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Dated: November 26, 2008.

Paul R. Schmidt,

Assistant Director, Migratory Birds, U.S. Fish and Wildlife Service.

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DEPARTMENT OF COMMERCE

National Oceanic and Atmospheric Administration

50 CFR Part 218

RIN 0648–AW79

Taking and Importing Marine Mammals; U.S. Navy Training in the Jacksonville Range Complex

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

ACTION: Proposed rule; request for comments.

SUMMARY: NMFS has received a request from the U.S. Navy (Navy) for authorization to take marine mammals incidental to training activities conducted within the Jacksonville (JAX) Range Complex for the period of April 2009 through April 2014. Pursuant to the Marine Mammal Protection Act (MMPA), NMFS is proposing regulations to govern that take and requesting information, suggestions, and comments on these proposed regulations.

DATES: Comments and information must be received no later than January 16, 2009.

ADDRESSES: You may submit comments, identified by 0648–AW79, by any one of the following methods:

- Electronic Submissions: Submit all electronic public comments via the Federal eRulemaking Portal *http://www.regulations.gov*
- Hand delivery or mailing of paper, disk, or CD-ROM comments should be addressed to Michael Payne, Chief, Permits, Conservation and Education Division, Office of Protected Resources, National Marine Fisheries Service, 1315 East-West Highway, Silver Spring, MD 20910–3225.

Instructions: All comments received are a part of the public record and will generally be posted to *http://www.regulations.gov* without change. All Personal Identifying Information (for example, name, address, etc.) voluntarily submitted by the commenter may be publicly accessible. Do not submit Confidential Business Information or otherwise sensitive or protected information.

NMFS will accept anonymous comments (enter N/A in the required fields if you wish to remain anonyous). Attachments to electronic comments will be accepted in Microsoft Word, Excel, WordPerfect, or Adobe PDF file formats only.

FOR FURTHER INFORMATION CONTACT: Shane Guan, Office of Protected Resources, NMFS, (301) 713–2289, ext. 137.

SUPPLEMENTARY INFORMATION:

Availability

A copy of the Navy's application may be obtained by writing to the address specified above (See **ADDRESSES**), telephoning the contact listed above (see **FOR FURTHER INFORMATION CONTACT**), or visiting the internet at: *http://www.nmfs.noaa.g gov/pr/permits/incidental.h htm*. The Navy's Draft Environmental Impact Statement (DEIS) for the JAX Range Complex was published on June 27, 2008, and may be viewed at *http://www.JacksonvilleRange C ComplexEIS.com*. NMFS participated in the development of the Navy's DEIS as a cooperating agency under the National Environmental Policy Act (NEPA).

Background

Sections 101(a)(5)(A) and (D) of the MMPA (16 U.S.C. 1361 *et seq.*) direct the Secretary of Commerce (Secretary) to allow, upon request, the incidental, but not intentional taking of small numbers of marine mammals in specified geographic region by U.S. citizens who engage in a specified activity (other than commercial fishing) during periods of not more than five consecutive years each if certain findings are made and regulations are issued or, if the taking is limited to harassment, notice of a proposed authorization is provided to the public for review.

Authorization shall be granted if NMFS finds that the taking will have a negligible impact on the species or stock(s), will not have an unmitigable adverse impact on the availability of the species or stock(s) for subsistence uses, and if the permissible methods of taking and requirements pertaining to the mitigation, monitoring and reporting of such taking are set forth.

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) (Public Law 108–136) removed the ''small numbers'' and ''specified geographical region'' limitations and amended 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 March 17, 2008, NMFS received an application from the Navy requesting authorization for the take of six species of cetaceans incidental to the proposed training activities in the JAX Range Complex over the course of 5 years. On November 7, 2008, the Navy submitted an Addendum with some modifications to its original requests. These training activities are classified as military readiness activities. The Navy states that these training activities may cause various impacts to marine mammal species in the proposed JAX Range Complex area. The Navy requests an authorization to take individuals of these cetacean species by Level B Harassment. Further, the Navy requests authorization to take 2 individual Atlantic spotted dolphins per year by injury as a result of the proposed training activities at JAX Range Complex. Please refer to Table 9 of the document for detailed information of the potential exposures from explosive ordnance (per year) for marine mammals in the JAX Range Complex. However, due to the proposed mitigation and monitoring measures, NMFS believes that the actual take would be less that estimated.

Background of Navy Request

The Navy's mission is to maintain, train, and equip combat-ready naval forces capable of winning wars, deterring aggression, and maintaining freedom of the seas. Section 5062 of Title 10 of the U.S. Code directs the Chief of Naval Operations to train all naval forces for combat. The Chief of Naval Operations meets that direction, in part, by conducting at-sea training exercises and ensuring naval forces have

access to ranges, operating areas (OPAREAs) and airspace where they can develop and maintain skills for wartime missions and conduct research, development, test, and evaluation (RDT&E) of naval weapons systems.

The JAX Range Complex represents an essential three-dimensional space that provides a realistic and safe training area for Navy personnel. For nearly a century the area has supported Navy training activities, and is now host to a wide range of training every year to ensure the U.S. military members are ready for combat.

The JAX Study Area geographically encompasses offshore, near-shore, and onshore OPAREAs, instrumented ranges, and special use airspace (SUA) located along the southern east coast of the U.S. The two principal OPAREAs within the JAX Study Area are the Jacksonville OPAREA and the Charleston OPAREA (sometimes referred to collectively as the JAX/CHASN OPAREA, or simply the OPAREA). The boundary that separates the two OPAREAs from one another is located between 31° and 32° N latitude. The JAX/CHASN OPAREA encompasses much of the South Atlantic Bight (SAB) (i.e., the marine waters located between Cape Hatteras and Cape Canaveral).

The JAX/CHASN OPAREA encompasses 50,219 nm^2 (172,246 km^2) of ocean area within the SAB. The western boundary of the JAX/CHASN OPAREA is located approximately 3 nm (5.56 km) off the southeast U.S. coast. This shoreward boundary ranges from waters southwest of the New River, North Carolina to waters just north of the Indian and Banana River Complex, Florida.

The northernmost point of the JAX/CHASN OPAREA is located just north of Wilmington, North Carolina (34°37' N) in waters less than 20 m (65.6 ft) deep, while the easternmost boundary lies 281 nm (518.6 km) offshore of Jacksonville, Florida (77°00' W) in waters with a bottom depth of nearly 2,000 m (6,562 ft). The JAX/CHASN OPAREA is a set of operating and maneuver areas with defined air, ocean surface, and subsurface areas described in detail in Table 1 of the Navy's LOA application.

A Warning Area is airspace of defined dimensions, extending from 3 nm (5.56 km) outward from the coast of the U.S., which contains activity that may be hazardous to nonparticipating aircraft. The purpose of such warning areas is to warn nonparticipating pilots of the potential danger. A warning area may be located over domestic or international waters or both.

Description of the Specified Activities

In the application submitted to NMFS, the Navy requests an authorization to take marine mammals incidental to conducting training operations within the JAX Range Complex. These training activities consist of surface warfare, mine warfare, amphibious warfare, vessel movement, and small arms training. The locations of these activities are described in Figure 1 of the application. A description of each of these training activities within the JAX Range Complex is provided below:

Surface Warfare

Surface Warfare (SUW) supports defense of a geographical area (e.g., a zone or barrier) or friendly ships underway in cooperation with surface, subsurface, and air forces. SUW operations detect, localize, and track surface targets, primarily ships. Hostile small craft and ships are detected and monitored visually and with electronic sensors. Operations include identifying surface contacts, engaging with weapons, disengaging, evasion and avoiding attack, including implementation of radio silence and deceptive measures.

For the proposed JAX Range Complex training operations, SUW involving the use of explosive ordnance includes air-to-surface Missile Exercises that occur at sea.

Missile Exercise (Air-to-Surface) (MISSILEX (A-S)): This exercise would involve fixed winged aircraft and helicopter launching missiles at targets on the ocean's surface with the goal of destroying or disabling the target. MISSILEX (A-S) training in JAX Range Complex can occur during the day or at night in locations described in Figure 1 of the LOA application. Table 1 below summarizes the levels of MISSILEX planned in the JAX Range Complex for the proposed action.

TABLE 1. LEVELS OF MISSILEX PLANNED IN THE JAX RANGE COMPLEX PER YEAR

Operation	Platform	System/Ordnance	Number of Events
Missile Exercise (MISSILEX) (Air to Surface)	MH-60R/S, SH-60B, HH-60H	AGM-114 (Hellfire missile)	70 sorties (70 missiles)
	P-3C, and P-8A	AGM-65 (Maverick missile)	3 sorties (3 missiles)

Mine Warfare/Mine Exercises

Mine Warfare (MIW) includes the strategic, operational, and tactical use of mines and mine countermine measures (MCM). MIW training events are also collectively referred to as Mine Exercises (MINEX). MIW training/MINEX utilizes shapes to simulate mines. These shapes are either concrete-filled shapes or metal shapes. No actual explosive mines are used during MIW training in the JAX Range Complex study area. MIW training or MINEX is divided into the following.

(1) Mine laying: Crews practice the laying of mine shapes in simulated enemy areas;

(2) Mine countermeasures: Crews practice ''countering'' simulated enemy mines to permit the maneuver of friendly vessels and troops. ''Countering'' refers to both the detection and identification of enemy mines, the marking and maneuver of vessels and troops around identified enemy mines and mine fields, and the disabling of enemy mines. A subset of mine countermeasures is mine neutralization. Mine neutralization refers to the disabling of enemy mines by causing them to self-detonate either by setting a small explosive charge in the vicinity of the enemy mine, or by using various types of equipment that emit a sound, pressure, or a magnetic field that causes the mine to trip and self-detonate. In all cases, actual explosive (live) mines would not be used during training events. Rather, mine shapes are used to simulate real enemy mines. In the JAX Study Area, MIW training/MINEX events include the use of explosive charges for one type of mine countermeasures and neutralization training: underwater detonations of mine shapes by Explosive Ordnance Disposal (EOD) divers. Table 2 below summarizes the levels of mine warfare/mine exercises planned in the JAX Range Complex for the proposed action.

TABLE 2. LEVELS OF MINE WARFARE/MINE EXERCISES PLANNED IN THE JAX RANGE COMPLEX PER YEAR

Operation	Platform	System/Ordnance	Number of Events (each event include 1 charge)
Mine Neutralization	EOD	20 lb charges	12 events

EOD personnel detect, identify, evaluate, and neutralize mines. The EOD mission during training is to locate and neutralize mine shapes after they are initially located by another source, such as an MCM or MHC class ship or an MH–53 or MH–60 helicopter. For underwater detonations, EOD divers are deployed from a ship or small boat to practice neutralizing a mine shape underwater. The neutralization exercise in the water is normally done with an explosive charge of 5-, 10- or 20–lbs NEW. The initiation of the charge is controlled remotely by EOD personnel. If the mine shape were an actual mine, it would explode due to the pressure and energy exerted in the water from the smaller EOD explosive charge. This training is conducted only during day light hours in the JAX Study Area.

Amphibious Warfare

Amphibious Warfare (AMW) involves the utilization of naval firepower and logistics in combination with U.S. Marine Corps landing forces to project military power ashore. AMW encompasses a broad spectrum of operations involving maneuver from the sea to objectives ashore, ranging from shore assaults, boat raids, ship-to-shore maneuver, shore bombardment and other naval fire support, and air strike and close air support training. AMW that involves the use of explosive ordnance is limited to Firing Exercises (FIREX).

During a FIREX, surface ships use their main battery guns to fire from sea at land targets in support of military forces ashore. On the east coast, the land ranges where FIREX training can take place are limited. Therefore, land masses are simulated during east coast FIREX training using the Integrated Maritime Portable Acoustic Scoring and Simulation System (IMPASS) system, a system of buoys that simulate a land mass. FIREX training using IMPASS would occur only during daylight hours in the locations described in Figure 1 of the LOA application. Table 3 below summarizes the levels of FIREX with IMPASS planned in the JAX Range Complex for the proposed action.

TABLE 3. LEVELS OF FIREX WITH IMPASS PLANNED IN THE JAX RANGE COMPLEX PER YEAR

Operation	Platform	System/Ordnance	Number of Events (each event include 1 charge)
FIREX with IMPASS	CG, DDG	5″ gun (IMPASS	10 events (390 rounds)

Vessel Movement

Vessel movements are associated with most activities under the training operations in the JAX Study Area. This involves transiting to and from port to the JAX Range Complex as well as vessel movements into, within, and through the range complex. Some training operations are strictly vessel movements such as Man Overboard Drills, Tow/Be Towed Exercises, Underway Replenishment, Aircraft Carrier Flight Operations, and use of the transit lanes by submarines when surfaced; these types of operations are all analyzed under the impacts from vessel movement. The Navy estimates approximately 1,050 steaming days in the JAX Range Complex. This also includes non-training related vessel movements which are unpredictable as to their occurrence in a year such as, but not limited to, storm evasion, deployment transits, and movements in the basin to rearrange for repairs/berthing/loading/off-loading from designated piers. An estimate of steaming days per year was computed by summing the number of steaming hours proposed in each range complex, dividing by 24 hours per day, and rounding to the nearest 10 days.

Small Arms Training Explosive hand grenades (such as the MK3A2 grenades)

Small arms training is part of quarterly reservist training for the Mobile Expeditionary Security Group (MESG). The MESG trains with MK3A2 (0.5–lb NEW) anti-swimmer concussion grenades. The MK3A2 grenades are small and contain high explosives in an inert metal or plastic shell. They detonate at about 3 m (9.8 ft) under the water's surface within 4 to 5 seconds of being deployed. The detonation depth may be shallower depending upon the speed of the boat at the time the grenade is deployed. Table 4 below summarizes the levels of small arms training planned in the JAX Range Complex for the proposed action.

TABLE 4. LEVELS OF SMALL ARMS TRAINING PLANNED IN THE JAX RANGE COMPLEX PER YEAR

Operation	Platform	System/Ordnance	Event Duration	Number of Events (each event include 1 charge)
Small Arms Training (explosive hand grenades)	Maritime Expeditionary Support Group (Various Small Boats)	MK3A2 anti-swimmer grenades (HE)	1-2 hours	96 events (80 grenades)

A number of different types of boats would be used depending on the unit using the boat and their mission. Boats are mostly used by Naval Special Warfare (NSW) teams and Navy Expeditionary Combat Command (NECC) units (Naval Coastal Warfare, Inshore Boat Units, Mobile Security Detachments, Explosive Ordnance

Disposal, and Riverine Forces). These units would be used to protect ships in harbors and high value units, such as aircraft carriers, nuclear submarines, liquid natural gas tankers, etc., while entering and leaving ports, as well as to conduct riverine operations, insertion and extractions, and various naval special warfare operations.

The boats used by these units include: Small Unit River Craft (SURC), Combat Rubber Raiding Craft (CRRC), Rigid Hull Inflatable Boats (RHIB), Patrol Craft, and many other versions of these types of boats. These boats would use inboard or outboard, diesel or gasoline engines with either propeller or water jet propulsion.

This exercise is usually a live-fire exercise, but at times blanks may be used so boat crews can practice their ship-handling skills for the employment of weapons without being concerned with the safety requirements involved with HE weapons.

(1) Basic Phase (Unit Level Training) Scenario:

Boat crews may use high or low speeds to approach and engage targets simulating swimmers with anti-swimmer concussion grenades.

(2) Integrated and Sustainment Phase Training Scenarios:

Typically do not differ from the Basic Phase Scenario, except for additional command and control coordination involved.

