalities from across the seven species potentially effected over the course of 5 years in our negligible impact determination (NMFS only intends to authorize a total of 10 beaked whale mortality takes, but since they could be of any of the species, we consider the effects of 10 mortalities of any of the seven species).

**False Killer Whale**—The Navy's acoustic analysis indicates that 761 exposures of false killer whales (53 exposures to the Main Hawaiian Islands insular stock) to sound levels likely to result in Level B harassment may occur from sonar or other active acoustic stressors associated with training and testing activities in the HRC. False killer whales are not expected to be present within the SOCAL Range Complex. These takes are anticipated to be in the form of behavioral harassment and no injurious takes of false killer whales from active acoustic stressors or explosives are requested or proposed for authorization. Behavioral responses can range from a mild orienting response, or a shifting of attention, to flight and panic.

No areas of specific importance for reproduction or feeding for false killer whales have been identified in the HSTT Study Area.

**Short-beaked Common Dolphin**—The Navy's acoustic analysis indicates that 1,122,030 exposures of short-beaked common dolphins to sound levels likely to result in Level B harassment may occur from sonar and other active acoustic stressors associated with training and testing activities and sound or energy from explosions. Analysis also indicates that 110 exposures to sound levels likely to result in Level A harassment may occur from active acoustic stressors and sound or energy from explosions. Up to 17 short-beaked common dolphin mortalities are also requested as part of an unspecified "any small odontocete (i.e., dolphin) and pinniped species" take from training and testing activities. However, this species generally travels in large pods and should be visible from a distance in

order to implement mitigation measures and reduce potential impacts. Short-beaked common dolphins are one of the most abundant dolphin species in SOCAL. Behavioral responses can range from alerting, to changing their behavior or vocalizations, to avoiding the sound source by swimming away or diving. The high take numbers are due in part to an increase in expended materials.

No areas of specific importance for reproduction or feeding for short-beaked common dolphins have been identified in the HSTT Study Area.

**California Sea Lion**—The Navy's acoustic analysis indicates that 139,999 exposures of California sea lions to sound levels likely to result in Level B harassment may occur from sonar and other active acoustic stressors associated with training and testing activities and sound or energy from explosions.

Analysis also indicates that 42 exposures to sound levels likely to result in Level A harassment may occur from active acoustic stressors and sound or energy from explosions. Up to 17 California sea lion mortalities are also requested as part of an unspecified "any small odontocete (i.e., dolphin) and pinniped species" take from training and testing activities. California sea lions are the most abundant pinniped species along the California coast. Research and observations show that pinnipeds in the water are tolerant of anthropogenic noise and activity.

California sea lions may not react at all until the sound source is approaching within a few hundred meters and then may alert, ignore the stimulus, change their behavior, or avoid the immediate area by swimming away or diving. Significant behavioral reactions are not expected, based on previous observations. The high take numbers are due in part to the explosive criteria being based on newborn calf weights. Assuming that the majority of the population is larger than a newborn calf, the model overestimates the effects to California sea lions. The criteria for slight lung injury are also very conservative and may over-predict the effects. Research and observations show that pinnipeds in the water are tolerant of anthropogenic noise and activity. They may react in a number of ways depending on their experience with the sound source and what activity they are engaged in at the time of the exposure.

**Northern Fur Seal**—The Navy's acoustic analysis indicates that 21,171 exposures of northern fur seals to sound levels likely to result in Level B harassment may occur from sonar and other active acoustic stressors associated with training and testing activities in the SOCAL Range Complex and sound

or energy from explosions. Analysis also indicates that eight exposures to sound levels likely to result in Level A harassment may occur from active acoustic stressors and sound or energy from explosions. Northern fur seals are common in SOCAL. Behavioral responses can range from a mild orienting response, or a shifting of attention, to flight and panic. Research and observations show that pinnipeds in the water are tolerant of anthropogenic noise and activity. They may react in a number of ways depending on their experience with the sound source and what activity they are engaged in at the time of the exposure.

A small population breeds on San Miguel Island, outside of the SOCAL Range Complex.

**Northern Elephant Seal**—The Navy's acoustic analysis indicates that 25,228 exposures of northern elephant seals to sound levels likely to result in Level B harassment may occur from sonar and other active acoustic stressors associated with training and testing activities in the SOCAL Range Complex and sound or energy from explosions. Analysis also indicates that 27 exposures to sound levels likely to result in Level A harassment may occur from active acoustic stressors and sound or energy from explosions. The majority of predicted effects would be from anti-submarine warfare events involving surface ships, submarines, and hull mounted sonar, while a small percentage of effects would be from mine countermeasure events. Northern elephant seals are common in SOCAL and the proposed take is less than 21 percent of the California breeding population. Behavioral responses can range from a mild orienting response, or a shifting of attention, to flight and panic. Research and observations show that pinnipeds in the water are tolerant of anthropogenic noise and activity. They may react in a number of ways depending on their experience with the sound source and what activity they are engaged in at the time of the exposure.

Different age classes of northern elephant seals haul out on the Channel Islands within SOCAL and spend 8–10 months at sea each year.

**Hawaiian Monk Seal**—The Navy's acoustic analysis indicates that 1,650 exposures (not necessarily number of individuals) of Hawaiian monk seals (listed as endangered under the ESA) to sound levels likely to result in Level B harassment may occur from sonar or other active acoustic stressors associated with training and testing activities in HRC. No exposures to sound levels likely to result in Level A harassment are expected to occur and takes from

injury or mortality are not requested or proposed for authorization. The majority of exposures from testing have ranges to TTS less than 55 yd (50 m). Behavioral effects are not expected to be significant because (1) significant behavioral effects are more likely at higher received levels within a few kilometers of the source, (2) Hawaiian monk seals may avoid the activity area; and (3) mitigation measures would be implemented. Hawaiian monk seals predominantly occur in the Northwestern Hawaiian Islands and the Papahānaumokuākea National Marine Monument, which is mostly outside of the main Hawaii Operating Area. Navy activity within the Northwest Hawaiian Islands and the Papahānaumokuākea National Marine Monument is rare. Ranges to TTS for hull mounted sonars can be on the order of several kilometers for monk seals, and some behavioral impacts could take place at distances exceeding 173 km, although significant behavioral effects are much more likely at higher received levels within a few kilometers of the sound source and therefore, the majority of behavioral effects are not expected to be significant. Activities involving sound or energy from sonar and other active acoustic sources would not occur on shore in designated Hawaiian monk seal critical habitat where haul out and resting behavior occurs and would have no effect on critical habitat at sea.

### Final Determination

Based on the analysis contained herein of the likely effects of the specified activity on marine mammals and their habitat and dependent upon the implementation of the mitigation and monitoring measures, NMFS finds that the total taking from Navy training and testing activities in the HSTT Study Area will have a negligible impact on the affected species or stocks. NMFS has issued regulations for these activities that prescribe the means of effecting the least practicable adverse impact on marine mammal species or stocks and their habitat and set forth requirements pertaining to the monitoring and reporting of that taking.