(3) Training Considerations

The purpose of this exercise is to develop marksmanship skills and small boat ship-handling tactics skills required to employ these weapons. Training usually lasts 1–2 hours.

Description of Marine Mammals in the Area of the Specified Activities

There are 29 marine mammal species with possible or confirmed occurrence in the JAX Range Complex. As indicated in Table 5, all of them are cetacean species (7 mysticetes and 22 odontocetes). Table 5 also includes the federal status of these marine mammal species. Six marine mammal species listed as federally endangered under the Endangered Species Act (ESA) occur in the JAX Range Complex: the humpback whale, North Atlantic right whale, sei whale, fin whale, blue whale, and sperm whale.

TABLE 5. MARINE MAMMAL SPECIES FOUND IN THE JAX RANGE COMPLEX

Family and Scientific Name	Common Name	Federal Status
Order Cetacea		
Suborder Mysticeti (baleen whales)		
Eubalaena glacialis	North Atlantic right whale	Endangered
Megaptera novaeangliae	Humpback whale	Endangered
Balaenoptera acutorostrata	Minke whale	
B. brydei	Bryde's whale	
B. borealis	Sei whale	Endangered
B. physalus	Fin whale	Endangered
B. musculus	Blue whale	Endangered
Suborder Odontoceti (toothed whales)		
Physeter macrocephalus	Sperm whale	Endangered
Kogia breviceps	Pygmy sperm whale	
K. sima	Dwarf sperm whale	
Ziphius cavirostris	Cuvier's beaked whale	
Mesoplodon minus	True's beaked whale	
M. europaeus	Gervais' beaked whale	
M. densirostris	Blainville's beaked whale	
Steno bredanensis	Rough-toothed dolphin	
Tursiops truncatus	Bottlenose dolphin	
Stenella attenuata	Pantropical spotted dolphin	
S. frontalis	Atlantic spotted dolphin	
S. longirostris	Spinner dolphin	
S. clymene	Clymene dolphin	
S. coeruleoalba	Striped dolphin	
Delphinus delphis	Common dolphin	

TABLE 5. MARINE MAMMAL SPECIES FOUND IN THE JAX RANGE COMPLEX—Continued

Family and Scientific Name	Common Name	Federal Status
Lagenodephis hosei	Fraser's dolphin	
Grampus griseus	Risso's dolphin	
Peponocephala electra	Melon-headed whale	
Feresa attenuata	Pygmy killer whale	
Pseudorca crassidens	False killer whale	
Orcinus orca	Killer whale	
G. macrorhynchus	Short-finned pilot whale	

The information contained herein relies heavily on the data gathered in the Marine Resource Assessments (MRAs). The Navy MRA Program was implemented by the Commander, Fleet Forces Command, to initiate collection of data and information concerning the protected and commercial marine resources found in the Navy's OPAREAs. Specifically, the goal of the MRA program is to describe and document the marine resources present in each of the Navy's OPAREAs. The MRA for the JAX/CHASN OPAREA was recently updated in 2008 (DoN, 2008).

The MRA data were used to provide a regional context for each species. The MRA represents a compilation and synthesis of available scientific literature (e.g., journals, periodicals, theses, dissertations, project reports, and other technical reports published by government agencies, private businesses, or consulting firms), and NMFS reports including stock assessment reports, recovery plans, and survey reports.

The density estimates that were used in previous Navy environmental documents have been recently updated to provide a compilation of the most recent data and information on the occurrence, distribution, and density of marine mammals. The updated density estimates used for the analyses are derived from the Navy OPAREA Density Estimates (NODE) for the Southeast OPAREAS report (DON, 2007).

Density estimates for cetaceans were either modeled using available line-transect survey data or derived using available data in order of preference: (1) through spatial models using line-transect survey data provided by NMFS; (2) using abundance estimates from Mullin and Fulling (2003); (3) or based on the cetacean abundance estimates found in the most current NMFS stock assessment report (SAR) (Waring *et al.*, 2007), which can be viewed at: *http://www.nmfs.noaa.gov/pr/sars/species.htm*.

For the model-based approach, density estimates were calculated for each species within areas containing survey effort. A relationship between these density estimates and the associated

environmental parameters such as depth, slope, distance from the shelf break, sea surface temperature, and chlorophyll a concentration was formulated using generalized additive models. This relationship was then used to generate a two-dimensional density surface for the region by predicting densities in areas where no survey data exist.

The analyses for cetaceans were based on sighting data collected through shipboard surveys conducted by NMFS-Northeast Fisheries Science Center (NEFSC) and Southeast Fisheries Science Center (SEFSC) between 1998 and 2005. Species-specific density estimates derived through spatial modeling were compared with abundance estimates found in the most current NMFS SAR to ensure consistency. All spatial models and density estimates were reviewed by and coordinated with NMFS Science Center technical staff and scientists with the University of St. Andrews, Scotland, Centre for Environmental and Ecological Modeling (CREEM). For a more detailed description of the methodology involved in calculating the density estimates provided in this LOA, please refer to the NODE report for the Southeast (DON 2007).

Potential Impacts to Marine Mammal Species

The Navy considers that explosions associated with MISSILEX, FIREX, MINEX, and Small Arms Training (explosive hand grenades) are the activities with the potential to result in Level A or Level B harassment of marine mammals. Vessel strikes were also analyzed for potential affect to marine mammals.

Vessel Strikes

Ship strikes are known to affect large whales and sirenians in the JAX Study Area. The most vulnerable marine mammals are those that spend extended periods of time at the surface in order to restore oxygen levels within their tissues after deep dives (e.g., the sperm whale). In addition, some baleen whales, such as the North Atlantic right whale seem generally unresponsive to vessel sound, making them more susceptible to vessel collisions (Nowacek *et al.*, 2004). These species are primarily large, slow moving whales. Smaller marine mammals, for example, Atlantic bottlenose and Atlantic spotted dolphins-move quickly throughout the water column and are often seen riding the bow wave of large ships. Marine mammal responses to vessels may include avoidance and changes in dive pattern (NRC, 2003).

After reviewing historical records and computerized stranding databases for evidence of ship strikes involving baleen and sperm whales, Laist *et al.* (2001) found that accounts of large whale ship strikes involving boats operated by engines in the area date back to at least the late 1800s. Ship collisions remained infrequent until the 1950s, after which point they increased. Laist *et al.* (2001) report that both the number and speed of motorized vessels have increased over time for trans-Atlantic passenger services, which transit through the area. They concluded that most strikes occur over or near the continental shelf, that ship strikes likely have a negligible effect on the status of most whale populations, but that for small populations or segments of populations the impact of ship strikes may be significant.

Although ship strikes may result in the mortality of a limited number of whales within a population or stock,

Laist *et al.* (2001) also concluded that, when considered in combination with other human-related mortalities in the area (e.g., entanglement in fishing gear), these ship strikes may present a concern for whale populations.

Of 11 species known to be hit by ships, fin whales are struck most frequently; followed by right whales, humpback whales, sperm whales, and gray whales (Laist *et al.*, 2001). In some areas, one-third of all fin whale and right whale strandings appear to involve ship strikes. Sperm whales spend long periods (typically up to 10 minutes; Jacquet *et al.*, 1996) ''rafting'' at the surface between deep dives. There were also instances in which sperm whales approached vessels too closely and were cut by the propellers (NMFS, 2006).

The east coast is a principal migratory corridor for North Atlantic right whales that travel between the calving/nursery areas in the Southeastern United States and feeding grounds in the northeast U.S. and Canada. Transit to the Study Area from mid-Atlantic ports requires Navy vessels to cross the migratory route of North Atlantic right whales. Southward right whale migration generally occurs from mid- to late November, although some right whales may arrive off the Florida coast in early November and stay into late March (Kraus *et al.*, 1993). The northbound migration generally takes place between January and late March. Data indicate that during the spring and fall migration, right whales typically occur in shallow water immediately adjacent to the coast, with over half the sightings (63 percent) occurring within 18.5 km (10 NM), and 94.1 percent reported within 55 km (30 NM) of the coast. Given the low abundance of North Atlantic right whales relative to other species, the frequency of occurrence of vessel collisions to right whales suggests that the threat of ship strikes is proportionally greater to this species (Jensen and Silber, 2003). Therefore, in 2008, NMFS published a final rule concerning right whale vessel collision reduction strategy and established operational measures for the shipping industry to reduce the potential for large vessel collisions with North Atlantic right whales while transiting to and from mid-Atlantic ports during right whale migratory periods (73 FR 60173; October 10, 2008). Recent studies of right whales have shown that these whales tend to lack a response to the sounds of oncoming vessels (Nowacek *et al.*, 2004). Although Navy vessel traffic generally represents only 2 - 3 percent of overall large vessel traffic, based on this biological characteristic and the presence of critical Navy ports along the whales' mid-Atlantic migratory corridor, the Navy was the first Federal agency to proactively adopt additional mitigation measures for transits in the vicinity of mid-Atlantic ports during right whale migration. For purposes of these measures, the mid-Atlantic is defined broadly to include ports south and east of Block Island Sound southward to South Carolina.

Accordingly, the Navy has proposed mitigation measures to reduce the potential for collisions with surfaced marine mammals (for more details refer to Proposed Mitigation Measures below). Based on the implementation of Navy mitigation measures, especially during times of anticipated right whale occurrence, and the relatively low density of Navy ships in the Study Area the likelihood that a vessel collision would occur is very low.

Assessment of Marine Mammal Response to Anthropogenic Sound

Marine mammals respond to various types of anthropogenic sounds introduced in the ocean environment. Responses are typically subtle and can include shorter surfacings, shorter dives, fewer blows per surfacing, longer intervals between blows (breaths), ceasing or increasing vocalizations, shortening or lengthening vocalizations, and changing frequency or intensity of vocalizations (NRC, 2005). However, it is not known how these responses relate to significant effects (e.g., long-term effects or population consequences). The following is an assessment of marine mammal responses and disturbances when exposed to anthropogenic sound.

I. Physiology

Potential impacts to the auditory system are assessed by considering the characteristics of the received sound (e.g., amplitude, frequency, duration) and the sensitivity of the exposed animals. Some of these assessments can be numerically based (e.g., temporary threshold shift [TTS] of hearing sensitivity, permanent threshold shift [PTS] of hearing sensitivy, perception). Others will be necessarily qualitative, due to a lack of information, or will need to be extrapolated from other species for which information exists.

Potential physiological responses to the sound exposure are ranked in descending order, with the most severe impact (auditory trauma) occurring at the top and the least severe impact occurring at the bottom (the sound is not perceived).

Auditory trauma represents direct mechanical injury to hearing related structures, including tympanic membrane rupture, disarticulation of the middle ear ossicles, and trauma to the inner ear structures such as the organ of Corti and the associated hair cells. Auditory trauma is always injurious and could result in PTS. Auditory trauma is always assumed to result in a stress response.

Auditory fatigue refers to a loss of hearing sensitivity after sound stimulation. The loss of sensitivity persists after, sometimes long after, the cessation of the sound. The mechanisms responsible for auditory fatigue differ from auditory trauma and would primarily consist of metabolic exhaustion of the hair cells and cochlear tissues. The features of the exposure (e.g., amplitude, frequency, duration, temporal pattern) and the individual animal's susceptibility would determine the severity of fatigue and whether the effects were temporary (TTS) or permanent (PTS). Auditory fatigue (PTS or TTS) is always assumed to result in a stress response.

Sounds with sufficient amplitude and duration to be detected among the background ambient noise are considered to be perceived. This category includes sounds from the threshold of audibility through the normal dynamic range of hearing (i.e., not capable of producing fatigue).

To determine whether an animal perceives the sound, the received level, frequency, and duration of the sound are compared to what is known of the species' hearing sensitivity.

Since audible sounds may interfere with an animal's ability to detect other sounds at the same time, perceived sounds have the potential to result in auditory masking. Unlike auditory fatigue, which always results in a stress response because the sensory tissues are being stimulated beyond their normal physiological range, masking may or may not result in a stress response, depending on the degree and duration of the masking effect. Masking may also result in a unique circumstance where an animal's ability to detect other sounds is compromised without the animal's knowledge. This could conceivably result in sensory impairment and subsequent behavior change; in this case, the change in behavior is the lack of a response that would normally be made if sensory impairment did not occur. For this reason, masking also may lead directly to behavior change without first causing a stress response.

The features of perceived sound (e.g., amplitude, duration, temporal pattern) are also used to judge whether the sound exposure is capable of producing a stress response. Factors to consider in

this decision include the probability of the animal being naive or experienced with the sound (i.e., what are the known/unknown consequences of the exposure).

The received level is not of sufficient amplitude, frequency, and duration that is perceptible by the animal, by extension, this does not result in a stress response (not perceived). Potential impacts to tissues other than those related to the auditory system are assessed by considering the characteristics of the sound (e.g., amplitude, frequency, duration) and the known or estimated response characteristics of nonauditory tissues. Some of these assessments can be numerically based. Others will be necessarily qualitative, due to lack of information. Each of the potential responses may or may not result in a stress response.

Direct tissue effects – Direct tissue responses to sound stimulation may range from tissue shearing (injury) to mechanical vibration with no resulting injury. Any tissue injury would produce a stress response, whereas noninjurious stimulation may or may not.

No tissue effects – The received sound is insufficient to cause either direct (mechanical) or indirect effects to tissues. No stress response occurs.

II. The Stress Response

The acoustic source is considered a potential stressor if, by its action on the animal, via auditory or nonauditory means, it may produce a stress response in the animal. The term ''stress'' has taken on an ambiguous meaning in the scientific literature, but with respect to the later discussions of allostasis and allostatic loading, the stress response will refer to an increase in energetic expenditure that results from exposure to the stressor and which is predominantly characterized by either the stimulation of the sympathetic nervous system (SNS) or the hypothalamic-pituitary-adrenal (HPA) axis (Reeder and Kramer, 2005). The SNS response to a stressor is immediate and acute and is characterized by the release of the catecholamine neurohormones norepinephrine and epinephrine (i.e., adrenaline). These hormones produce elevations in the heart and respiration rate, increase awareness, and increase the availability of glucose and lipids for energy. The HPA response is ultimately defined by increases in the secretion of the glucocorticoid steroid hormones, predominantly cortisol in mammals. The amount of increase in circulating glucocorticoids above baseline may be an indicator of the overall severity of a stress response (Hennessy *et al.*, 1979). Each component of the stress response is variable in time; e.g., adrenalines are released nearly immediately and are used or cleared by the system quickly, whereas cortisol levels may take long periods of time to return to baseline.

The presence and magnitude of a stress response in an animal depends on a number of factors. These include the animal's life history stage (e.g., neonate, juvenile, adult), the environmental conditions, reproductive or developmental state, and experience with the stressor. Not only will these factors be subject to individual variation, but they will also vary within an individual over time. In considering potential stress responses of marine mammals to acoustic stressors, each of these should be considered. For example, is the acoustic stressor in an area where animals engage in breeding activity? Are animals in the region resident and likely to have experience with the stressor (i.e., repeated exposures)? Is the region a foraging ground or are the animals passing through as transients? What is the ratio of young (naive) to old (experienced) animals in the population? It is unlikely that all such questions can be answered from empirical data; however, they should be addressed in any qualitative assessment of a potential stress response as based on the available literature.

The stress response may or may not result in a behavioral change, depending on the characteristics of the exposed animal. However, provided a stress response occurs, we assume that some contribution is made to the animal's allostatic load. Allostasis is the ability of an animal to maintain stability through change by adjusting its physiology in response to both predictable and unpredictable events (McEwen and Wingfield, 2003). The same hormones associated with the stress response vary naturally throughout an animal's life, providing support for particular life history events (e.g., pregnancy) and predictable environmental conditions (e.g., seasonal changes). The allostatic load is the cumulative cost of allostasis incurred by an animal and is generally characterized with respect to an animal's energetic expenditure. Perturbations to an animal that may occur with the presence of a stressor, either biological (e.g., predator) or anthropogenic (e.g., construction), can contribute to the allostatic load (Wingfield, 2003). Additional costs are cumulative and additions to the allostatic load over time may contribute to reductions in the probability of achieving ultimate life history functions (e.g., survival, maturation, reproductive effort and success) by producing pathophysiological states (conditions associated with disease or injury). The contribution to the allostatic load from a stressor requires estimating the magnitude and duration of the stress response, as well as any secondary contributions that might result from a change in behavior.

If the acoustic source does not produce tissue effects, is not perceived by the animal, or does not produce a stress response by any other means, we assumes that the exposure does not contribute to the allostatic load. Additionally, without a stress response or auditory masking, it is assumed that there can be no behavioral change. Conversely, any immediate effect of exposure that produces an injury is assumed to also produce a stress response and contribute to the allostatic load.

III. Behavior

Changes in marine mammal behavior are expected to result from an acute stress response. This expectation is based on the idea that some sort of physiological trigger must exist to change any behavior that is already being performed. The exception to this rule is the case of auditory masking. The presence of a masking sound may not produce a stress response, but may interfere with the animal's ability to detect and discriminate biologically relevant signals. The inability to detect and discriminate biologically relevant signals hinders the potential for normal behavioral responses to auditory cues and is thus considered a behavioral change.

Impulsive sounds from explosions have very short durations as compared to other sounds like sonar or ship noise, which are more likely to produce auditory masking. Additionally the explosive sources analyzed in this document are used infrequently and the training events are typically of short duration. Therefore, the potential for auditory masking is unlikely and no impacts to marine mammals due to auditory masking are anticipated due to implementing the proposed action.

Numerous behavioral changes can occur as a result of stress response. For each potential behavioral change, the magnitude in the change and the severity of the response needs to be estimated. Certain conditions, such as stampeding (i.e., flight response) or a response to a predator, might have a probability of resulting in injury. For example, a flight response, if significant enough, could produce a stranding event. Each altered behavior may also have the potential to disrupt

biologically significant events (e.g., breeding or nursing) and may need to be classified as Level B harassment. All behavioral disruptions have the potential to contribute to the allostatic load. This secondary potential is signified by the feedback from the collective behaviors to allostatic loading.

IV. Life Function

IV.1. Proximate Life Functions

Proximate life history functions are the functions that the animal is engaged in at the time of acoustic exposure. The disruption of these functions, and the magnitude of the disruption, is something that must be considered in determining how the ultimate life history functions are affected. Consideration of the magnitude of the effect to each of the proximate life history functions is dependent upon the life stage of the animal. For example, an animal on a breeding ground which is sexually immature will suffer relatively little consequence to disruption of breeding behavior when compared to an actively displaying adult of prime reproductive age.

IV.2. Ultimate Life Functions

The ultimate life functions are those that enable an animal to contribute to the population (or stock, or species, etc.). The impact to ultimate life functions will depend on the nature and magnitude of the perturbation to proximate life history functions. Depending on the severity of the response to the stressor, acute perturbations may have nominal to profound impacts on ultimate life functions. For example, unit-level use of sonar by a vessel transiting through an area that is utilized for foraging, but not for breeding, may disrupt feeding by exposed animals for a brief period of time. Because of the brevity of the perturbation, the impact to ultimate life functions may be negligible. By contrast, weekly training over a period of years may have a more substantial impact because the stressor is chronic. Assessment of the magnitude of the stress response from the chronic perturbation would require an understanding of how and whether animals acclimate to a specific, repeated stressor and whether chronic elevations in the stress response (e.g., cortisol levels) produce fitness deficits.

The proximate life functions are loosely ordered in decreasing severity of impact. Mortality (survival) has an immediate effect, in that no future reproductive success is feasible and there is no further addition to the population resulting from reproduction. Severe injuries may also lead to reduced survivorship (longevity) and prolonged alterations in behavior. The latter may further affect an animal's overall reproductive success and reproductive effort. Disruptions of breeding have an immediate impact on reproductive effort and may impact reproductive success. The magnitude of the effect will depend on the duration of the disruption and the type of behavior change that was provoked. Disruptions to feeding and migration can affect all of the ultimate life functions; however, the impacts to reproductive effort and success are not likely to be as severe or immediate as those incurred by mortality and breeding disruptions.

Explosive Ordnance Exposure Analysis

The underwater explosion from a weapon would send a shock wave and blast noise through the water, release gaseous by-products, create an oscillating bubble, and cause a plume of water to shoot up from the water surface. The shock wave and blast noise are of most concern to marine animals. The effects of an underwater explosion on a marine mammal depends on many factors, including the size, type, and depth of both the animal and the explosive charge; the depth of the water column; and the standoff distance between the charge and the animal, as well as the sound propagation properties of the environment. Potential impacts can range from brief effects (such as behavioral disturbance), tactile perception, physical discomfort, slight injury of the internal organs and the auditory system, to death of the animal (Yelverton *et al.*, 1973; O'Keeffe and Young, 1984; DoN, 2001). Non-lethal injury includes slight injury to internal organs and the auditory system; however, delayed lethality can be a result of individual or cumulative sublethal injuries (DoN, 2001). Immediate lethal injury would be a result of massive combined trauma to internal organs as a direct result of proximity to the point of detonation (DoN, 2001). Generally, the higher the level of impulse and pressure level exposure, the more severe the impact to an individual.

Injuries resulting from a shock wave take place at boundaries between tissues of different density. Different velocities are imparted to tissues of different densities, and this can lead to their physical disruption. Blast effects are greatest at the gas-liquid interface (Landsberg, 2000). Gas-containing organs, particularly the lungs and gastrointestinal tract, are especially susceptible (Goertner, 1982; Hill, 1978; Yelverton *et al.*, 1973). In addition, gas-containing organs including the nasal sacs, larynx, pharynx, trachea, and lungs may be damaged by compression/expansion caused by the oscillations of the blast gas bubble (Reidenberg and Laitman, 2003). Intestinal walls can bruise or rupture, with subsequent hemorrhage and escape of gut contents into the body cavity. Less severe gastrointestinal tract injuries include contusions, petechiae (small red or purple spots caused by bleeding in the skin), and slight hemorrhaging (Yelverton *et al.*, 1973).

Because the ears are the most sensitive to pressure, they are the organs most sensitive to injury (Ketten, 2000). Sound-related damage associated with blast noise can be theoretically distinct from injury from the shock wave, particularly farther from the explosion. If an animal is able to hear a noise, at some level it can damage its hearing by causing decreased sensitivity (Ketten, 1995) (see *Assessment of Marine Mammal Response to Anthropogenic Sound* section below). Sound-related trauma can be lethal or sublethal. Lethal impacts are those that result in immediate death or serious debilitation in or near an intense source and are not, technically, pure acoustic trauma (Ketten, 1995). Sublethal impacts include hearing loss, which is caused by exposures to perceptible sounds. Severe damage (from the shock wave) to the ears includes tympanic membrane rupture, fracture of the ossicles, damage to the cochlea, hemorrhage, and cerebrospinal fluid leakage into the middle ear. Moderate injury implies partial hearing loss due to tympanic membrane rupture and blood in the middle ear. Permanent hearing loss also can occur when the hair cells are damaged by one very loud event, as well as by prolonged exposure to a loud noise or chronic exposure to noise. The level of impact from blasts depends on both an animal's location and, at outer zones, on its sensitivity to the residual noise (Ketten, 1995).

The exercises that use explosives in this request include: FIREX with IMPASS, MISSILEX, MINEX, and Small Arms Training (explosive hand grenades). Table 6 summarizes the number of events (per year by season) and specific areas where each occurs for each type of explosive ordnance used. For most of the operations, there is no difference in how many events take place between the different seasons. Fractional values are a result of evenly distributing the annual totals over the four seasons. For example, there are 70 Hellfire events per year that can take place in MLTR during any season, so

there are 17.5 events modeled for each season.

TABLE 6. NUMBER OF EXPLOSIVE EVENTS WITHIN THE JAX RANGE COMPLEX

Sub-Area	Ordnance	Winter	Spring	Summer	Fall	Annual Totals
	MISSILEX					73
MLTR	Hellfire	17.5	17.5	17.5	17.5	
MLTR	Maverick	0.75	0.75	0.75	0.75	
	FIREX					10
BB, CC	5″ rounds	0**	0**	20	5	
	MINEX					12
UNDET North	20 LB	1.25	1.25	1.25	1.25	
UNDET South	20 LB	1.25	1.25	1.25	1.25	
	Small Arms Training					80
UNDET North	MK3A2 anti-swimmer concussion grenade (0.5 lbs NEW)	10	10	10	10	
UNDET South	MK3A2 anti-swimmer concussion grenade (0.5 lbs NEW)	10	10	10	10	

* See Figure 1 of the LOA application for the location of sub-areas.
** In accordance with the current biological opinion for the Southeast, no live FIREX is conducted during North atlantic right whale calving season (December 1 - March 31) and therefore no modeling was completed for the winter and spring season.

Acoustic Environment

Sound propagation (the spreading or attenuation of sound) in the oceans of the world is affected by several environmental factors: water depth, variations in sound speed within the water column, surface roughness, and the geo-acoustic properties of the ocean bottom. These parameters can vary widely with location.

Four types of data are used to define the acoustic environment for each analysis site:

Seasonal Sound Velocity Profiles (SVP) – Plots of propagation speed (velocity) as a function of depth, or SVPs, are a fundamental tool used for predicting how sound will travel. Seasonal SVP averages were obtained for each training area.

Seabed Geo-acoustics – The type of sea floor influences how much sound is absorbed and how much sound is reflected back into the water column.

Wind Speeds – Several environmental inputs, such as wind speed and surface roughness, are necessary to model acoustic propagation in the prospective training areas.

Bathymetry data – Bathymetry data are necessary to model acoustic propagation and were obtained for each of the training areas.

Acoustic Effects Analysis

The acoustic effects analysis presented in the following sections is briefly described for each major type of exercise. A more in-depth effects analysis is in Appendix A of the LOA application s and the Addendum.

1. FIREX (with IMPASS)

Modeling was completed for a 5–in. round, 8–lb NEW charge exploding at a depth of 1 ft (0.3 m). The analytical approach begins using a high-fidelity acoustic model to estimate energy in each 5–in explosive round. Impact areas are calculated by summing the energy from multiple explosions over a firing exercise (FIREX) mission, and determining the impact area based on the thresholds and criteria. Level B exposures were determined based on the 177 dB re 1 microPa^2–sec (energy) criteria for behavioral disturbance (without TTS) due to the use of multiple explosions.

Impact areas for a full FIREX (with IMPASS) event must account for the time and space distribution of 39 explosions, as well as the movement of animals over the several hours of the exercise. The total impact area for the 39–shot event is calculated as the sum of small impact areas for seven FIREX missions (each with four to six rounds fired) and one pre-FIREX action (with six rounds fired). Table 7 shows the Zone of Influence (ZOI) results of the model estimation.

TABLE 7. ESTIMATED ZOIS (KM^2) FOR A SINGLE FIREX (WITH IMPASS) EVENT (39 ROUNDS)

Area*	Level B ZOI @ 177 dB re 1 μPa^2 sec (multiple detonations only)	Level B ZOI @ 23 psi	Level A ZOI @ 205 dB re 1 μPa^2 sec or 13 psi
BB, CC	6.1397**	3.7773	0.16464

*Please see Figure 1 on page 2-2 of the LOA application for the locations of these areas.

**In this area, which occurs in shallow water, the 177 dB re 1 microPa^2 sec behavioral disturbance criteria dominates over the 23 psi criteria and therefore was used in the analysis.

The ZOI, when multiplied by the animal densities and the total number of events (Table 6), provides the exposure estimates for that animal species for the nominal exercise case of 39 5–in explosive rounds. The potential effects would occur within a series of small effect areas associated with the pre-calibration rounds and missions spread out over a period of several hours. Additionally, target locations are changed from event to event and because of the time lag between events, it is highly unlikely, even if a marine mammal were present (not accounting for mitigation), that the marine mammal would be within the small exposure zone for more than one event.

FIREX (with IMPASS) is restricted to one location in the JAX Range Complex. In addition to other mitigation measures, dedicated lookouts would be onboard the ship monitors the target area for marine mammals before the exercise, during the deployment of the IMPASS array, and during the return to firing position. Ships will not fire on the target until the area is cleared and will suspend the exercise if any marine mammals enter the buffer area. Additionally, naval guns would only be fired in an easterly direction, away from the North Atlantic right whale critical habitat and the associated area of concern, thereby reducing potential exposures to this critically endangered species. Due to safety reasons, the buffer zone must remain clear of all types of platforms. During the actual firing of the weapon, the participants involved must be able to observe the intended ordnance impact area to ensure the area is free of range transients, however, this observation would be conducted from the firing position or other safe distance. Due to the distance between the firing position and the buffer zone, lookouts are only expected to visually detect breaching whales, whale blows, and large pods of dolphins and porpoises. Implementation of mitigation measures like these reduce the likelihood of exposure and potential effects in the ZOI.

2. MINEX

The Comprehensive Acoustic System Simulation/Gaussian Ray Bundle (OAML, 2002) model, modified to account for impulse response, shock-wave waveform, and nonlinear shock-wave effects, was run for acoustic-environmental conditions derived from the Oceanographic and Atmospheric Master Library (OAML) standard databases. The explosive source was modeled with standard similitude formulas, as in the Churchill FEIS. Because all the sites are shallow (less than 50 m), propagation model runs were made for bathymetry in the range from 10 m to 40 m.

Estimated ZOIs varied as much within a single area as from one area to another, which had been the case for the Virtual At Sea Training/IMPASS (DoN, 2003). There was, however, little seasonal dependence. As a result, the ZOIs are stated as mean values with a percentage variation. Generally, in the case of ranges determined from energy metrics, as the depth of water increases, the range shortens. The single explosion TTS-energy criterion (182 dB re 1 microPa^2–sec) was dominant over the pressure criteria and therefore used to determine the ZOI for the Level B exposure analysis. Table 8 shows the ZOI results of the model estimation.

The total ZOI, when multiplied by the animal densities and total number of events (Table 5), provides the exposure estimates for that animal species for each specified charge. Because of the time lag between detonations, it is highly unlikely, even if a marine mammal were present (not accounting for mitigation), that the marine mammal would be within the small exposure zone for more than one detonation. The underwater detonations are restricted to two boxes (Undet North, Undet South) designated in a Biological Opinion issued by NMFS located approximately 5 - 30 km (3.1 - 18.6 mi) offshore from Charleston, South Carolina. In addition to other mitigation measures (see Proposed Mitigation Measures section below), observers will survey the target area for marine mammals and sea turtles for 30 minutes prior through 30 minutes post detonation. Detonations will be suspended if a marine mammal enters the Zone of Influence and will only restart after the area has been clear for a full 30 minutes. Implementation of mitigation measures like these reduce the likelihood of exposure and potential effects in the ZOI.