### Subsistence Harvest of Marine Mammals

NMFS has determined that the issuance of 5-year regulations and subsequent LOAs for Navy training and testing activities in the HSTT Study Area will not have an unmitigable adverse impact on the availability of the affected species or stocks for subsistence use, since there are no such uses in the specified area.

## ESA

There are nine marine mammal species under NMFS jurisdiction that are listed as endangered or threatened under the ESA with confirmed or possible occurrence in the Study Area: blue whale, humpback whale, Western North Pacific gray whale, fin whale, sei whale, sperm whale, the Main Hawaiian Islands insular false killer whale, Guadalupe fur seal, and Hawaiian monk seal. The Navy consulted with NMFS pursuant to section 7 of the ESA, and NMFS also consulted internally on the issuance of LOAs under section 101(a)(5)(A) of the MMPA for HSTT activities. NMFS issued a Biological Opinion concluding that the issuance of the rule and two LOAs are likely to adversely affect, but are not likely to jeopardize, the continued existence of the threatened and endangered species (and species proposed for listing) under NMFS' jurisdiction and are not likely to result in the destruction or adverse modification of critical habitat that has been designated for threatened and endangered species in the HSTT Study Area. The Biological Opinion for this action is available on NMFS' Web site (<http://www.nmfs.noaa.gov/pr/permits/incidental.html#applications>).

## National Marine Sanctuaries Act (NMSA)

Federal agency actions that are likely to injure sanctuary resources are subject to consultation with the Office of National Marine Sanctuaries (ONMFS) under section 304(d) of the National Marine Sanctuaries Act. The Navy analyzed potential impacts to sanctuary resources and has provided the analysis in the Navy's HSTT FEIS/OEIS to ONMS. Navy HSTT activities will occur within three sites in the National Marine Sanctuary System—the Papahānaumokuākea Marine National Monument and the Channel Islands and Hawaiian Islands Humpback Whale national marine sanctuaries. The Navy did not propose new, modified, or an increased frequency of activities in these areas. ONMS has therefore determined that consultation under the NMSA is not required for HSTT at this time.

## National Environmental Policy Act (NEPA)

NMFS participated as a cooperating agency on the HSTT FEIS/OEIS, which was published on August 30, 2013 and is available on the Navy's Web site: <http://hstteis.com>. NMFS determined that the HSTT FEIS/OEIS is adequate and appropriate to meet our responsibilities under NEPA for the

issuance of regulations and LOAs. NMFS adopted the Navy's HSTT FEIS/OEIS, on December 5, 2013.

## Classification

The Office of Management and Budget has determined that this rule is not significant for purposes of Executive Order 12866.

Pursuant to the Regulatory Flexibility Act (RFA), 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 proposed rule, if adopted, would not have a significant economic impact on a substantial number of small entities. The RFA requires federal agencies to prepare an analysis of a rule's impact on small entities whenever the agency is required to publish a notice of proposed rulemaking. However, a federal agency may certify, pursuant to 5 U.S.C. 605 (b), that the action will not have a significant economic impact on a substantial number of small entities. The Navy is the sole entity that would be affected by this rulemaking, and the Navy is not a small governmental jurisdiction, small organization, or small business, as defined by the RFA. Any requirements imposed by an LOA issued pursuant to these regulations, and any monitoring or reporting requirements imposed by these regulations, would be applicable only to the Navy. NMFS does not expect the issuance of these regulations or the associated LOAs to result in any impacts to small entities pursuant to the RFA. Because this action, if adopted, would directly affect the Navy and not a small entity, the Chief Counsel for Regulation concluded that the action would not result in a significant economic impact on a substantial number of small entities. No comments were received regarding the economic impact of this final rule. As a result, a final regulatory flexibility analysis was not prepared.

The Assistant Administrator for Fisheries has determined that there is good cause under the Administrative Procedure Act (5 U.S.C. 553(d)(3)) to waive the 30-day delay in the effective date of the measures contained in the final rule. The Navy is the only entity subject to the regulations and it has informed NMFS that it requests that this final rule take effect on the day of publication in the **Federal Register**. The existing regulations for the SOCAL and Hawaii Range Complexes expire starting in early January 2014. Any suspension or interruption of the Navy's ability to train or conduct testing, for even a small number of days, disrupts vital

sequential training and certification processes essential to national security. Therefore, a waiver of the 30-day delay of the effective date of the final rule will allow the Navy to finalize operational procedures to ensure compliance with required mitigation, monitoring, and reporting requirements, and have MMPA authorization in place prior to expiration of the existing regulations to support unit level training and testing activities events scheduled for January 2014. Any delay of enacting the final rule would result in the Navy's procedural non-compliance with the MMPA (should the Navy conduct training or testing without an LOA), thereby resulting in the potential for unauthorized takes of marine mammals. Moreover, the Navy is ready to implement the rule immediately. For these reasons, the Assistant Administrator finds good cause to waive the 30-day delay in the effective date.

## List of Subjects in 50 CFR Parts 216 and 218

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

Dated: December 13, 2014.

**Alan D. Risenhoover,**

*Director, Office of Sustainable Fisheries, performing the functions and duties of the Deputy Assistant Administrator for Regulatory Programs, National Marine Fisheries Service.*

For reasons set forth in the preamble, 50 CFR parts 216 and 218 are 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.*

## Subpart P—[Removed and Reserved]

■ 2. Remove and reserve, subpart P, consisting of §§ 216.170 through 216.179.

## Subpart X—[Removed and Reserved]

■ 3. Remove and reserve, subpart X, consisting of §§ 216.270 through 216.279.

## PART 218—REGULATIONS GOVERNING THE TAKING AND IMPORTING OF MARINE MAMMALS

■ 4. The authority citation for part 218 continues to read as follows:

**Authority:** 16 U.S.C. 1361 *et seq.*

■ 5. Subpart H is added to part 218 to read as follows:

**Subpart H—Taking and Importing Marine Mammals; U.S. Navy's Hawaii-Southern California Training and Testing (HSTT)**

Sec.

- 218.70 Specified activity and specified geographical region.
- 218.71 Effective dates and definitions.
- 218.72 Permissible methods of taking.
- 218.73 Prohibitions.
- 218.74 Mitigation.
- 218.75 Requirements for monitoring and reporting.
- 218.76 Applications for Letters of Authorization.
- 218.77 Letters of Authorization.
- 218.78 Renewals and modifications of Letters of Authorization and Adaptive Management.

**Subpart H—Taking and Importing Marine Mammals; U.S. Navy's Hawaii-Southern California Training and Testing (HSTT)**

**§ 218.70 Specified activity and specified geographical region.**

(a) Regulations in this subpart apply only to the U.S. Navy for the taking of marine mammals that occurs in the area outlined in paragraph (b) of this section and that occurs incidental to the activities described in paragraph (c) of this section.

(b) The taking of marine mammals by the Navy is only authorized if it occurs within the HSTT Study Area, which is comprised of established operating and warning areas across the north-central Pacific Ocean, from Southern California west to Hawaii and the International Date Line (see Figure 1–1 in the Navy's application). The Study Area includes three existing range complexes: the Southern California (SOCAL) Range Complex, Hawaii Range Complex (HRC), and Silver Strand Training Complex (SSTC). In addition, the Study Area includes other areas where training and testing activities occur, including the pierside locations in San Diego Bay and Pearl Harbor, the transit corridor between SOCAL and Hawaii, and throughout the San Diego Bay.

(c) The taking of marine mammals by the Navy is only authorized if it occurs incidental to the following activities:

(1) Non-impulsive Sources Used During Training:

(i) Mid-frequency (MF) Source Classes:

- (A) MF1—an average of 11,588 hours per year.
- (B) MF1K—an average of 88 hours per year.
- (C) MF2—an average of 3,060 hours per year.
- (D) MF2K—an average of 34 hours per year.

(E) MF3—an average of 2,336 hours per year.

(F) MF4—an average of 888 hours per year.

(G) MF5—an average of 13,718 items per year.

(H) MF11—an average of 1,120 hours per year.

(I) MF12—an average of 1,094 hours per year.

(ii) High-frequency (HF) and Very High-frequency (VHF) Source Classes:

(A) HF1—an average of 1,754 hours per year.

(B) HF4—an average of 4,848 hours per year.

(iii) Anti-Submarine Warfare (ASW) Source Classes:

(A) ASW1—an average of 224 hours per year.

(B) ASW2—an average of 1,800 items per year.

(C) ASW3—an average of 16,561 hours per year.

(D) ASW4—an average of 1,540 items per year.

(iv) Torpedoes (TORP) Source Classes:

(A) TORP1—an average of 170 items per year.

(B) TORP2—an average of 400 items per year.

(2) Non-impulsive Sources Used During Testing:

(i) Low-frequency (LF) Source Classes:

(A) LF4—an average of 52 hours per year.

(B) LF5—an average of 2,160 hours per year.

(C) LF6—an average of 192 hours per year.

(ii) Mid-frequency (MF):

(A) MF1—an average of 180 hours per year.

(B) MF1K—an average of 18 hours per year.

(C) MF2—an average of 84 hours per year.

(D) MF3—an average of 392 hours per year.

(E) MF4—an average of 693 hours per year.

(F) MF5—an average of 5,024 items per year.

(G) MF6—an average of 540 items per year.

(H) MF8—an average of 2 hours per year.

(I) MF9—an average of 3,039 hours per year.

(J) MF10—an average of 35 hours per year.

(K) MF12—an average of 336 hours per year.

(iii) High-frequency (HF) and Very High-frequency (VHF):

(A) HF1—an average of 1,025 hours per year.

(B) HF3—an average of 273 hours per year.

(C) HF4—an average of 1,336 hours per year.

(D) HF5—an average of 1,094 hours per year.

(E) HF6—an average of 3,460 hours per year.

(iv) ASW:

(A) ASW1—an average of 224 hours per year.

(B) ASW2—an average of 2,260 items per year.

(C) ASW2—an average of 255 hours per year.

(D) ASW3—an average of 1,278 hours per year.

(E) ASW4—an average of 477 items per year.

(v) TORP:

(A) TORP1—an average of 701 items per year.

(B) TORP2—an average of 732 items per year.

(vi) Acoustic Modems (M):

(A) M3—an average of 4,995 hours per year.

(B) [Reserved]

(vii) Swimmer Detection Sonar (SD):

(A) SD1—an average of 38 hours per year.

(B) [Reserved]

(viii) Airguns (AG):

(A) AG—an average of 5 airgun uses per year.

(B) [Reserved]

(ix) Synthetic Aperture Sonar (SAS):

(A) SAS1—an average of 2,700 hours per year.

(B) SAS2—an average of 4,956 hours per year.

(C) SAS3—an average of 3,360 hours per year.

(3) Annual Number of Impulsive Source Detonations During Training:

(i) Explosive Classes:

(A) E1 (0.1 lb to 0.25 lb NEW)—an average of 19,840 detonations per year.

(B) E2 (1.26 lb to 0.5 lb NEW)—an average of 1,044 detonations per year.

(C) E3 (>0.5 lb to 2.5 lb NEW)—an average of 3,020 detonations per year.

(D) E4 (>2.5 lb to 5 lb NEW)—an average of 668 detonations per year.

(E) E5 (>5 lb to 10 lb NEW)—an average of 8,154 detonations per year.

(F) E6 (>10 lb to 20 lb NEW)—an average of 538 detonations per year.

(G) E7 (>20 lb to 60 lb NEW)—an average of 407 detonations per year.

(H) E8 (>60 lb to 100 lb NEW)—an average of 64 detonations per year.

(I) E9 (>100 lb to 250 lb NEW)—an average of 16 detonations per year.

(J) E10 (>250 lb to 500 lb NEW)—an average of 19 detonations per year.

(K) E11 (>500 lb to 650 lb NEW)—an average of 8 detonations per year.

(L) E12 (>650 lb to 1,000 lb NEW)—an average of 224 detonations per year.

(M) E13 (>1,000 lb to 1,740 lb NEW)—an average of 9 detonations per year.



(ii) [Reserved]

(4) Impulsive Source Detonations During Testing:

(i) Explosive Classes:

(A) E1 (0.1 lb to 0.25 lb NEW)—an average of 14,501 detonations per year.

(B) E2 (0.26 lb to 0.5 lb NEW)—an average of 0 detonations per year.

(C) E3 (>0.5 lb to 2.5 lb NEW)—an average of 2,990 detonations per year.

(D) E4 (>2.5 lb to 5 lb NEW)—an average of 753 detonations per year.

(E) E5 (>5 lb to 10 lb NEW)—an average of 202 detonations per year.

(F) E6 (>10 lb to 20 lb NEW)—an average of 37 detonations per year.

(G) E7 (>20 lb to 60 lb NEW)—an average of 21 detonations per year.

(H) E8 (>60 lb to 100 lb NEW)—an average of 12 detonations per year.

(I) E9 (>100 lb to 250 lb NEW)—an average of 0 detonations per year.

(J) E10 (>250 lb to 500 lb NEW)—an average of 31 detonations per year.

(K) E11 (>500 lb to 650 lb NEW)—an average of 14 detonations per year.

(L) E12 (>650 lb to 1,000 lb NEW)—an average of 0 detonations per year.

(M) E13 (>1,000 lb to 1,740 lb NEW)—an average of 0 detonations per year.

(ii) Pile Driving: No more than four events per year.

**§ 218.71 Effective dates and definitions.**

(a) The regulations in this subpart are effective December 24, 2013, through December 24, 2018.