TABLE 8. ESTIMATED ZOIS (KM^2) FOR MINEX

Threshold	ZOIs	
	5-lb shot	20-lb shot
Level A ZOI @ 13 psi	0.03 km^2 ± 10%	0.13 km^2 ± 10%
Level B ZOI @ 182 dB re 1 microPa^2-sec	0.2 km^2 ± 25%	0.8 km^2 ± 25%

3. MISSILEX (Hellfire and Maverick)

Modeling was completed for two of the explosive missiles involved in MISSILEX, each assumed detonation at 1–m (3.3 ft) depth. The NEW used in simulations of the Hellfire and Maverick missiles are 8 lbs and 80 lbs, respectively. The single explosion TTS-energy criterion (182 dB re 1 microPa^2–sec) was used to determine the ZOI for the Level B exposure analysis. Table 9 shows the ZOI results of the model estimation. The total ZOI, when multiplied by the animal densities and total number of events (Table 6), provides the exposure estimates for that animal species for each specified missile. Because of the time lag between detonations, it is highly unlikely, even if a marine mammal were present (not accounting for mitigation), that the marine mammal would be within the small exposure zone for more than one detonation. MISSILEX is only conducted in one area, the Missile Laser Training Area (MLTR) in the JAX Range Complex. Ships will not fire on the target until the area is clear of marine mammals, and will suspend the exercise if any enter the buffer area. Implementation of mitigation measures like these reduce the likelihood of exposure and potential effects in the ZOI.

TABLE 9. ESTIMATED ZOIS (KM^2) FOR MISSILEX

Area	Ordnance	@ 182 dB re 1 microPa^2-s Level B ZOI or 23 psi				@ 205 dB re 1 microPa^2-s Level A ZOI or 13 psi				Mortality ZOI @ 30.5 psi			
		Win	Spr	Sum	Fall	Win	Spr	Sum	Fall	Win	Spr	Sum	Fall
MLTR	Hellfire	0.89	0.73	0.64	0.73	0.02	0.02	0.02	0.02	<0.01	<0.01	<0.01	<0.01
MLTR	Maverick	0.91	0.91	0.79	0.91	0.11	0.07	0.07	0.11	<0.01	<0.01	<0.01	<0.01

4. Small Arms Training – Explosive hand grenades

A quantitative analysis was conducted for MK3A2 anti-swimmer concussion grenades. A very low NEW (0.5–lb) is associated with this ordnance. In a previous Biological Opinion, the NMFS calculated the potential range within which sea turtles may be affected based on equations presented in Young (1991). The result was a ''safe range'' designed for zero injury to species within the calculated range. Equations specific to marine mammals, as presented in Young (1991), are as follows:

Adult porpoise – $R_{AP} = 434\ W_E^{0.28}$

20 ft. whale – $R_W = 327\ W_E^{0.28}$

(R = range in feet, W_E = weight of explosive in pounds)

For an adult porpoise, the ''safe range'' is 114 yards (104 m); for a large whale (20 ft), the safe range is 86 yards (79 m). The ''safe range'' for an adult porpoise was used as a representative ZOI for marine mammals. The ZOI will be visually monitored during operations for all marine mammal species.

Summary of Potential Exposures from Explosive Ordnance Use

Explosions that occur in the OPAREA are associated with training exercises that use explosive ordnance, which include missiles (MISSILEX), 5–in. explosive naval gun shells with IMPASS (FIREX), underwater detonations associated with Mine Neutralization training (MINEX), and hand grenades associated with small arms training. Explosive ordnance use is limited to specific training areas.

(1) MISSILEX, MINEX, and FIREX

An explosive analysis was conducted to estimate the number of marine mammals that could be exposed to impacts from explosions. Table 10 provides a summary of the explosive analysis results. Exposure estimates could not be calculated for several species (blue whale, sei whale, Bryde's whale, killer whale, pygmy killer whale, false killer whale, melon-headed whale, spinner dolphin, Fraser's dolphin, Atlantic white-sided dolphin, and harbor porpoise) because density data could not be calculated due to the limited available data for these species; however, the likelihood of exposure for species not expected to occur in the JAX Range Complex should be even lower than that estimated for species with occurrence frequent enough for densities to be calculated. In addition to the low likelihood of exposure, the mitigation measures presented below in this document would be implemented thus the level of impacts would be less than expected. Since the blue whale, sei whale, Bryde's whale, killer whale, pygmy killer whale, false killer whale, melon-headed whale, spinner dolphin, Fraser's dolphin, Atlantic white-sided dolphin, and harbour porpoise are considered rare in the Jacksonville Range Complex, no exposures are expected for these species. Fin, humpback whales, and sperm whales will have high detections rates at the surface because of their large body size and pronounced blows. Because of large group sizes, it is likely that lookouts would detect Atlantic spotted dolphins, bottlenose dolphins, Clymene dolphins, common dolphins, pantropical spotted dolphins, Risso's dolphins, rough-toothed dolphins, and striped dolphins. Implementation of mitigation measures will reduce the likelihood of exposure and potential effects.

TABLE 10. SUMMARY OF POTENTIAL EXPOSURES FROM EXPLOSIVE ORDNANCE (PER YEAR) FOR MARINE MAMMALS IN THE JAX RANGE COMPLEX

Species/Training Operation	Potential Exposures @ 177 dB re 1 microPa^2-s (multiple detonations only)	Potential Exposures @ 182 dB re 1 microPa^2-s or 23 psi	Potential Exposures @ 205 dB re 1 microPa^2-s or 13 psi	Potential Exposures @ 30.5 psi
Fin whale				
MISSILEX training	NA	0	0	0
FIREX training	0	NA	0	0
MINEX training	NA	0	0	0
Total Exposures	0	0	0	0
Humpback whale				
MISSILEX training	NA	0	0	0
FIREX training	0	NA	0	0
MINEX training	NA	0	0	0
Total Exposures	0	0	0	0

TABLE 10. SUMMARY OF POTENTIAL EXPOSURES FROM EXPLOSIVE ORDNANCE (PER YEAR) FOR MARINE MAMMALS IN THE JAX RANGE COMPLEX—Continued

Species/Training Operation	Potential Exposures @ 177 dB re 1 microPa^2-s (multiple detonations only)	Potential Exposures @ 182 dB re 1 microPa^2-s or 23 psi	Potential Exposures @ 205 dB re 1 microPa^2-s or 13 psi	Potential Exposures @ 30.5 psi
North Atlantic right whale				
MISSILEX training	NA	0	0	0
FIREX training	0	NA	0	0
MINEX training	NA	0	0	0
Total Exposures	0	0	0	0
Sperm whale				
MISSILEX training	NA	0	0	0
FIREX training	0	NA	0	0
MINEX training	NA	0	0	0
Total Exposures	0	0	0	0
Atlantic Spotted dolphin				
MISSILEX training	NA	31	1	0
FIREX training	23	NA	1	0
MINEX training	NA	0	0	0
Total Exposures	23	33	2	0
Beaked whale				
MISSILEX training	NA	0	0	0
FIREX training	0	NA	0	0
MINEX training	NA	0	0	0
Total Exposures	0	0	0	0
Bottlenose dolphin				
MISSILEX training	NA	3	0	0
FIREX training	10	NA	0	0
MINEX training	NA	2	0	0
Total Exposures	10	5	0	0
Clymene dolphin				
MISSILEX training	NA	1	0	0
FIREX training	1	NA	0	0
MINEX training	NA	0	0	0
Total Exposures	1	1	0	0
Common dolphin				
MISSILEX training	NA	0	0	0
FIREX training	0	NA	0	0
MINEX training	NA	0	0	0
Total Exposures	0	0	0	0

TABLE 10. SUMMARY OF POTENTIAL EXPOSURES FROM EXPLOSIVE ORDNANCE (PER YEAR) FOR MARINE MAMMALS IN THE JAX RANGE COMPLEX—Continued

Species/Training Operation	Potential Exposures @ 177 dB re 1 microPa^2-s (multiple detonations only)	Potential Exposures @ 182 dB re 1 microPa^2-s or 23 psi	Potential Exposures @ 205 dB re 1 microPa^2-s or 13 psi	Potential Exposures @ 30.5 psi
Kogia spp.				
MISSILEX training	NA	0	0	0
FIREX training	0	NA	0	0
MINEX training	NA	0	0	0
Total Exposures	0	0	0	0
Minke whale				
MISSILEX training	NA	0	0	0
FIREX training	0	NA	0	0
MINEX training	NA	0	0	0
Total Exposures	0	0	0	0
Pantropical spotted dolphin				
MISSILEX training	NA	1	0	0
FIREX training	1	NA	0	0
MINEX training	NA	0	0	0
Total Exposures	1	1	0	0
Pilot whales				
MISSILEX training	NA	0	0	0
FIREX training	1	NA	0	0
MINEX training	NA	0	0	0
Total Exposures	1	0	0	0
Risso's dolphin				
MISSILEX training	NA	0	0	0
FIREX training	3	NA	0	0
MINEX training	NA	0	0	0
Total Exposures	3	0	0	0
Rough-toothed dolphin				
MISSILEX training	NA	0	0	0
FIREX training	0	NA	0	0
MINEX training	NA	0	0	0
Total Exposures	0	0	0	0
Striped dolphin				
MISSILEX training	NA	0	0	0
FIREX training	0	NA	0	0
MINEX training	NA	0	0	0

TABLE 10. SUMMARY OF POTENTIAL EXPOSURES FROM EXPLOSIVE ORDNANCE (PER YEAR) FOR MARINE MAMMALS IN THE JAX RANGE COMPLEX—Continued

Species/Training Operation	Potential Exposures @ 177 dB re 1 microPa^2-s (multiple detonations only)	Potential Exposures @ 182 dB re 1 microPa^2-s or 23 psi	Potential Exposures @ 205 dB re 1 microPa^2-s or 13 psi	Potential Exposures @ 30.5 psi
Total Exposures	0	0	0	0

Note: Events were either modeled for 177 dB re 1 microPa^2 sec due to multiple detonations (MISSILEX and FIREX) or modeled for 182 dB re 1 microPa^2 sec or 23 psi due to single detonations (MISSILEX and MINEX). Therefore, for FIREX the NA refers to the criteria that were less dominant and therefore not used in the analysis. For MISSILEX and MINEX the NA refers to the fact that these events are not multiple detonations and therefore not modeled at 177 dB re 1 microPa^2 sec.

(2) Small Arms Training – Explosive hand grenades

A quantitative explosive analysis was conducted to estimate the exposure of marine mammals to impacts from ordnance use associated with small arms training. The explosive ordnance used in small arms training includes the MK3A2 anti-swimmer concussion grenades. A very low NEW (0.5–lbs) is associated with this ordnance. These detonations occur in the very shallow waters (< 30 m, or 98 ft) of the UNDET North and South boxes and detonate at a depth of no greater than 3 m (9.8 ft). Most of the marine mammal species that may occur in the JAX Range Complex are known to occur in waters with depths of less than 30 m (98 ft).

Using the 114 yd (104 m) ''safe range'' calculated for the MK3A2 anti-swimmer concussion grenades as a representative ZOI (0.034 km^2), potential exposures were calculated. No exposures for any marine mammal species were estimated.

For all marine mammal species, small arms training exercises are not expected to result in Level A or Level B harassment as defined by the MMPA and therefore will not likely affect annual rates of recruitment or survival of the species. Furthermore, the mitigation measures described in later in this document are designed to reduce exposure of marine mammals to potential impacts to achieve the least practicable adverse effect on marine mammal species or populations.

VI. Potential Effects of Exposures to Explosives

Effects from exposure to explosives vary depending on the level of exposure.

Animals exposed to levels that constitute MMPA Level B harassment may experience a behavioral disruption from the use of explosive ordnance. Behavioral responses can include shorter surfacings, shorter dives, fewer blows per surfacing, longer intervals between blows (breaths), ceasing or increasing vocalizations, shortening or lengthening vocalizations, and changing frequency or intensity of vocalizations (NRC, 2005). However, it is not known how these responses relate to significant effects (e.g., long-term effects or population consequences) (NRC, 2005). In addition, animals exposed to levels that constitute MMPA Level B harassment may experience a temporary threshold shift (TTS), which may result in a slight, recoverable loss of hearing sensitivity (DoN, 2001).

Exposures that reach Level A harassment may result in long-term injuries such as permanent threshold shift (PTS). The resulting injuries may limit an animal's ability to find food, communicate with other animals, and/or interpret the environment around them. Impairment of these abilities can decrease an individual's chance of survival or impact their ability to successfully reproduce. Level A harassment will have a long-term impact on an exposed individual.

Mortality of an animal would remove the animal entirely from the population as well as eliminate any future reproductive potential.

Based on best available science, NMFS preliminarily concludes that takes due to explosive ordnance and underwater detonations would result in only short-term effects to most individuals exposed and would likely not affect annual rates of recruitment or survival of the species. The mitigation measures presented below would further reduce the potential for exposures, and there would be no mortality of marine mammals from the proposed training activities. Table 11 provides a list of potential takes of marine mammal species as a result of the proposed JAX Range Complex training activities.

TABLE 11. SUMMARY OF POTENTIAL TAKES FROM EXPLOSIVE ORDNANCE (PER YEAR) FOR MARINE MAMMALS IN THE JAX RANGE COMPLEX

Species	Level B harassment	Level A harassment	Mortality
Atlantic spotted dolphin	56	2	0
Bottlenose dolphin	15	0	0
Clymene dolphin	2	0	0
Pantropical spotted dolphin	2	0	0
Pilot whale	1	0	0
Risso's dolphin	3	0	0

Proposed Mitigation Measures

General Maritime Measures

The mitigation measures presented below would be taken by Navy personnel on a regular and routine basis. These are routine measures and are considered ''Standard Operating Procedures.≥

I. Personnel Training – Lookouts

The use of shipboard lookouts is a critical component of all Navy standard operating procedures. Navy shipboard lookouts (also referred to as ''watchstanders'') are qualified and experienced observers of the marine environment. Their duties require that they report all objects sighted in the water to the Officer of the Deck (OOD) (e.g., trash, a periscope, marine mammals, sea turtles) and all disturbances (e.g., surface disturbance, discoloration) that may be indicative of a threat to the vessel and its crew. There are personnel serving as lookouts on station at all times (day and night) when a ship or surfaced submarine is moving through the water.

For the past few years, the Navy has implemented marine mammal spotter training for its bridge lookout personnel on ships and submarines. This training has been revamped and updated as the Marine Species Awareness Training (MSAT) and is provided to all applicable units. The lookout training program incorporates MSAT, which addresses the lookout's role in environmental protection, laws governing the protection of marine species, Navy stewardship commitments, and general observation information, including more detailed information for spotting marine mammals. MSAT has been reviewed by NMFS and acknowledged as suitable training. MSAT may also be viewed on-line at *https://portal.navfac.navy.mil/go/msat*

1. All bridge personnel, Commanding Officers, Executive Officers, officers standing watch on the bridge, maritime patrol aircraft aircrews, and Mine Warfare (MIW) helicopter crews will complete MSAT.

2. Navy lookouts would undertake extensive training to qualify as a watchstander in accordance with the Lookout Training Handbook (NAVEDTRA 12968–D).

3. Lookout training will include on-the-job instruction under the supervision of a qualified, experienced watchstander. Following successful completion of this supervised training period, lookouts will complete the Personal Qualification Standard Program, certifying that they have demonstrated the necessary skills (such as detection and reporting of partially submerged objects).

4. Lookouts will be trained in the most effective means to ensure quick and effective communication within the command structure to facilitate implementation of protective measures if marine species are spotted.