(b) The following definitions are utilized in this subpart:

(1) *Uncommon Stranding Event (USE)*—A stranding event that takes place within an OPAREA where a Major Training Event (MTE) occurs and involves any one of the following:

(i) Two or more individuals of any cetacean species (not including mother/calf pairs), unless of species of concern listed in paragraph (b)(1)(ii) of this section found dead or live on shore within a 2-day period and occurring within 30 miles of one another.

(ii) A single individual or mother/calf pair of any of the following marine mammals of concern: beaked whale of any species, *Kogia* spp., Risso's dolphin, melon-headed whale, pilot whale, humpback whale, sperm whale, blue whale, fin whale, sei whale, or monk seal.

(iii) A group of two or more cetaceans of any species exhibiting indicators of distress.

(2) *Shutdown*—The cessation of active sonar operation or detonation of explosives within 14 nautical miles of any live, in the water, animal involved in a USE.

**§ 218.72 Permissible methods of taking.**

(a) Under Letters of Authorization (LOAs) issued pursuant to § 218.77, the Holder of the Letter of Authorization may incidentally, but not intentionally, take marine mammals within the area described in § 218.70, provided the activity is in compliance with all terms, conditions, and requirements of these regulations and the appropriate LOA.

(b) The incidental take of marine mammals under the activities identified in § 218.70(c) is limited to the following species, by the identified method of take:

(1) Harassment (Level A and Level B) for all Training and Testing Activities:

(i) Mysticetes:

(A) Blue whale (*Balaenoptera musculus*)—23,699.

(B) Bryde's whale (*Balaenoptera edeni*)—1,287.

(C) Fin whale (*Balaenoptera physalus*)—9,656.

(D) Gray whale (*Eschrichtius robustus*), Eastern North Pacific—60,590.

(E) Gray whale (*Eschrichtius robustus*), Western North Pacific—60.

(F) Humpback whale (*Megaptera novaeangliae*)—51,000.

(G) Minke whale (*Balaenoptera acutorostrata*)—4,425.

(H) Sei whale (*Balaenoptera borealis*)—3,251.

(ii) Odontocetes:

(A) Baird's beaked whale (*Berardius bairdii*)—27,325.

(B) Blainville's beaked whale (*Mesoplodon densirostris*)—52,972.

(C) Bottlenose dolphin (*Tursiops truncatus*), California Coastal—5,600.

(D) Bottlenose dolphin (*Tursiops truncatus*), CA/OR/WA—145,125.

(E) Bottlenose dolphin (*Tursiops truncatus*), Hawaii pelagic—20,995.

(F) Bottlenose dolphin (*Tursiops truncatus*), Oahu—3,879.

(G) Bottlenose dolphin (*Tursiops truncatus*), 4-Islands region—999.

(H) Bottlenose dolphin (*Tursiops truncatus*), Kauai and Niihau—960.

(I) Bottlenose dolphin (*Tursiops truncatus*), Hawaii Island—666.

(J) Cuvier's beaked whale (*Ziphius cavirostris*)—349,130.

(K) Dwarf sperm whale (*Kogia sima*)—113,525.

(L) Dall's porpoise (*Phocoenoida dalli*)—210,925.

(M) False killer whale (*Pseudorca crassidens*), Main Hawaiian Islands insular—240.

(N) False killer whale (*Pseudorca crassidens*)—3,147.

(O) Fraser's dolphin (*Lagenodelphis hosei*)—9,034.

(P) Killer whale (*Orcinus orca*)—2,762.

(Q) *Kogia* spp.—71,070.

(R) Long-beaked common dolphin (*Delphinus capensis*)—604,715.

(S) Longman's beaked whale (*Indopacetus pacificus*)—19,476.

(T) Melon-headed whale

(*Peponocephala electra*)—7,353.

(U) Mesoplodon beaked whales—11,695.

(V) Northern right whale dolphin (*Lissodelphis borealis*)—286,635.

(W) Pacific white-sided dolphin (*Lagenorhynchus obliquidens*)—216,885.

(X) Pantropical spotted dolphin (*Stenella attenuata*)—51,864.

(Y) Pygmy killer whale (*Feresa attenuata*)—2,908.

(Z) Pygmy sperm whale (*Kogia breviceps*)—1,683.

(AA) Risso's dolphin (*Grampus griseus*)—481,677.

(BB) Rough-toothed dolphin (*Steno bredanensis*)—24,815.

(CC) Short-beaked common dolphin (*Delphinus delphis*)—5,610,700.

(DD) Short-finned pilot whale (*Globicephala macrorhynchus*)—46,680.

(EE) Sperm whale (*Physeter macrocephalus*)—17,235.

(FF) Spinner dolphin (*Stenella longirostris*)—11,900.

(GG) Striped dolphin (*Stenella coerulealba*)—39,487.

(iii) Pinnipeds:

(A) California sea lion (*Zalophus californianus*)—699,605.

(B) Guadalupe fur seal (*Arctocephalus townsendi*)—14,360.

(C) Harbor seal (*Phoca vitulina*)—34,025.

(D) Hawaiian monk seal (*Monachus schauinslandi*)—8,124.

(E) Northern elephant seal (*Mirounga angustirostris*)—126,275.

(F) Northern fur seal (*Callorhinus ursinus*)—105,895.

(3) Mortality (or lesser Level A injury) for all Training and Testing Activities:

(i) No more than 130 mortalities applicable to any small odontocete (i.e., dolphin) or pinniped (with the exception of Hawaiian monk seal) species from an impulse source.

(ii) No more than 10 beaked whale mortalities.

(iii) No more than 15 large whale injuries or mortalities or serious injuries from vessel strike.

**§ 218.73 Prohibitions.**

Notwithstanding takings contemplated in § 218.72 and authorized by an LOA issued under §§ 216.106 and 218.77 of this chapter, no person in connection with the activities described in § 218.70 may:

(a) Take any marine mammal not specified in § 218.72(c);

(b) Take any marine mammal specified in § 218.72(c) other than by incidental take as specified in § 218.72(c);

(c) Take a marine mammal specified in § 218.72(c) 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 these regulations or an LOA issued under §§ 216.106 and 218.77.

#### **§ 218.74 Mitigation.**

(a) When conducting training and testing activities, as identified in § 218.70, the mitigation measures contained in the LOA issued under §§ 216.106 and 218.77 of this chapter must be implemented. These mitigation measures include, but are not limited to:

(1) *Lookouts*—The following are protective measures concerning the use of Lookouts.

(i) Lookouts positioned on ships will be dedicated solely to diligent observation of the air and surface of the water. Their observation objectives will include, but are not limited to, detecting the presence of biological resources and recreational or fishing boats, observing mitigation zones, and monitoring for vessel and personnel safety concerns.

(ii) Lookouts positioned in aircraft or on small boats will, to the maximum extent practicable and consistent with aircraft and boat safety and training and testing requirements, comply with the observation objectives described above in § 218.74 (a)(1)(i).

(iii) Lookout measures for non-impulsive sound:

(A) With the exception of ships less than 65 ft (20 m) in length and ships which are minimally manned, ships using low-frequency or hull-mounted mid-frequency active sonar sources associated with anti-submarine warfare and mine warfare activities at sea will have two Lookouts at the forward position of the ship. For the purposes of this rule, low-frequency active sonar does not include surveillance towed array sensor system low-frequency active sonar.

(B) While using low-frequency or hull-mounted mid-frequency active sonar sources associated with anti-submarine warfare and mine warfare activities at sea, vessels less than 65 ft (20 m) in length and ships which are minimally manned will have one Lookout at the forward position of the vessel due to space and manning restrictions.

(C) Ships conducting active sonar activities while moored or at anchor (including pierside testing or

maintenance) will maintain one Lookout.

(D) Surface ships or aircraft conducting high-frequency or non-hull-mounted mid-frequency active sonar activities associated with anti-submarine warfare and mine warfare activities at sea will have one Lookout.

(iv) Lookout measures for explosives and impulsive sound:

(A) Aircraft conducting IEER sonobuoy activities will have one Lookout.

(B) Explosive sonobuoys with 0.6 to 2.5 lb net explosive weight will have one Lookout.

(C) Surface vessels conducting anti-swimmer grenade activities will have one Lookout.

(D) During general mine countermeasure and neutralization activities using up to a 500-lb net explosive weight detonation (bin E10 and below), vessels greater than 200 ft will have two Lookouts, while vessels less than 200 ft or aircraft will have one Lookout.

(E) General mine countermeasure and neutralization activities using a 501 to 650-lb net explosive weight detonation (bin E11), will have two Lookouts. One Lookout will be positioned in an aircraft and one in a support vessel.

(F) During activities involving diver-placed mines under positive control, activities using up to a 500 lb net explosive weight (bin E10) detonation will have a total of two Lookouts (one Lookout positioned on two small boats, or one small boat in combination with either a helicopter or shore-based. The shore-based observer would be stationed at an elevated on-shore position and would only be used during activities conducted in very shallow waters.

(G) When mine neutralization activities using diver-placed charges with up to a 29-lb net explosive weight detonation (bin E7) are conducted with a time-delay firing device, four Lookouts will be used. Two Lookouts will be positioned in each of two small rigid hull inflatable boats or on one boat. In addition, when aircraft are used, the pilot or member of the aircrew will serve as an additional Lookout. The divers placing the charges on mines will report all marine mammal sightings to their dive support vessel or Range Safety Officer.

(H) Surface vessels or aircraft conducting small- and medium-caliber gunnery exercises against a surface target will have one Lookout.

(I) Surface vessels conducting large-caliber gunnery exercises against a surface target will have one Lookout.

(J) Aircraft conducting missile exercises (including rockets) against surface targets will have one Lookout.

(K) Aircraft conducting bombing exercises will have one Lookout.

(L) During explosive torpedo testing, one Lookout will be used and positioned in an aircraft.

(M) During sinking exercises, two Lookouts will be used. One Lookout will be positioned in an aircraft and one on a surface vessel.

(N) Each surface vessel supporting at-sea explosive testing will have at least one Lookout.

(O) During pile driving, one Lookout will be used and positioned on the platform that will maximize the potential for marine mammal sightings (e.g., the shore, an elevated causeway, or on a small boat).

(P) Surface vessels conducting explosive and non-explosive large-caliber gunnery exercises will have one Lookout. This may be the same Lookout used during large-caliber gunnery exercises with a surface target.

(v) Lookout measures for physical strike and disturbance:

(A) While underway, surface ships will have at least one Lookout.

(B) During activities using towed in-water devices, when towed from a manned platform, one Lookout will be used.

(C) Activities involving non-explosive practice munitions (e.g., small-, medium-, and large-caliber gunnery exercises) using a surface target will have one Lookout.

(D) During activities involving non-explosive bombing exercises, one Lookout positioned in an aircraft will be used.

(E) During activities involving non-explosive missile exercises (including rockets) using a surface target, one Lookout will be used.

(2) *Mitigation Zones*—The following are protective measures concerning the implementation of mitigation zones.

(i) Mitigation zones will be measured as the radius from a source and represent a distance to be monitored.

(ii) Visual detections of marine mammals within a mitigation zone will be communicated immediately to a watch station for information dissemination and appropriate action.

(iii) Mitigation zones for non-impulsive sound:<sup>1</sup>

(A) When marine mammals are visually detected, the Navy shall ensure that low-frequency and hull-mounted mid-frequency active sonar transmission

<sup>1</sup> The mitigation zone would be 200 yd (183 m) for low-frequency non-hull mounted sources in bins LF4 and LF5.

levels are limited to at least 6 dB below normal operating levels, for sources that can be powered down, if any detected marine mammals are within 1,000 yd (914 m) of the sonar dome (the bow).

(B) The Navy shall ensure that low-frequency and hull-mounted mid-frequency active sonar transmissions are limited to at least 10 dB below the equipment's normal operating level, for sources that can be powered down, if any detected marine mammals are within 500 yd (457 m) of the sonar dome.

(C) The Navy shall ensure that low-frequency sonar and hull-mounted mid-frequency active sonar transmissions are ceased, for sources that can be turned off during the activity, if any visually detected marine mammals are within 200 yd (183 m) of the sonar dome. Transmissions will not resume until one of the following conditions is met: the animal is observed exiting the mitigation zone; the animal is thought to have exited the mitigation zone based on a determination of its course and speed and the relative motion between the animal and the source; the mitigation zone has been clear from any additional sightings for a period of 30 minutes; the ship has transited more than 2,000 yd (1.8 km) beyond the location of the last sighting; or the ship concludes that dolphins are deliberately closing in on the ship to ride the ship's bow wave (and there are no other marine mammal sightings within the mitigation zone). Active transmission may resume when dolphins are bow riding because they are out of the main transmission axis of the active sonar while in the shallow-wave area of the bow.

(D) The Navy shall ensure that low-frequency and hull-mounted mid-frequency active sonar transmissions are ceased for sources that cannot be powered down during the activity, if any visually detected marine mammals are within 200 yd (183 m) of the source. Transmissions will not resume until one of the following conditions is met: the animal is observed exiting the mitigation zone; the animal is thought to have exited the mitigation zone based on a determination of its course and speed and the relative motion between the animal and the source; the mitigation zone has been clear from any additional sightings for a period of 30 minutes; the ship has transited more than 400 yd (366 m) beyond the location of the last sighting.

(E) When marine mammals are visually detected, the Navy shall ensure that high-frequency and non-hull-mounted mid-frequency active sonar transmission levels are ceased if any

visually detected marine mammals are within 200 yd (183 m) of the source. Transmissions will not resume until one of the following conditions is met: the animals is observed exiting the mitigation zone; the animal is thought to have exited the mitigation zone based on a determination of its course and speed and the relative motion between the animal and the source; the mitigation zone has been clear from any additional sightings for a period of 10 minutes for an aircraft-deployed source; the mitigation zone has been clear from any additional sightings for a period of 30 minutes for a vessel-deployed source; the vessel or aircraft has repositioned itself more than 400 yd (366 m) away from the location of the last sighting; or the vessel concludes that dolphins are deliberately closing to ride the vessel's bow wave (and there are no other marine mammal sightings within the mitigation zone).