5. Surface lookouts would scan the water from the ship to the horizon and be responsible for all contacts in their sector. In searching the assigned sector, the lookout would always start at the forward part of the sector and search aft (toward the back). To search and scan, the lookout would hold the binoculars steady so the horizon is in the top third of the field of vision and direct the eyes just below the horizon. The lookout would scan for approximately five seconds in as many small steps as possible across the field seen through the binoculars. They would search the entire sector in approximately five-degree steps, pausing between steps for approximately five seconds to scan the field of view. At the end of the sector search, the glasses would be lowered to allow the eyes to rest for a few seconds, and then the lookout would search back across the sector with the naked eye.

6. At night, lookouts would not sweep the horizon with their eyes, because eyes do not see well when they are moving. Lookouts would scan the horizon in a series of movements that would allow their eyes to come to periodic rests as they scan the sector. When visually searching at night, they would look a little to one side and out of the corners of their eyes, paying attention to the things on the outer edges of their field of vision. Lookouts will also have night vision devices available for use.

II. Operating Procedures and Collision Avoidance

1. Prior to major exercises, a Letter of Instruction, Mitigation Measures Message or Environmental Annex to the Operational Order will be issued to further disseminate the personnel training requirement and general marine species mitigation measures.

2. Commanding Officers will make use of marine species detection cues and information to limit interaction with marine species to the maximum extent possible consistent with safety of the ship.

3. While underway, surface vessels will have at least two lookouts with binoculars; surfaced submarines will have at least one lookout with binoculars. Lookouts already posted for safety of navigation and man-overboard precautions may be used to fill this requirement. As part of their regular duties, lookouts will watch for and report to the OOD the presence of marine mammals.

4. Personnel on lookout will employ visual search procedures employing a scanning method in accordance with the Lookout Training Handbook (NAVEDTRA 12968–D).

5. After sunset and prior to sunrise, lookouts will employ Night Lookouts Techniques in accordance with the Lookout Training Handbook (NAVEDTRA 12968–D).

6. While in transit, naval vessels will be alert at all times, use extreme caution, and proceed at a ''safe speed'' so that the vessel can take proper and effective action to avoid a collision with any marine animal and can be stopped within a distance appropriate to the prevailing circumstances and conditions.

7. When whales have been sighted in the area, Navy vessels will increase vigilance and shall implement measures to avoid collisions with marine mammals and avoid activities that might result in close interaction of naval assets and marine mammals. Actions shall include changing speed and/or direction and are dictated by environmental and other conditions (e.g., safety, weather).

8. Naval vessels will maneuver to keep at least 500 yds (460 m) away from any observed whale and avoid approaching whales head-on. This requirement does 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 operations, launching and recovering aircraft or landing craft, minesweeping operations, replenishment while underway and towing operations 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.

9. Where feasible and consistent with mission and safety, vessels will avoid closing to within 200–yd (183 m) of marine mammals other than whales (whales addressed above).

10. Floating weeds, algal mats, Sargassum rafts, clusters of seabirds, and jellyfish are good indicators of marine mammals. Therefore, increased vigilance in watching for marine mammals will be taken where these are present.

11. Navy aircraft participating in exercises at sea will conduct and maintain, when operationally feasible and safe, surveillance for marine species of concern as long as it does not violate safety constraints or interfere with the accomplishment of primary operational duties. Marine mammal detections will be immediately reported to assigned Aircraft Control Unit for further dissemination to ships in the vicinity of the marine species as appropriate where it is reasonable to conclude that the course of the ship will likely result in a closing of the distance to the detected marine mammal.

12. All vessels will maintain logs and records documenting training operations should they be required for event reconstruction purposes. Logs and records will be kept for a period of 30 days following completion of a major training exercise.

Coordination and Reporting Requirements

The Navy will coordinate with the local NMFS Stranding Coordinator for any unusual marine mammal behavior and any stranding, beached live/dead, or floating marine mammals that may occur at any time during or within 24 hours after completion of training activities. Additionally, the Navy will follow internal chain of command reporting procedures as promulgated through Navy instructions and orders.

Mitigation Measures Applicable to Vessel Transits in the Mid-Atlantic during North Atlantic Right Whale Migration

For purposes of these measures, the mid-Atlantic is defined broadly to include ports south and east of Block Island Sound southward to South Carolina. The procedure described below would be established as mitigation measures for Navy vessel transits during Atlantic right whale migratory seasons near ports located off the western North Atlantic, offshore of the eastern United States. The mitigation measures would apply to all Navy vessel transits, including those vessels that would transit to and from East Coast ports and OPAREAs. Seasonal migration of right whales is generally described by NMFS as occuring from October 15th through April 30th, when right whales migrate between feeding grounds farther north and calving grounds farther south. The Navy mitigation measures have been established in accordance with rolling dates identified by NMFS consistent with these seasonal patterns.

NMFS has identifed ports located in the western Atlantic Ocean, offshore of the southeastern United States, where vessel transit during right whale migration is of highest concern for potential ship strike. The ports include the Hampton Roads entrance to the Chesapeake Bay, which includes the concentration of Atlantic Fleet vessels in Norfolk, Virginia. Navy vessels are required to use extreme caution and operate at a slow, safe speed consistent with mission and safety during the months indicated in Table 12 below and within a 20 nm (37 km) arc (except as noted) of the specified reference points.

During the indicated months, Navy vessels would practice increased vigilance with respect to avoidance of vessel-whale interactions along the mid-Atlantic coast, including transits to and from any mid-Atlantic ports not specifically identified above.

TABLE 12. NORTH ATLANTIC RIGHT WHALE MIGRATION PORT REFERENCES

Region	Months	Port Reference Points
South and East of Block Island	Sep-Oct and Mar-Apr	37 km (20 nm) seaward of line 41°4.49 N, 71°51.15 W and 41°18.58 N, 70°50.23 W
New York/New Jersey	Sep-Oct and Feb-Apr	40°30.64 N, 73°57.76 W
Delaware Bay (Philadelphia)	Oct-Dec and Feb-Mar	38°52.13 N, 75°01.93 W
Chesapeake Bay (Hampton Roads and Baltimore)	Nov-Dec and Feb-Apr	37°01.11 N, 75°57.56 W
North Carolina	Dec-Apr	34°41.54 N, 76°40.20 W
South Carolina	Oct-Apr	33°11.84 N, 79°08.99 W and 32°43.39 N, 79°48.72 W

I. Additional Mitigation Measures in the SE Region

During North Atlantic right whale calving season, FACSFAC JAX provides an information resource through the right whale sightings clearinghouse. During calving season and within the consultation area (roughly an area to 80 nm seaward from Charleston, South Carolina, south to Sebastian Inlet, Florida) particular measures are in effect in accordance with the NMFS Biological Opinion issued in 1997 (NMFS, 1997).

The coastal waters off the Southeast United States (SEUS) support the only known calving ground for the North Atlantic right whale (NARW). In 2006, the Navy, U.S. Coast Guard (USCG), U.S. Army Corps of Engineers (USACE), and NMFS entered into a Memorandum of Agreement pursuant to the Endangered Species Act. The Early Warning System (EWS) is a result of that agreement and is a collaborative effort which involves comprehensive aerial surveys conducted daily, weather permitting, during the North Atlantic Right Whale calving season. East/west transects are flown from shoreline to approximately 30–35 nm offshore. Aerial surveys are conducted to locate NARW and provide whale detection and reporting information to mariners in the NARW calving ground in an effort to avoid collisions with these endangered species. When a NARW is sighted, information from the aerial survey aircraft is passed to a ground contact. The ground contact e-mails the sighting information to a wide network distribution which includes Fleet Area Control and Surveillance Jacksonville (FACSFAC JAX), the USCG, the USACE and non-profit and commercial interests. In addition, the ground contact will follow up with a call to FACSFAC JAX to provide additional information if required. FACSFAC JAX records this valuable information and disseminates to all navy vessels and aircraft operating in the consultation area through the Secret Internet Protocol Router Network (SIPRNET) system. General sighting information and reporting procedures are broadcasted over the following methods: the NOAA weather radio; USCG NAVTEX system

and a Broadcast Notice to Mariners over VHF marine-band radio channel 16. The EWS is a wide communication effort to ensure all vessels are aware of the most recent right whale sightings as an avoidance measure.

II. Measures Applicable to the ''Consultation Area'' in the JAX/CHASN OPAREAs during North Atlantic Right Whale Calving Season

The following measures from the NMFS Biological Opinion issued in 1997 (NMFS, 1997) will be implemented:

1. Naval vessels operating within North Atlantic right whale critical habitat and the Associated Area of Concern (AAOC) will exercise extreme caution and use slow safe speed, that is, the slowest speed that is consistent with essential mission, training, and operations.

2. Exercise extreme caution and use slow, safe speed when a whale is sighted by a vessel or when the vessel is within 5 nm of a reported new sighting less than 12 hours old.

3. Circumstances could arise where, in order to avoid North Atlantic right whale(s), speed reductions could mean vessels must reduce speed to a minimum at which it can safety keep on course (bare steerageway) or vessels could come to an all stop.

4. During the North Atlantic right whale calving season north-south transits through the critical habitat are prohibited, except for those exercises that necessarily operate at a slow, safe speed. Naval vessel transits through the area shall be in an east-west direction, and shall use the most direct route available during the calving season.

5. Naval vessel operations in the North Atlantic right whale critical habitat and AAOC during the calving season will be undertaken during daylight and periods of good visibility, to the extent practicable and consistent with mission, training, and operation. When operating in the critical habitat and AAOC at night or during periods of poor visibility, vessels will operate as if in the vicinity of a recently reported NARW sighting.

6. Command, Control and Communication.

- FACSFAC JAX shall coordinate ship/aircraft clearance into the operating area based on prevailing conditions, including water temperature, weather conditions, whale sighting data, mission or event to be conducted and other pertinent information. Commander Submarine Atlantic (COMSUBLANT) will coordinate any submarine operations that may require clearance with FACSFAC JAX. FASFAC JAX will provide data to ships and aircraft, including USCG if requested, and will recommend modifying, moving or canceling events as needed to prevent whale encounters. Commander Submarine Group Ten (COMSUBGRU TEN) will provide same information/guidance to subs.
- Prior to transiting or training in the critical habitat ships will contact FASFAC JAX to obtain latest whale sighting and other information needed to make informed decisions regarding safe speed and path of intended movement. Subs shall contact COMSUBGRU TEN for similar information. Ships and aircraft desiring to train/operate inside the critical habitat or within the warning/operating area shall coordinate clearance with FASFAC JAX. Subs shall obtain same clearance from CTF–82 (COMSUBLANT).
- FACSFAC JAX will coordinate local procedures for whale data entry, update, retrieval and dissemination using joint maritime command information system. Ships not yet Officer in Tactical Command Information Exchange subsystem capable, including USCG, will communicate via satellite communication, telephone system or international marine/maritime satellite.

7. The only type of exercise that may be conducted inside the critical habitat and AAOC in calving season is precision anchorage drills and swept channel exercises. In addition, use of the Shipboard Electronic System Evaluation Facility range is authorized with clearance and advice from FACSFAC JAX.

Proposed Mitigation Measures for Specific At-sea Training Events

These actions are standard operating procedures that are in place currently and will be used in the future for all activities being analyzed in this LOA request.

I. Firing Exercise (FIREX) Using the Integrated Maritime Portable Acoustic Scoring System (IMPASS) (5–in Explosive Rounds)

In accordance with the NMFS Biological Opinion issued in 1997 (NMFS, 1997), the Navy has been conducting FIREX using IMPASS in one location in the JAX Study Area: Areas AA, BB and CC (see Figure 1 of the LOA application), which are adjacent to one another. Under the Biological Opinion, explosive ordnance could be used only in Areas BB and CC during non-North Atlantic right whale calving season. Recent explosive and non-explosive ordnance exposure analysis concluded there is no seasonal difference in exposure for the North Atlantic right whale between any of the gunnery boxes because there is no difference in densities between these areas; therefore, the restriction on the use of Area AA is unnecessary during calving season. Regardless, under the preferred alternative Area AA would continue to be restricted to avoid proximity to North Atlantic right whale critical habitat. This restriction is operationally feasible because the additional steaming time from the homeport of ships conducting FIREX with IMPASS (e.g. Naval Station Mayport, Florida) is not significantly greater than the steaming time required to reach Area AA. Further, surface ships conducting FIREX using IMPASS do not have strict distance from land restrictions like those imposed on aircraft that embark from shore-based facilities.

The following measures would be implemented for FIREX using IMPASS:

1. This activity would only occur in Areas BB and CC.

2. During North Atlantic right whale calving season no explosive ordnance will be used.

3. Pre-exercise monitoring of the target area will be conducted with ''Big Eyes'' prior to the event, during deployment of the IMPASS sonobuoy array, and during return to the firing position. Ships would maintain a lookout dedicated to visually searching for marine mammals and sea turtles 180 along the ship track line and 360 at each buoy drop-off location.

4. ''Big Eyes'' on the ship will be used to monitor a 600 yard (548 m) buffer zone for marine mammals during naval-gunfire events. Due to the distance between the firing position and the buffer zone, lookouts are only expected to visually detect breaching whales, whale blows, and large pods of dolphins and porpoises.

5. Ships will not fire on the target if marine mammals are detected within or approaching the 600 yd (548 m) buffer zone until the area is cleared. If marine mammals are present, operations would be suspended. Visual observation will occur for approximately 45 minutes, or until the animal has been observed to have cleared the area and is heading away from the buffer zone.

6. Post-exercise monitoring of the entire effect range will take place with ''Big Eyes'' and the naked eye during the retrieval of the IMPASS sonobuoy array following each firing exercise.

7. FIREX with IMPASS will take place during daylight hours only.

8. FIREX with IMPASS will only be used in Beaufort Sea State three (3) or less.

9. The visibility must be such that the fall of shot is visible from the firing ship during the exercise.

10. No firing will occur if marine mammals are detected within 70 yards (64 m) of the vessel.

II. Air-to-Surface Missile Exercises (Explosives)

Historically, this activity occurs in the Missile Laser Training Range (MLTR) in the JAX Study Area. This location was established to be far enough from shore to reduce civilian encounters (e.g., diving and recreational fishing), while remaining within 60 nm from shore-based facilities (the established flight distance restriction for helicopters during unit level training events).

The following measures will be implemented:

1. This activity will only occur in the Missile Laser Training Range (MLTR).

2. Aircraft will visually survey the target area for marine mammals. Visual inspection of the target area will be made by flying at 1,500 ft (457 m) altitude or lower, if safe to do so, and at slowest safe speed. Firing or range clearance aircraft must be able to actually see ordnance impact areas. Explosive ordnance shall not be targeted to impact within 1,800 yards (1,646 m) of sighted marine mammals.

III. Mine Neutralization Training Involving Underwater Detonations (up to and including 20–lb charges)

Mine neutralization involving underwater detonations occurs in shallow water (0 - 120 ft, or 0 - 36 m) and is executed by divers using SCUBA. NMFS issued a Biological Opinion (BO) in 2002 for UNDETs of up to 20–lbs explosive charges related to MINEX training (NMFS, 2002). This activity will occur in two locations: Undet North (10L) and Undet South (12I). These locations are offshore from Naval Weapons Station Charleston, South Carolina, a restricted-access Naval Installation. These locations have low bathymetric relief and a sand-silt bottom.

These exercises utilize small boats that deploy from shore based facilities. Often times these small boats are rigid-hulled inflatable boats, which are designed for shallow water and have limited seaworthiness necessitating a nearshore location. The exercise is a one-day event that occurs only during daylight hours; therefore, the distance from shore is limited.