(iv) Mitigation zones for explosive and impulsive sound:

(A) A mitigation zone with a radius of 600 yd (549 m) shall be established for IEER sonobuoys (bin E4).

(B) A mitigation zone with a radius of 350 yd (320 m) shall be established for explosive sonobuoys using 0.6 to 2.5 lb net explosive weight (bin E3).

(C) A mitigation zone with a radius of 200 yd (183 m) shall be established for anti-swimmer grenades (bin E2).

(D) A mitigation zone ranging from 600 yd (549 m) to 2,100 yd (1.9 km), dependent on charge size, shall be established for general mine countermeasure and neutralization activities using positive control firing devices. Mitigation zone distances are specified for charge size in Table 11-2 of the Navy's application.

(E) A mitigation zone ranging from 350 yd (320 m) to 850 yd (777 m), dependent on charge size, shall be established for mine countermeasure and neutralization activities using diver-placed positive control firing devices. Mitigation zone distances are specified for charge size in Table 11-2 of the Navy's application.

(F) A mitigation zone with a radius of 1,000 yd (914 m) shall be established for mine neutralization diver placed mines using time-delay firing devices (bin E7).

(G) A mitigation zone with a radius of 200 yd (183 m) shall be established for small- and medium-caliber gunnery exercises with a surface target (bin E2).

(H) A mitigation zone with a radius of 600 yd (549 m) shall be established for large-caliber gunnery exercises with a surface target (bin E5).

(I) A mitigation zone with a radius of 900 yd (823 m) shall be established for missile exercises (including rockets)

with up to 250 lb net explosive weight and a surface target (up to bin E9).

(J) A mitigation zone with a radius of 2,000 yd (1.8 km) shall be established for missile exercises with 251 to 500 lb net explosive weight and a surface target (E10).

(K) A mitigation zone with a radius of 2,500 yd (2.3 km) shall be established for bombing exercises (up to bin E12).

(L) A mitigation zone with a radius of 2,100 yd (1.9 km) shall be established for torpedo (explosive) testing (up to bin E11).

(M) A mitigation zone with a radius of 2.5 nautical miles shall be established for sinking exercises (up to bin E12).

(N) A mitigation zone with a radius of 1,600 yd (1.4 km) shall be established for at-sea explosive testing (up to bin E5).

(O) A mitigation zone with a radius of 60 yd (55 m) shall be established for elevated causeway system pile driving.

(P) A mitigation zone with a radius of 70 yd (64 m) within 30 degrees on either side of the gun target line on the firing side of the vessel for explosive and non-explosive large-caliber gunnery exercises.

(v) Mitigation zones for vessels and in-water devices:

(A) A mitigation zone of 500 yd (457 m) for observed whales and 200 yd (183 m) for all other marine mammals (except bow riding dolphins) shall be established for all vessel movement, providing it is safe to do so.

(B) A mitigation zone of 250 yd (229 m) for any observed marine mammal shall be established for all towed in-water devices that are towed from a manned platform, providing it is safe to do so.

(vi) Mitigation zones for non-explosive practice munitions:

(A) A mitigation zone of 200 yd (183 m) shall be established for small, medium, and large caliber gunnery exercises using a surface target with non-explosive practice munitions.

(B) A mitigation zone of 1,000 yd (914 m) shall be established for bombing exercises with non-explosive practice munitions.

(C) A mitigation zone of 900 yd (823 m) shall be established for missile exercises (including rockets) using a surface target.

(vii) Mitigation zones for the use of Navy sea lions:

(A) If a monk seal is seen approaching or within 100 m of a Navy sea lion, the handler will hold the Navy sea lion in the boat or recall the Navy sea lion immediately if it has already been released.

(3) Humpback Whale Cautionary Area:

(i) The Navy will maintain a 5-km (3.1-mi) buffer zone between December 15 and April 15 where conducting mid-frequency active sonar exercises will require authorization by the Commander, U.S. Pacific Fleet (CPF).

(ii) If authorized, the CPF will provide specific direction on required mitigation prior to operational units transiting to and training in the area.

(iii) The Navy will provide NMFS with advance notification of any mid-frequency active sonar training and testing activities in the humpback whale cautionary area between December 15 and April 15.

(4) Stranding Response Plan:

(i) The Navy shall abide by the letter of the "Stranding Response Plan for Major Navy Training Exercises in the HSTT Study Area," to include the following measures:

(A) Shutdown Procedures—When an Uncommon Stranding Event (USE—defined in § 218.71 (b)(1)) occurs during a Major Training Exercise (MTE) in the HSTT Study Area, the Navy shall implement the procedures described below.

(1) The Navy shall implement a shutdown (as defined § 218.71 (b)(2)) when advised by a NMFS Office of Protected Resources Headquarters Senior Official designated in the HSTT Study Area Stranding Communication Protocol that a USE involving live animals has been identified and that at least one live animal is located in the water. NMFS and the Navy will maintain a dialogue, as needed, regarding the identification of the USE and the potential need to implement shutdown procedures.

(2) Any shutdown in a given area shall remain in effect in that area until NMFS advises the Navy that the subject(s) of the USE at that area die or are euthanized, or that all live animals involved in the USE at that area have left the area (either of their own volition or herded).

(3) If the Navy finds an injured or dead animal floating at sea during an MTE, the Navy shall notify NMFS immediately or as soon as operational security considerations allow. The Navy shall provide NMFS with species or description of the animal(s), the condition of the animal(s), including carcass condition if the animal(s) is/are dead, location, time of first discovery, observed behavior (if alive), and photo or video (if available). Based on the information provided, NMFS will determine if, and advise the Navy whether a modified shutdown is appropriate on a case-by-case basis.

(4) In the event, following a USE, that qualified individuals are attempting to

herd animals back out to the open ocean and animals are not willing to leave, or animals are seen repeatedly heading for the open ocean but turning back to shore, NMFS and the Navy shall coordinate (including an investigation of other potential anthropogenic stressors in the area) to determine if the proximity of mid-frequency active sonar training activities or explosive detonations, though farther than 14 nautical miles from the distressed animal(s), is likely contributing to the animals' refusal to return to the open water. If so, NMFS and the Navy will further coordinate to determine what measures are necessary to improve the probability that the animals will return to open water and implement those measures as appropriate.

(B) Within 72 hours of NMFS notifying the Navy of the presence of a USE, the Navy shall provide available information to NMFS (per the HSTT Study Area Communication Protocol) regarding the location, number and types of acoustic/explosive sources, direction and speed of units using mid-frequency active sonar, and marine mammal sightings information associated with training activities occurring within 80 nautical miles (148 km) and 72 hours prior to the USE event. Information not initially available regarding the 80-nautical miles (148-km), 72-hour period prior to the event will be provided as soon as it becomes available. The Navy will provide NMFS investigative teams with additional relevant unclassified information as requested, if available.