1. Underwater detonations are restricted to Undet North and Undet South. These sites are located in the Charleston/JAX OPAREAs offshore of Charleston, South Carolina.

2. Observers will survey the buffer zone, a 700 yds (640 m) radius from detonation location, for marine mammals and sea turtles from all participating vessels during the entire operation. A survey of the buffer zone (minimum of three parallel tracklines 219 yds (200 m) apart using support craft will be conducted at the detonation location 30 minutes prior through 30 minutes post detonation. During late July through October, an additional surface observer will be added to more carefully look for hatchling turtles in the buffer zone. Aerial survey support will be utilized whenever assets are available.

3. Detonation operations will be conducted during daylight hours only.

4. If a marine mammal is sighted within the buffer zone, the animal will be allowed to leave of its own volition. The Navy will suspend detonation exercises and ensure the area is clear for a full 30 minutes prior to detonation.

5. Divers placing the charges on mines and dive support vessel personnel will survey the area for marine mammals and will report any sightings to the surface observers. These animals will be allowed to leave of their own volition and the buffer zone will be clear for 30 minutes prior to detonation.

6. No detonations will take place within 3.2 nm (5.93 km) of an estuarine inlet (e.g., Charleston Harbor).

7. No detonations will take place within 1.6 nm (2.96 km) of shoreline.

8. No detonations will take place within 1,000 ft (305 m) of any known artificial reef, shipwreck, or live hard-bottom community.

9. Personnel will record any protected species observations during the exercise as well as measures taken if species are detected within the buffer zone.

IV. Small Arms Training – Explosive hand grenades (such as the MK3A2 grenades)

1. Lookouts will visually survey for floating weeds, algal mats, Sargassum rafts, marine mammals, and sea turtles.

2. A 200 yd (182 m) radius buffer zone will be established around the intended target. The exercises will be conducted only if the buffer zone is clear of sighted marine mammals.

Adaptive Management

The final regulations governing the take of marine mammals incidental to Navy training exercises in JAX Range Complex will contain an adaptive management component. The use of adaptive management will give NMFS the ability to consider new data from different sources to determine (in coordination with the Navy), on an annual basis, if new or modified mitigation or monitoring measures are appropriate for subsequent annual LOAs. Following are some of the possible sources of applicable data:

- Results from the Navy's monitoring from the previous year (either from JAX or other locations)
- Compiled results of Navy funded research and development (R&D) studies (presented pursuant to the ICMP, which is discussed elsewhere in this document)
- Results from general marine mammal and sound research (funded by the Navy (described below) or otherwise)

Mitigation measures could be modified or added if new data suggests that such modifications would have a reasonable likelihood of accomplishing the goals of mitigation laid out in this proposed rule and if the measures are practicable. NMFS would also coordinate with the Navy to modify or add to the existing monitoring requirements if the new data suggest that the addition of a particular measure would more effectively accomplish the goals of monitoring laid out in this proposed rule. The reporting requirements associated with this rule are designed to provide NMFS with monitoring data from the previous year to allow NMFS to consider the data in issuing annual LOAs. NMFS and the Navy will meet annually prior to LOA issuance to discuss the monitoring reports, Navy R&D developments, and current science and whether mitigation or monitoring modifications are appropriate.

Monitoring and Reporting Measures

The Navy would be required to cooperate with the NMFS, and any other Federal, state or local agency monitoring the impacts of the activity on marine mammals.

The Navy must notify NMFS immediately (or as soon as clearance procedures allow) if the specified activity is thought to have resulted in the mortality or injury of any marine mammals, or in any take of marine mammals not identified in this document.

The Navy must conduct all monitoring and/or research required under the Letter of Authorization, if issued.The monitoring methods proposed for use during training events in the JAX Range Complex include a combination of individual elements designed to allow a comprehensive assessment include:

(1) Vessel and aerial surveys

(i) Visual surveillance of 2 events per year. The primary goal will be to survey

two different types of explosive events with one of them being a multiple detonation event.

(ii) For surveyed training events, aerial or vessel surveys will be used 1–2 days prior to, during if reasonably safe, and 1–5 days post detonation. The variation in the number of days after allows for the detection of animals that gradually return to an area, if they indeed do change their distribution in response to underwater detonation events.

(iii) Surveys will include any specified exclusion zone around a particular detonation point plus 2000 yards beyond the exclusion zone. For vessel-based surveys a passive acoustic system (hydrophone or towed array) could be used to determine if marine mammals are in the area before and/or after a detonation event. Depending on animals sighted, it may be possible to conduct focal surveys of animals outside of the exclusion zone (detonations could be delayed if marine mammals are observed within the exclusion zone) to record behavioral responses to the detonations.

(iv) When conducting a particular survey, the survey team will collect:

(A) species identification and group size;

(B) location and relative distance from the detonation site;

(C) the behavior of marine mammals including standard environmental and oceanographic parameters;

(D) date, time and visual conditions associated with each observation;

(E) direction of travel relative to the detonation site; and

(F) duration of the observation.

(v) An aerial survey team will conduct pre- and post-aerial surveys, taking local oceanographic currents into account, of the exercise area.

(2) Passive acoustic monitoring

(i) When practicable, a towed hydrophone array should be used whenever shipboard surveys are being conducted. The towed array would be deployed during daylight hours for each of the days the ship is at sea.

(ii) A towed hydrophone array is towed from the boat and can detect and localize marine mammals that vocalize and would be used to supplement the ship-based systematic line-transect surveys (particularly for species such as beaked whales that are rarely seen).

(iii) The array would need to detect low frequency vocalizations (< 1,000 Hz) for baleen whales and relatively high frequency vocalizations (up to 30 kHz) for odontocetes such as sperm whales. The use of two simultaneously deployed arrays can also allow more accurate localization and determination of diving patterns.

(3) Marine mammal observers on Navy platforms

(i) Marine mammal observers (MMOs) will be placed on a Navy platform during one of the exercises being monitored per year.

(ii) Qualifications must include expertise in species identification of regional marine mammal species and experience collecting behavioral data. Experience as a NMFS marine mammal observer is preferred, but not required. Navy biologists and contracted biologists will be used; contracted MMOs must have appropriate security clearance to board Navy platforms.

(iii) MMOs will not be placed aboard Navy platforms for every Navy training event or major exercise, but during specifically identified opportunities deemed appropriate for data collection efforts. The events selected for MMO participation will take into account safety, logistics, and operational concerns.

(iv) MMOs will observe from the same height above water as the lookouts.

(v) The MMOs will not be part of the Navy's formal reporting chain of command during their data collection efforts; Navy lookouts will continue to serve as the primary reporting means within the Navy chain of command for marine mammal sightings. The only exception is that if an animal is observed within the shutdown zone that has not been observed by the lookout, the MMO will inform the lookout of the sighting for the lookout to take the appropriate action through the chain of command.

(vi) The MMOs will collect species identification, behavior, direction of travel relative to the Navy platform, and distance first observed. All MMO sighting will be conducted according to a standard operating procedure.

The Navy would submit a report annually on September 1 describing the implementation and results (through June 1 of the same year) of the monitoring required above. Standard marine species sighting forms would be provided by the Navy and data collection methods will be standardized across ranges to allow for comparison in different geographic locations.

JAX Range Complex Comprehensive Report – The Navy will submit to NMFS a draft report that summarizes all of the marine mammal observations and data gathered during explosive exercises through June 1, 2012. This report will be submitted to NMFS at the end of the fourth year of the rule (November 2012).

The Navy will respond to NMFS comments on the draft comprehensive report if submitted within 3 months of receipt. The report will be considered final after the Navy has addressed NMFS' comments, or three months after the submittal of the draft if NMFS does not comment by then. To implement the aforementioned monitoring measures, the Navy is developing an Integrated Comprehensive Monitoring Program (ICMP) for marine species in order to assess the effects of training activities on marine species and investigate population-level trends in marine species distribution, abundance, and habitat use in various range complexes and geographic locations where Navy training occurs. Although the ICMP is intended to apply to all Navy training, use of mid-frequency active (MFA) sonar in training, testing, and research, development, test, and evaluation (RDT&E) will comprise a major component of the overall program.

The ICMP will establish the overarching structure and coordination that will facilitate the collection and synthesis of monitoring data from Navy training and research and development projects. The Program will compile data from range-specific monitoring efforts as well as research and development (R&D) studies that are fully or partially Navy-funded. Monitoring methods across the ranges will include methods such as vessel and aerial surveys, tagging, and passive acoustic monitoring.

The Navy will coordinate with the local NMFS Stranding Coordinator for any unusual marine mammal behavior and any stranding, beached live/dead, or floating marine mammals that may occur at any time during or within 24 hours after completion of explosives training activities.

Estimated Take of Marine Mammals

As mentioned previously, for purposes of MMPA authorizations, NMFS' effects assessments have two primary purposes (in the context of the JAX Range Complex Final Rule, LOA, subsequent LOA, if appropriate): (1) to put forth the permissible methods of taking within the context of MMPA Level B Harassment (behavioral harassment) and Level A Harassment (injury); and (2) to determine whether the specified activity will have a negligible impact on the affected species or stocks of marine mammals (based on the likelihood that the activity will adversely affect the species or stock through effects on annual rates of recruitment or survival).

In the *Assessment of Marine Mammal Response to Anthropogenic Sound* section, NMFS' analysis identified the lethal responses, physical trauma, sensory impairment (permanent and

temporary threshold shifts and acoustic masking), physiological responses (particular stress responses), and behavioral responses that could potentially result from exposures from explosive ordnance. In this section, we will relate the potential effects to marine mammals from underwater detonation of explosives to the MMPA regulatory definitions of Level A and Level B Harassment and attempt to quantify the effects that might occur from the specific training activities that the Navy is proposing in the JAX Range Complex.

Definition of Harassment

As mentioned previously, with respect to military readiness activities, Section 3(18)(B) of the MMPA defines ''harassment'' as: (i) any act that injures or has the significant potential to injure a marine mammal or marine mammal stock in the wild [Level A Harassment]; or (ii) any act that disturbs or is likely to disturb a marine mammal or marine mammal stock in the wild by causing disruption of natural behavioral patterns, including, but not limited to, migration, surfacing, nursing, breeding, feeding, or sheltering, to a point where such behavioral patterns are abandoned or significantly altered [Level B Harassment].

Level B Harassment

Of the potential effects that were described in the *Assessment of Marine Mammal Response to Anthropogenic Sound* and the *Explosive Ordnance Exposure Analysis* sections, the following are the types of effects that fall into the Level B Harassment category:

Behavioral Harassment – Behavioral disturbance that rises to the level described in the definition above, when resulting from exposures to underwater detonations, is considered Level B Harassment. Some of the lower level physiological stress responses discussed in the *Assessment of Marine Mammal Response to Anthropogenic Sound* section will also likely co-occur with the predicted harassments, although these responses are more difficult to detect and fewer data exist relating these responses to specific received levels of sound. When Level B Harassment is predicted based on estimated behavioral responses, those takes may have a stress-related physiological component as well.

Acoustic Masking and Communication Impairment – Acoustic masking is considered Level B Harassment as it can disrupt natural behavioral patterns by interrupting or limiting the marine mammal's receipt or transmittal of important information or environmental cues.

TTS – As discussed previously, TTS can effect how an animal behaves in response to the environment, including conspecifics, predators, and prey. The following physiological mechanisms are thought to play a role in inducing auditory fatigue: effects to sensory hair cells in the inner ear that reduce their sensitivity, modification of the chemical environment within the sensory cells, residual muscular activity in the middle ear, displacement of certain inner ear membranes, increased blood flow, and post-stimulatory reduction in both efferent and sensory neural output. Ward (1997) suggested that when these effects result in TTS rather than PTS, they are within the normal bounds of physiological variability and tolerance and do not represent a physical injury. Additionally, Southall *et al.* (2007) indicate 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 classifies TTS (when resulting from exposure to underwater detonations) as Level B Harassment, not Level A Harassment (injury).

Level A Harassment

Of the potential effects that were described in the Assessment of *Marine Mammal Response to Anthropogenic Sound* section, the following are the types of effects that fall into the Level A Harassment category:

PTS – PTS (resulting either from exposure to explosive detonations) is irreversible and considered to be an injury. PTS results from exposure to intense sounds that cause a permanent loss of inner or outer cochlear hair cells or exceed the elastic limits of certain tissues and membranes in the middle and inner ears and result in changes in the chemical composition of the inner ear fluids.

Physical Disruption of Tissues Resulting from Explosive Shock Wave – Physical damage of tissues resulting from a shock wave (from an explosive detonation) is classified as an injury. Blast effects are greatest at the gas-liquid interface (Landsberg, 2000) and gas-containing organs, particularly the lungs and gastrointestinal tract, are especially susceptible to damage (Goertner, 1982; Hill 1978; Yelverton *et al.*, 1973). Nasal sacs, larynx, pharynx, trachea, and lungs may be damaged by compression/expansion caused by the oscillations of the blast gas bubble (Reidenberg and Laitman, 2003). Severe damage (from the shock wave) to the ears can include tympanic membrane rupture, fracture of the ossicles, damage to the cochlea, hemorrhage, and cerebrospinal fluid leakage into the middle ear.

Acoustic Take Criteria

For the purposes of an MMPA incidental take authorization, three types of take are identified: Level B Harassment; Level A Harassment; and mortality (or serious injury leading to mortality). The categories of marine mammal responses (physiological and behavioral) that fall into the two harassment categories were described in the previous section.

Because the physiological and behavioral responses of the majority of the marine mammals exposed to underwater detonations cannot be detected or measured (not all responses visible external to animal, proportion of exposed animals underwater (so not visible), many animals located many miles froorm observers and covering very large area, etc.) and because NMFS must authorize take prior to the impacts to marine mammals, a method is needed to estimate the number of individuals that will be taken, pursuant to the MMPA, based on the proposed action. To this end, NMFS developed acoustic criteria that estimate at what received level (when exposed to explosive detonations) Level B Harassment, Level A Harassment, and mortality (for explosives) of marine mammals would occur. The acoustic criteria for Underwater Detonations are discussed below.

Thresholds and Criteria for Impulsive Sound

Criteria and thresholds for estimating the exposures from a single explosive activity on marine mammals were established for the Seawolf Submarine Shock Test Final Environmental Impact Statement (FEIS) (''Seawolf'') and subsequently used in the USS Winston S. Churchill (DDG–81) Ship Shock FEIS (''Churchill'') (DoN, 1998 and 2001a). NMFS adopted these criteria and thresholds in its final rule on unintentional taking of marine animals occurring incidental to the shock testing (NMFS, 2001a). Since the ship-shock events involve only one large explosive at a time, additional assumptions were made to extend the approach to cover multiple explosions for FIREX (with IMPASS). In addition, this section reflects a revised acoustic criterion for small underwater explosions (i.e., 23 pounds per square inch [psi] instead of previous acoustic criteria of 12 psi for peak pressure over all exposures), which is based on the final rule issued

to the Air Force by NMFS (NMFS, 2005c).

I.1. Thresholds and Criteria for Injurious Physiological Impacts

I.1.a. Single Explosion

For injury, the Navy uses dual criteria: eardrum rupture (i.e. tympanic-membrane injury) and onset of slight lung injury. These criteria are considered indicative of the onset of injury. The threshold for tympanic-membrane (TM) rupture corresponds to a 50 percent rate of rupture (i.e. 50 percent of animals exposed to the level are expected to suffer TM rupture). This value is stated in terms of an Energy Flux Density Level (EL) value of 1.17 inch pounds per square inch (in-lb/in2), approximately 205 dB re 1 microPa^2·sec.

The threshold for onset of slight lung injury is calculated for a small animal (a dolphin calf weighing 26.9 lbs), and is given in terms of the ''Goertner modified positive impulse,'' indexed to 13 psi-msec (DoN, 2001). This threshold is conservative since the positive impulse needed to cause injury is proportional to animal mass, and therefore, larger animals require a higher impulse to cause the onset of injury. This analysis assumed the marine species populations were 100 percent small animals. The criterion with the largest potential impact range (most conservative), either TM rupture (energy threshold) or onset of slight lung injury (peak pressure), will be used in the analysis to determine Level A exposures for single explosive events.

For mortality, the Navy uses the criterion corresponding to the onset of extensive lung injury. This is conservative in that it corresponds to a 1 percent chance of mortal injury, and yet any animal experiencing onset severe lung injury is counted as a lethal exposure. For small animals, the threshold is given in terms of the Goertner modified positive impulse, indexed to 30.5 psi-msec. Since the Goertner approach depends on propagation, source/animal depths, and animal mass in a complex way, the actual impulse value corresponding to the 30.5 psi-msec index is a complicated calculation. To be conservative, the analysis used the mass of a calf dolphin (at 26.9 lbs) for 100 percent of the populations.

I.1.b. Multiple Explosions

For this analysis, the use of multiple explosions only applies to FIREX (with IMPASS). Since FIREX require multiple explosions, the Churchill approach had to be extended to cover multiple sound events at the same training site. For multiple exposures, accumulated energy over the entire training time is the natural extension for energy thresholds since energy accumulates with each subsequent shot (detonation); this is consistent with the treatment of multiple arrivals in Churchill. For positive impulse, it is consistent with Churchill to use the maximum value over all impulses received.

I.2. Thresholds and Criteria for Non-Injurious Physiological Effects

The Navy criterion for non-injurious harassment is TTS a slight, recoverable loss of hearing sensitivity (DoN, 2001). For this assessment, there are dual criteria for TTS, an energy threshold and a peak pressure threshold. The criterion with the largest potential impact range (most conservative) either the energy or peak pressure threshold, will be used in the analysis to determine Level B TTS exposures.

I.2.a. Single Explosion TTS-Energy Threshold

The first threshold is a 182 dB re 1 microPa^2–sec maximum energy flux density level in any 1/3–octave band at frequencies above 100 Hertz (Hz) for toothed whales and in any 1/3–octave band above 10 Hz for baleen whales. For large explosives, as in the case of the Churchill FEIS, frequency range cutoffs at 10 and 100 Hz make a difference in the range estimates. For small explosives (<1,500 lb NEW), as what was modeled for this analysis, the spectrum of the shot arrival is broad, and there is essentially no difference in impact ranges for toothed whales or baleen whales.

The TTS energy threshold for explosives is derived from the Space and Naval Warfare Systems Center (SSC) pure-tone tests for TTS (Schlundt *et al.*, 2000, Finneran and Schlundt, 2004). The pure-tone threshold (192 dB as the lowest value) is modified for explosives by (a) interpreting it as an energy metric, (b) reducing it by 10 dB to account for the time constant of the mammal ear, and (c) measuring the energy in 1/3–octave bands, the natural filter band of the ear. The resulting threshold is 182 dB re 1 microPa^2–sec in any 1/3–octave band. The energy threshold usually dominates and is used in the analysis to determine potential Level B exposures for single explosion ordnance.

I.2.b. Single Explosion TTS-Peak Pressure Threshold

The second threshold applies to all species and is stated in terms of peak pressure at 23 psi (about 225 dB re 1 microPa). This criterion was adopted for Precision Strike Weapons (PSW) Testing and Training by Eglin Air Force Base in the Gulf of Mexico (NMFS, 2005b). It is important to note that for small shots near the surface (such as in this analysis), the 23–psi peak pressure threshold generally will produce longer impact ranges than the 182–dB energy metric. Furthermore, it is not unusual for the TTS impact range for the 23–psi pressure metric to actually exceed the without-TTS (behavioral change without onset of TTS) impact range for the 177–dB energy metric.

I.2.c. Multiple Explosions – TTS

For multiple explosions, accumulated energy over the entire training time is the natural extension for energy thresholds since energy accumulates with each subsequent shot/detonation. This is consistent with the energy argument in Churchill. For peak pressure, it is consistent with Churchill to use the maximum value over all impulses received.

I.3. Thresholds and Criteria for Behavioral Effects

I.3.a. Single Explosion

For a single explosion, to be consistent with Churchill, TTS is the criterion for Level B. In other words, because behavioral disturbance for a single explosion is likely to be limited to a short-lived startle reaction, use of the TTS criterion is considered sufficient protection and therefore behavioral effects (without TTS) are not considered for single explosions.

I.3.b. Multiple Explosions – without TTS

For this analysis, the use of multiple explosions only applies to FIREX (with IMPASS). Because multiple explosions would occur within a discrete time period, a new acoustic criterion-behavioral disturbance (without TTS) - is used to account for behavioral effects significant enough to be judged as harassment, but occurring at lower noise levels than those that may cause TTS.

The threshold is based on test results published in Schlundt *et al.* (2000), with derivation following the approach of the Churchill FEIS for the energy-based TTS threshold. The original Schlundt *et al.* (2000) data and the report of Finneran and Schlundt (2004) are the basis for thresholds for behavioral disturbance (without TTS). As reported by Schlundt *et al.* (2000), instances of altered behavior generally began at lower exposures than those causing TTS; however, there were many instances when subjects exhibited no altered behavior at levels above the onset-TTS levels. Regardless of reactions at higher

or lower levels, all instances of altered behavior were included in the statistical summary.

The behavioral disturbance (without TTS) threshold for tones is derived from the SSC tests, and is found to be 5 dB below the threshold for TTS, or 177 dB re 1 microPa^2–sec maximum energy flux density level in any 1/3–octave band at frequencies above 100 Hz for toothed whales and in any 1/3–octave band above 10 Hz for baleen whales. As stated previously for TTS, for small explosives (<1500 lb NEW), as what was modeled for this analysis, the spectrum of the shot arrival is broad, and there is essentially no difference in impact ranges for whales. The behavioral disturbance (without TTS) impact range for FIREX with IMPASS can, especially in shallower water, be about twice the impact range for TTS.

II. Summary of Thresholds and Criteria for Impulsive Sounds

Table 13 summarizes the effects, criteria, and thresholds used in the assessment for impulsive sounds. The criteria for behavioral effects without physiological effects used in this analysis are based on use of multiple explosives that only take place during a FIREX (w/IMPASS) event.

TABLE 13. EFFECTS, CRITERIA, AND THRESHOLDS FOR IMPULSIVE SOUNDS

Effect	Criteria	Metric	Threshold	Effect
Mortality	Onset of Extensive Lung Injury	Goertner modified positive impulse	indexed to 30.5 psi-msec (assumes 100 percent small animal at 26.9 lbs)	Mortality
Injurious Physiological	50% Tympanic Membrane Rupture	Energy flux density	1.17 in-lb/in^2 (about 205 dB re 1 microPa^2-sec)	Level A
Injurious Physiological	Onset Slight Lung Injury	Goertner modified positive impulse	indexed to 13 psi-msec (assumes 100 percent small animal at 26.9 lbs)	Level A
Non-injurious Physiological	TTS	Greatest energy flux density level in any 1/3-octave band (> 100 Hz for toothed whales and > 10 Hz for baleen whales) - for total energy over all exposures	182 dB re 1 microPa^2-sec	Level B
Non-injurious Physiological	TTS	Peak pressure over all exposures	23 psi (for small explosives <2,000 lbs, else 12 psi)	Level B
Non-injurious Behavioral	Multiple Explosions Without TTS	Greatest energy flux density level in any 1/3-octave (> 100 Hz for toothed whales and > 10 Hz for baleen whales) - for total energy over all exposures (multiple explosions only)	177 dB re 1 microPa^2-sec	Level B

The criteria for mortality, Level A Harassment, and Level B Harassment resulting from explosive detonations were initially developed for the Navy's Sea Wolf and Churchill ship-shock trials and have not changed since other MMPA authorizations issued for explosive detonations. The criteria, which are applied to cetaceans and pinnipeds are summarized in Table 13. Additional information regarding the derivation of these criteria is available in the Navy's FEIS for the JAX Range Complex and in the Navy's CHURCHILL FEIS (U.S. Department of the Navy, 2001).

Take Calculations

In estimating the potential for marine mammals to be exposed to an acoustic source, the Navy completed the following actions:

(1) Evaluated potential effects within the context of existing and current regulations, thresholds, and criteria;

(2) Identified all acoustic sources that will be used during Navy training activities;

(3) Identified the location, season, and duration of the action to determine which marine mammal species are likely to be present;

(4) Determined the estimated number of marine mammals (i.e., density) of each species that will likely be present in the respective OPAREAs during the Navy training activities;

(5) Applied the applicable acoustic threshold criteria to the predicted sound exposures from the proposed activity. The results were then evaluated to determined whether the predicted sound exposures from the acoustic model might be considered harassment; and

(6) Considered potential harassment within the context of the affected marine mammal population, stock, and species to assess potential population viability. Particular focus on recruitment and survival are provided to analyze whether the effects of the action can be considered to have negligible effects to marine mammal species or population.

Starting with a sound source, the attenuation of an emitted sound due to propagation loss is determined. Uniform animal distribution is overlaid onto the calculated sound fields to assess if animals are physically present at sufficient received sound levels to be considered ''exposed'' to the sound. If the animal is determined to be exposed, two possible scenarios must be considered with respect to the animal's physiology - effects on the auditory system and effects on non-auditory system tissues. These are not independent pathways and both must be considered since the same sound could affect both auditory and non-auditory tissues. Note that the model does not account for any animal response; rather the animals are

considered stationary, accumulating energy until the threshold is tripped.

These modeling results do not take into account the mitigation measures (detailed in the Proposed Mitigation Measure section above) that lower the potential for exposures to occur given standard range clearance procedures and the likelihood that these species can be readily detected (e.g., small animals move quickly throughout the water column and are often seen riding the bow wave of large ships or in large groups). With the mitigation and monitoring measures implemented, NMFS does not believe that there would be any mortality of any marine mammal resulting from the proposed training activities. Therefore, mortality of marine mammals would not be authorized.

Effects on Marine Mammal Habitat

Activities from Atlantic Fleet training activities in the JAX Range Complex that may affect marine mammal habitat include changes in water quality, the introduction of sound into the water column, and temporary changes to prey distribution and abundance. There is a known North Atlantic right whale calving critical habitat within the JAX Range Complex. However, potential impacts to marine mammal habitat are not anticipated to alter the function of the habitat and, therefore, will have little to no impact of marine mammal species.

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 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. 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.), or any of the other variables mentioned in the first paragraph (if known), as well as the number and nature of estimated Level A takes, the number of estimated mortalities, and effects on habitat.

Based on the analysis contained here, NMFS has preliminarily determined that the issuance of 5–year regulations as LOA is appropriate for Navy training exercises utilizing underwater detonations will have a negligible impact on the marine mammal species and stocks present in the JAX Range Complex.

Subsistence Harvest of Marine Mammals

NMFS has preliminarily determined that the issuance of an LOA for Navy training exercises in the JAX Range Complex would 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 four marine mammal species that are listed as endangered under the ESA with confirmed or possible occurrence in the JAX Range Complex: humpback whale, North Atlantic right whale, fin whale, and sperm whale. The Navy has begun consultation with NMFS pursuant to section 7 of the ESA, and NMFS will also consult internally on the issuance of an LOA under section 101(a)(5)(A) of the MMPA for training exercises in the JAX Range Complex. Consultation will be concluded prior to a determination on the issuance of the final rule and an LOA.

NEPA

The Navy is preparing an Environmental Impact Statement (EIS) for the proposed JAX Range Complex training activities. A draft EIS was released for public comments from June 27 - August 11, 2008, and it is available at *http://www.jacksonvillerangecomplexeis.com/*. NMFS is a cooperating agency (as defined by the Council on Environmental Quality (40 CFR 1501.6)) in the preparation of the EIS. NMFS has reviewed the Draft EIS and will be working with the Navy on the Final EIS (FEIS).

NMFS intends to adopt the Navy's FEIS, if adequate and appropriate, and we believe that the Navy's FEIS will allow NMFS to meet its responsibilities under NEPA for the issuance of the 5–year regulation and LOAs for training activities in the JAX Range Complex. If the Navy's FEIS were not adequate, NMFS would supplement the existing analysis and documents to ensure that we comply with NEPA prior to the issuance of the final rule or LOA.

Preliminary 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 measures, NMFS preliminarily finds that the total taking from Navy training exercises utilizing underwater explosives in the JAX Range Complex will have a negligible impact on the affected marine mammal species or stocks. NMFS has proposed regulations for these exercises that prescribe the means of affecting the least practicable adverse impact on marine mammals and their habitat and set forth requirements pertaining to the monitoring and reporting of that taking.

Classification

This action does not contain a collection of information requirement for purposes of the Paperwork Reduction Act

Pursuant to the procedures established to implement section 6 of Executive Order 12866, the Office of Management and Budget has determined that this proposed rule is not significant.

Pursuant to Section 605B of the Regulatory Flexibility Act, 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 rule, if adopted, would not have a significant economic impact on a substantial number of small entities. Any requirements imposed by a Letter of Authorization issued pursuant to these regulations, and any monitoring or reporting requirements imposed by these regulations, will be applicable only to the Navy. Because this action, if adopted, would directly affect the Navy and not a small entity, NMFS concludes the action would not result in a significant economic impact on a substantial number of small entities.

List of Subjects in 50 CFR Part 218

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

Dated: December 9, 2008.

Samuel D. Rauch III,

Deputy Assistant Administrator for Regulatory Programs, National Marine Fisheries Service.

For reasons set forth in the preamble, 50 CFR part 218, as proposed to be added at 73 FR 75655, December 12, 2008, is proposed to be amended as follows:

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

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

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

2. Subpart B is added to part 218 to read as follows:

Subpart B—Taking Marine Mammals Incidental to U.S. Navy Training in the Jacksonville Range Complex

Sec.

218.10 Specified activity and specified geographical region.
218.11 Permissible methods of taking.
218.12 Prohibitions.
218.13 Mitigation.
218.14 Requirements for monitoring and reporting.
218.15 Applications for Letters of Authorization.
218.16 Letters of Authorization.
218.17 Renewal of Letters of Authorization.
218.18 Modifications to Letters of Authorization.

Subpart B—Taking Marine Mammals Incidental to U.S. Navy Training in the Jacksonville Range Complex

§ 218.10 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 occur 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 JAX Range Complex, which is located along the southern east coast of the U.S. The two principal OPAREAs within the JAX Study Area are the Jacksonville OPAREA and the Charleston OPAREA (sometimes referred to collectively as the JAX/CHASN OPAREA, or simply the OPAREA). The northernmost point of the JAX/CHASN OPAREA is located just north of Wilmington, North Carolina (34°37' N) in waters less than 20 m (65.6 ft) deep, while the easternmost boundary lies 281 nm (518.6 km) offshore of Jacksonville, Florida (77°00' W in waters with a bottom depth of nearly 2,000 m (6,562 ft).