(b) [Reserved]

**§ 218.75 Requirements for monitoring and reporting.**

(a) As outlined in the HSTT Study Area Stranding Communication Plan, the Holder of the Authorization must notify NMFS immediately (or as soon as operational security considerations allow) if the specified activity identified in § 218.70 is thought to have resulted in the mortality or injury of any marine mammals, or in any take of marine mammals not identified in § 218.71.

(b) The Holder of the LOA must conduct all monitoring and required reporting under the LOA, including abiding by the HSTT Monitoring Plan.

(c) General Notification of Injured or Dead Marine Mammals—Navy personnel shall ensure that NMFS (regional stranding coordinator) is notified immediately (or as soon as operational security considerations allow) if an injured or dead marine mammal is found during or shortly after, and in the vicinity of, an Navy training or testing activity utilizing mid-

or high-frequency active sonar, or underwater explosive detonations. The Navy shall provide NMFS with species or description of the animal(s), the condition of the animal(s) (including carcass condition if the animal is dead), location, time of first discovery, observed behaviors (if alive), and photo or video (if available). The Navy shall consult the Stranding Response Plan to obtain more specific reporting requirements for specific circumstances.

(d) Vessel Strike—In the event that a Navy vessel strikes a whale, the Navy shall do the following:

(1) Immediately report to NMFS (pursuant to the established Communication Protocol) the:

(i) Species identification if known;

(ii) Location (latitude/longitude) of the animal (or location of the strike if the animal has disappeared);

(iii) Whether the animal is alive or dead (or unknown); and

(iv) The time of the strike.

(2) As soon as feasible, the Navy shall report to or provide to NMFS, the:

(i) Size, length, and description (critical if species is not known) of animal;

(ii) An estimate of the injury status (e.g., dead, injured but alive, injured and moving, blood or tissue observed in the water, status unknown, disappeared, etc.);

(iii) Description of the behavior of the whale during event, immediately after the strike, and following the strike (until the report is made or the animal is no longer sighted);

(iv) Vessel class/type and operation status;

(v) Vessel length

(vi) Vessel speed and heading; and

(vii) To the best extent possible, obtain

(3) Within 2 weeks of the strike, provide NMFS:

(i) A detailed description of the specific actions of the vessel in the 30-minute timeframe immediately preceding the strike, during the event, and immediately after the strike (e.g., the speed and changes in speed, the direction and changes in the direction, other maneuvers, sonar use, etc., if not classified); and

(ii) A narrative description of marine mammal sightings during the event and immediately after, and any information as to sightings prior to the strike, if available; and

(iii) Use established Navy shipboard procedures to make a camera available to attempt to capture photographs following a ship strike.

(e) Annual HSTT Monitoring Plan Report—(1) The Navy shall submit an annual report for the HSTT Monitoring

Plan in April of each year, describing the implementation and results from the previous calendar year. Data collection methods will be standardized across range complexes and study areas to allow for comparison in different geographic locations. Although additional information will be gathered, the protected species observers collecting marine mammal data pursuant to the HSTT Monitoring Plan shall, at a minimum, provide the same marine mammal observation data required in § 218.75. (2) As an alternative, the Navy may submit a multi-Range Complex annual Monitoring Plan report to fulfill this requirement. Such a report would describe progress of knowledge made with respect to monitoring plan study questions across all Navy ranges associated with the ICMP. Similar study questions shall be treated together so that progress on each topic shall be summarized across all Navy ranges. The report need not include analyses and content that does not provide direct assessment of cumulative progress on the monitoring plan study questions.

(f) Annual HSTT Exercise and Testing Reports—The Navy shall submit preliminary reports detailing the status of authorized sound sources within 21 days after the end of the annual authorization cycle. The Navy shall submit detailed reports 3 months after the anniversary of the date of issuance of the LOA. The detailed annual reports shall contain information on Major Training Exercises (MTE), Sinking Exercise (SINKEX) events, and a summary of sound sources used, as described below. The analysis in the detailed reports will be based on the accumulation of data from the current year's report and data collected from previous reports. The detailed reports shall contain information identified in paragraphs (e)(1) through (e)(5) of this section.

(1) Major Training Exercises/SINKEX:

(i) This section shall contain the reporting requirements for Coordinated and Strike Group exercises and SINKEX. Coordinated and Strike Group Major Training Exercises include:

- (A) Sustainment Exercise (SUSTAINEX).
- (B) Integrated ASW Course (IAC).
- (C) Composite Training Unit Exercises (COMPTUEX).
- (D) Joint Task Force Exercises (JTFEX).
- (E) Undersea Warfare Exercise (USWEX).

(ii) Exercise information for each MTE:

- (A) Exercise designator.

(B) Date that exercise began and ended.

(C) Location (operating area).

(D) Number of items or hours (per the LOA) of each sound source bin (impulsive and non-impulsive) used in the exercise.

(E) Number and types of vessels, aircraft, etc., participating in exercise.

(F) Individual marine mammal sighting info for each sighting for each MTE:

(1) Date/time/location of sighting.

(2) Species (if not possible, indication of whale/dolphin/pinniped).

(3) Number of individuals.

(4) Initial detection sensor.

(5) Indication of specific type of platform the observation was made from (including, for example, what type of surface vessel or testing platform).

(6) Length of time observers maintained visual contact with marine mammal(s).

(7) Sea state.

(8) Visibility.

(9) Sound source in use at the time of sighting.

(10) Indication of whether animal is <200 yd, 200–500 yd, 500–1,000 yd, 1,000–2,000 yd, or >2,000 yd from sound source.

(11) Mitigation implementation—whether operation of sonar sensor was delayed, or sonar was powered or shut down, and how long the delay was; or whether navigation was changed or delayed.

(12) If source in use is a hull-mounted sonar, relative bearing of animal from ship and estimation of animal's motion relative to ship (opening, closing, parallel).

(13) Observed behavior—watchstanders shall report, in plain language and without trying to categorize in any way, the observed behavior of the animal(s) (such as closing to bow ride, paralleling course/speed, floating on surface and not swimming, etc.), and if any calves present.

(G) An evaluation (based on data gathered during all of the MTEs) of the effectiveness of mitigation measures designed to minimize the received level to which marine mammals may be exposed. This evaluation shall identify the specific observations that support any conclusions the Navy reaches about the effectiveness of the mitigation.

(iii) Exercise information for each SINKEX:

(A) List of the vessels and aircraft involved in the SINKEX.

(B) Location (operating area).

(C) Chronological list of events with times, including time of sunrise and sunset, start and stop time of all marine

species surveys that occur before, during, and after the SINKEX, and ordnance used.

(D) Visibility and/or weather conditions, wind speed, cloud cover, etc. throughout exercise if it changes.

(E) Aircraft used in the surveys, flight altitude, and flight speed and the area covered by each of the surveys, given in coordinates, map, or square miles.

(F) Passive acoustic monitoring details (number of sonobuoys, area and depth that was heard, detections of biologic activity, etc.).

(G) Individual marine mammal sighting info for each sighting that required mitigation to be implemented:

(1) Date/time/location of sighting.

(2) Species (if not possible, indication of whale/dolphin/pinniped).

(3) Number of individuals.

(4) Initial detection sensor.

(5) Indication of specific type of platform the observation was made from (including, for example what type of surface vessel or platform).

(6) Length of time observers maintained visual contact with marine mammal(s).

(7) Sea state.

(8) Visibility.

(9) Indication of whether animal is <200 yd, 200–500 yd, 500–1,000 yd, 1,000–2,000 yd, or >2,000 yd from the target.

(10) Mitigation implementation—whether the SINKEX was stopped or delayed and length of delay.

(11) Observed behavior—watchstanders shall report, in plain language and without trying to categorize in any way, the observed behavior of the animals (such as animal closing to bow ride, paralleling course/speed, floating on surface and not swimming, etc.), and if any calves present.

(H) List of the ordnance used throughout the SINKEX and net explosive weight (NEW) of each weapon and the combined ordnance NEW.

(2) Summary of Sources Used.

(i) This section shall include the following information summarized from the authorized sound sources used in all training and testing events:

(A) Total annual hours or quantity (per the LOA) of each bin of sonar or other non-impulsive source;

(B) Total annual expended/detonated rounds (missiles, bombs, etc.) for each explosive bin;

(C) Total annual airgun use; and

(D) Improved Extended Echo-Ranging System (IEER)/sonobuoy summary, including:

(1) Total expended/detonated rounds (buoys).

(2) Total number of self-scuttled IEER rounds.

(3) Sonar Exercise Notification—The Navy shall submit to NMFS (specific contact information to be provided in LOA) either an electronic (preferably) or verbal report within fifteen calendar days after the completion of any major exercise (RIMPAC, USWEX, or Multi Strike Group) indicating:

(i) Location of the exercise.

(ii) Beginning and end dates of the exercise.

(iii) Type of exercise (e.g., RIMPAC, USWEX, or Multi Strike Group).

(4) Geographic Information

**Presentation**—The reports shall present an annual (and seasonal, where practical) depiction of training exercises and testing bin usage geographically across the Study Area.

(5) Special Reporting Requirements—To the extent practicable, and as it applies to the specific Study Area, these reports will also include:

(i) The total hours (from 15 December through 15 April) of hull-mounted active sonar operation occurring in the dense humpback areas generally shown on the Mobley map (73 FR 35510, 35520) plus a 5-km buffer, but not including the Pacific Missile Range Facility (as illustrated in the HSTT FEIS/OEIS).

(ii) The total estimated annual hours of hull-mounted active sonar operation conducted in the Humpback Whale Cautionary Area between 15 December and 15 April.

(6) 5-year Close-out Exercise and Testing Report—This report will be included as part of the 2019 annual exercise or testing report. This report will provide the annual totals for each sound source bin with a comparison to the annual allowance and the 5-year total for each sound source bin with a comparison to the 5-year allowance. Additionally, if there were any changes to the sound source allowance, this report will include a discussion of why the change was made and include the analysis to support how the change did or did not result in a change in the FEIS and final rule determinations. The report will be submitted 3 months after the expiration of the rule. NMFS will submit comments on the draft close-out report, if any, within 3 months of receipt. The report will be considered final after the Navy has addressed NMFS' comments, or 3 months after the

submission of the draft if NMFS does not provide comments.

#### **§ 218.76 Applications for Letters of Authorization.**

To incidentally take marine mammals pursuant to the regulations in this subpart, the U.S. citizen (as defined by § 216.106) conducting the activity identified in § 218.70(c) (the U.S. Navy) must apply for and obtain either an initial LOA in accordance with § 218.77 or a renewal under § 218.78.

#### **§ 218.77 Letters of Authorization.**

(a) An LOA, unless suspended or revoked, will be valid for a period of time not to exceed the period of validity of this subpart.

(b) Each LOA will set forth:

(1) Permissible methods of incidental taking;

(2) Means of effecting the least practicable adverse impact on the species, its habitat, and on the availability of the species for subsistence uses (i.e., mitigation); and

(3) Requirements for mitigation, monitoring and reporting.

(c) Issuance and renewal of the LOA will be based on a determination that the total number of marine mammals taken by the activity as a whole will have no more than a negligible impact on the affected species or stock of marine mammal(s).

#### **§ 218.78 Renewals and modifications of Letters of Authorization.**

(a) A Letter of Authorization issued under §§ 216.106 and 218.77 for the activity identified in § 218.70(c) will be renewed or modified upon request of the applicant, provided that:

(1) The proposed specified activity and mitigation, monitoring, and reporting measures, as well as the anticipated impacts, are the same as those described and analyzed for these regulations (excluding changes made pursuant to the adaptive management provision of this chapter), and;

(2) NMFS determines that the mitigation, monitoring, and reporting measures required by the previous LOA under these regulations were implemented.

(b) For LOA modification or renewal requests by the applicant that include changes to the activity or the mitigation, monitoring, or reporting (excluding

changes made pursuant to the adaptive management provision of this chapter) that do not change the findings made for the regulations or result in no more than a minor change in the total estimated number of takes (or distribution by species or years), NMFS may publish a notice of proposed LOA in the **Federal Register**, including the associated analysis illustrating the change, and solicit public comment before issuing the LOA.

(c) A LOA issued under § 216.106 and § 218.77 of this chapter for the activity identified in § 218.70(c) of this chapter may be modified by NMFS under the following circumstances:

(1) Adaptive Management—NMFS may modify (including augment) the existing mitigation, monitoring, or reporting measures (after consulting with the Navy regarding the practicability of the modifications) if doing so creates a reasonable likelihood of more effectively accomplishing the goals of the mitigation and monitoring set forth in the preamble for these regulations.

(i) Possible sources of data that could contribute to the decision to modify the mitigation, monitoring, and reporting measures in an LOA:

(A) Results from Navy's monitoring form the previous year(s);

(B) Results from other marine mammal and/or sound research or studies; or

(C) Any information that reveals marine mammals may have been taken in a manner, extent, or number not authorized by these regulations or subsequent LOAs.

(ii) If, through adaptive management, the modifications to the mitigation, monitoring, or reporting measures are substantial, NMFS will publish a notice of proposed LOA in the **Federal Register** and solicit public comment.

(2) Emergencies—If NMFS determines that an emergency exists that poses a significant risk to the well-being of the species or stocks of marine mammals specified in § 218.72(c) of this chapter, an LOA may be modified without prior notice or opportunity for public comment. Notice would be published in the **Federal Register** within 30 days of the action.

[FR Doc. 2013–30245 Filed 12–23–13; 8:45 am]

BILLING CODE 3510–22–P