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

(1) The detonation of the underwater explosives indicated in this paragraph (c)(1)(i) conducted as part of the training exercises indicated in this paragraph (c)(1)(ii):

(i) Underwater Explosives:

(A) AGM–114 (Hellfire missile);

(B) AGM–65 E/F (Maverick missile);

(C) Mine Neutralization (20 lb NEW charges);

(D) 5'' Naval Gunfire.

(ii) Training Events:

(A) Mine Neutralization (20 lb NEW charges) - up to 60 exercises over the course of 5 years (an average of 12 per year);

(B) Missile Exercise (MISSILEX) (Air-to-Surface; Hellfire missile) - up to 350 exercises over the course of 5 years (an average of 70 per year);

(C) Missile Exercise (MISSILEX) (Air-to-Surface; Maverick) - up to 15 exercises over the course of 5 years (an average of 3 per year);

(D) FIREX with IMPASS - up to 50 exercises over the course of 5 years (an average of 10 per year); and

(E) Small Arms Training with MK3A2 anti-swimmer concussion grenade (0.5 lbs NEW) - up to 400 events over the course of 5 years (an average of 80 events per year).

(2) [Reserved]

§ 218.11 Permissible methods of taking.

(a) Under Letters of Authorization issued pursuant to §§ 216.106 of this chapter and 218.16, the Holder of the Letter of Authorization may incidentally, but not intentionally, take marine mammals within the area described in § 218.10 (b), provided the activity is in compliance with all terms, conditions, and requirements of this subpart and the appropriate Letter of Authorization.

(b) The activities identified in § 218.10 (c) must be conducted in a manner that minimizes, to the greatest extent practicable, any adverse impacts on marine mammals and their habitat.

(c) The incidental take of marine mammals under the activities identified in § 218.10 (c) is limited to the following species, by the indicated method of take the indicated number of times:

(1) Level B Harassment:

(i) Bottlenose dolphin (*Tursiops truncatus*) – 15;

(ii) Pantropical spotted dolphin (*Stenella attenuata*) – 2;

(iii) Clymene dolphin (*S. clymene*) – 2;

(iv) Atlantic spotted dolphin (*S. frontalis*) – 56;

(v) Risso's dolphin (*Grampus griseus*) – 3;

(vi) Pilot whales (*Globicephala* sp.) – 1.

(2) Level A Harassment (injury):

(i) Atlantic spotted dolphin – 2.

(ii) [Reserved]

§ 218.12 Prohibitions.

Notwithstanding takings contemplated in § 218.11 and authorized by a Letter of Authorization issued under § 216.106 of this chapter and § 218.16, no person in connection with the activities described in § 218.10 may:

(a) Take any marine mammal not specified in § 218.11 (c);

(b) Take any marine mammal specified in § 218.11 (c) other than by incidental take as specified in § 218.11(c)(1) and (2);

(c) Take a marine mammal specified in § 218.11 (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 this Subpart or a Letter of Authorization issued under § 216.106 of this chapter and § 218.16.

§ 218.13 Mitigation.

(a) When conducting training activities identified in § 218.10(a), the mitigation measures contained in the Letter of Authorization issued under § 216.106 of this chapter and § 218.16 must be implemented. These mitigation measures include (but are not limited to):

(1) *General Maritime Measures.* The ''Standard Operating Procedures'' for mitigation measures presented below shall be taken by Navy personnel on a regular and routine basis.

(i) Personnel Training Lookouts:

(A) All bridge personnel, Commanding Officers, Executive Officers, officers standing watch on the bridge, maritime patrol aircraft aircrews, and Mine Warfare (MIW) helicopter crews shall complete MSAT.

(B) Navy lookouts shall undertake extensive training to qualify as a watchstander in accordance with the Lookout Training Handbook (NAVEDTRA 12968–D).

(C) Lookout training shall include on-the-job instruction under the supervision of a qualified, experienced watchstander. Following successful completion of this supervised training period, lookouts shall complete the Personal Qualification Standard Program, certifying that they have

demonstrated the necessary skills (such as detection and reporting of partially submerged objects).

(D) Lookouts shall be trained in the most effective means to ensure quick and effective communication within the command structure to facilitate implementation of protective measures if marine species are spotted.

(E) Surface lookouts shall scan the water from the ship to the horizon and be responsible for all contacts in their sector. In searching the assigned sector, the lookout shall always start at the forward part of the sector and search aft (toward the back). To search and scan, the lookout shall hold the binoculars steady so the horizon is in the top third of the field of vision and direct the eyes just below the horizon. The lookout shall scan for approximately five seconds in as many small steps as possible across the field seen through the binoculars. They shall search the entire sector in approximately five-degree steps, pausing between steps for approximately five seconds to scan the field of view. At the end of the sector search, the glasses shall be lowered to allow the eyes to rest for a few seconds, and then the lookout shall search back across the sector with the naked eye.

(F) At night, lookouts shall scan the horizon in a series of movements that would allow their eyes to come to periodic rests as they scan the sector. When visually searching at night, they shall look a little to one side and out of the corners of their eyes, paying attention to the things on the outer edges of their field of vision. Lookouts shall also have night vision devices available for use.

(ii) Operating Procedures and Collision Avoidance:

(A) Prior to major exercises, a Letter of Instruction, Mitigation Measures Message or Environmental Annex to the Operational Order shall be issued to further disseminate the personnel training requirement and general marine species mitigation measures.

(B) Commanding Officers shall make use of marine species detection cues and information to limit interaction with marine species to the maximum extent possible consistent with safety of the ship.

(C) While underway, surface vessels shall have at least two lookouts with binoculars; surfaced submarines shall have at least one lookout with binoculars. Lookouts already posted for safety of navigation and man-overboard precautions may be used to fill this requirement. As part of their regular duties, lookouts shall watch for and report to the OOD the presence of marine mammals.

(D) Personnel on lookout will employ visual search procedures employing a scanning method in accordance with the Lookout Training Handbook (NAVEDTRA 12968–D).

(E) After sunset and prior to sunrise, lookouts shall employ Night Lookouts Techniques in accordance with the Lookout Training Handbook (NAVEDTRA 12968–D).

(F) While in transit, naval vessels shall be alert at all times, use extreme caution, and proceed at a ''safe speed'' so that the vessel can take proper and effective action to avoid a collision with any marine animal and can be stopped within a distance appropriate to the prevailing circumstances and conditions.

(G) When whales have been sighted in the area, Navy vessels shall increase vigilance and implement measures to avoid collisions with marine mammals and avoid activities that might result in close interaction of naval assets and marine mammals. Such measures shall include changing speed and/or course direction and would be dictated by environmental and other conditions (e.g., safety or weather).

(H) Naval vessels shall maneuver to keep at least 500 yds (460 m) away from any observed whale and avoid approaching whales head-on.

(I) Where feasible and consistent with mission and safety, vessels shall avoid closing to within 200–yd (183 m) of marine mammals other than whales (whales addressed above).

(J) Navy aircraft participating in exercises at sea shall conduct and maintain, when operationally feasible and safe, surveillance for marine species of concern as long as it does not violate safety constraints or interfere with the accomplishment of primary operational duties. Marine mammal detections shall be immediately reported to assigned Aircraft Control Unit for further dissemination to ships in the vicinity of the marine species as appropriate.

(K) All vessels shall maintain logs and records documenting training operations should they be required for event reconstruction purposes. Logs and records shall be kept for a period of 30 days following completion of a major training exercise.

(2) Coordination and Reporting Requirements:

(i) The Navy shall coordinate with the local NMFS Stranding Coordinator for any unusual marine mammal behavior and any stranding, beached live/dead, or floating marine mammals that may occur at any time during or within 24 hours after completion of training activities.

(ii) The Navy shall follow internal chain of command reporting procedures as promulgated through Navy instructions and orders.

(3) Mitigation Measures Applicable Vessel Transit in the Mid-Atlantic during North Atlantic Right Whale Migration:

(i) The mitigation measures apply to all Navy vessel transits, including those vessels that would transit to and from East Coast ports and OPAREAs.

(ii) Seasonal migration of right whales is described by NMFS as occurring from October 15th through April 30th, when right whales migrate between feeding grounds farther north and calving grounds farther south.

(A) Where vessel transits during the right whale migration season along certain identified ports including the Hampton Roads entrance to the Chesapeake Bay, Navy vessels shall use extreme caution and operate at a slow, safe speed consistent with mission and safety within a 20 nm (37 km) arc of the specified reference points listed on Table 12 of this document.

(B) During the indicated months, Navy vessels would practice increased vigilance with respect to avoidance of vessel-whale interactions along the mid-Atlantic coast, including transits to and from any mid-Atlantic ports not specifically identified above.

(C) Additional Mitigation Measures in the Consultation Area during North Atlantic Right Whale Calving Season. The following measures from the NMFS Biological Opinion issued in 1997 (NMFS, 1997) shall be implemented for activities the consultation area (roughly an area to 80 nm (148 km) seaward from Charleston, South Carolina, south to Sebastian Inlet, Florida) during North Atlantic right whale calving season:

(*1*) Naval vessels operating within North Atlantic right whale critical habitat and the Associated Area of Concern (AAOC) shall exercise extreme caution and use slow safe speed, that is, the slowest speed that is consistent with essential mission, training, and operations.

(*2*) Exercise extreme caution and use slow, safe speed when a whale is sighted by a vessel or when the vessel is within 5 nm (9 km) of a reported new sighting less than 12 hours old.

(*3*) During the North Atlantic right whale calving season north-south transits through the critical habitat are prohibited, except for those exercises that necessarily operate at a slow, safe speed. Naval vessel transits through the area shall be in an east-west direction, and shall use the most direct route available during the calving season.

(*4*) Naval vessel operations in the North Atlantic right whale critical habitat and AAOC during the calving season shall be undertaken during daylight and periods of good visibility, to the extent practicable and consistent with mission, training, and operation. When operating in the critical habitat and AAOC at night or during periods of poor visibility, vessels shall operate as if in the vicinity of a recently reported North Atlantic right whale sighting.

(*5*) Command, Control and Communication.

(*i*) Fleet Area Control and Surveillance Jacksonville (FACSFAC JAX) shall coordinate ship/aircraft clearance into the operating area based on prevailing conditions, including water temperature, weather conditions, whale sighting data, mission or event to be conducted and other pertinent information. Commander Submarine Atlantic (COMSUBLANT) shall coordinate any submarine operations that may require clearance with FACSFAC JAX. FASFAC JAX shall provide data to ships and aircraft, including USCG if requested, and shall recommend modifying, moving or canceling events as needed to prevent whale encounters. Commander Submarine Group Ten (COMSUBGRU TEN) shall provide same information/guidance to subs.

(*ii*) Prior to transiting or training in the critical habitat ships shall contact FASFAC JAX to obtain latest whale sighting and other information needed to make informed decisions regarding safe speed and path of intended movement. Subs shall contact COMSUBGRU TEN for similar information. Ships and aircraft desiring to train/operate inside the critical habitat or within the warning/operating area shall coordinate clearance with FASFAC JAX. Subs shall obtain same clearance from CTF–82 (COMSUBLANT).

(*iii*) FACSFAC JAX shall coordinate local procedures for whale data entry, update, retrieval and dissemination using joint maritime command information system. Ships not yet Officer in Tactical Command Information Exchange subsystem capable, including USCG, shall communicate via satellite communication, regular telephone system or international marine/maritime satellite.

(4) Proposed Mitigation Measures for Specific At-sea Training Events. The following actions are standard operating procedures that are in place currently and shall be used in the future for all activities being analyzed in this LOA request.

(i) Firing Exercise (FIREX) Using the Integrated Maritime Portable Acoustic Scoring System (IMPASS) (5–in Explosive Rounds):

(A) This activity shall only occur in Areas BB and CC.

(B) During North Atlantic right whale calving season no explosive ordnance shall be used.

(C) Pre-exercise monitoring of the target area shall be conducted with ''Big Eyes'' prior to the event, during deployment of the IMPASS sonobuoy array, and during return to the firing position. Ships shall maintain a lookout dedicated to visually searching for marine mammals 180 along the ship track line and 360 at each buoy drop-off location.

(D) ''Big Eyes'' on the ship shall be used to monitor a 600 yard (548 m) buffer zone for marine mammals during naval-gunfire events.

(E) Ships shall not fire on the target if any marine mammals are detected within or approaching the 600 yd (548 m) buffer zone until the area is cleared. If marine mammals are present, operations shall be suspended. Visual observation shall occur for approximately 45 minutes, or until the animal has been observed to have cleared the area and is heading away from the buffer zone.

(F) Post-exercise monitoring of the entire effect range shall take place with ''Big Eyes'' and the naked eye during the retrieval of the IMPASS sonobuoy array following each firing exercise.

(G) FIREX with IMPASS shall take place during daylight hours only.

(H) FIREX with IMPASS shall only be used in Beaufort Sea State three (3) or less.

(I) The visibility must be such that the fall of shot is visible from the firing ship during the exercise.

(J) No firing shall occur if marine mammals are detected within 70 yards (64 m) of the vessel.

(ii) Air-to-Surface Missile Exercises (Explosive):

(A) This activity shall only occur in the Missile Laser Training Range (MLTR).

(B) Aircraft shall visually survey the target area for marine mammals prior to the exercise. Visual inspection of the target area shall be made by flying at 1,500 ft (457 m) altitude or lower, if safe to do so, and at slowest safe speed. Firing or range clearance aircraft must be able to actually see ordnance impact areas. Explosive ordnance shall not be targeted to impact within 1,800 yards (1,646 m) of sighted marine mammals.

(iii) Mine Neutralization Training Involving Underwater Detonations (up to and including 20–lb charges):

(A) Underwater detonations are restricted to Undet North and Undet South. These sites are located in the Charleston/JAX OPAREAs offshore of Charleston, South Carolina.

(B) Observers shall survey the buffer zone, a 700 yds (640 m) radius from detonation location, for marine mammals and sea turtles from all participating vessels during the entire operation. A survey of the buffer zone (minimum of three parallel tracklines 219 yds (200 m) apart using support craft shall be conducted at the detonation location 30 minutes prior through 30 minutes post detonation. Aerial survey support shall be utilized whenever assets are available.

(C) Detonation operations shall be conducted during daylight hours only.

(D) If a marine mammal is sighted within the buffer zone, the animal shall be allowed to leave of its own volition. The Navy shall suspend detonation exercises and ensure the area is clear for a full 30 minutes prior to detonation.

(E) Divers placing the charges on mines and dive support vessel personnel shall survey the area for marine mammals and shall report any sightings to the surface observers. These animals shell be allowed to leave of their own volition and the buffer zone shall be clear for 30 minutes prior to detonation.

(F) Personnel shall record any marine mammal species observations during the exercise as well as measures taken if species are detected within the buffer zone.

(iv) Small Arms Training - Explosive hand grenades (such as the MK3A2 grenades):

(A) Lookouts shall visually survey for marine mammals prior to and during exercise.

(B) A 200 yd (182 m) radius buffer zone shall be established around the intended target. The exercises shall be conducted only if the buffer zone is clear of sighted marine mammals.

(v) Adaptive management:

(A) The final regulations governing the take of marine mammals incidental to Navy training exercises in JAX Range Complex shall contain an adaptive management component.

(B) The use of adaptive management shall give NMFS the ability to consider new data from different sources to determine (in coordination with the Navy), on an annual basis, if new or modified mitigation or monitoring measures are appropriate for subsequent annual LOAs.

§ 218.14 Requirements for monitoring and reporting.

(a) The Holder of the Letter of Authorization issued pursuant to

§ 216.106 of this chapter and § 218.16 for activities described in § 218.10(b) is required to cooperate with the NMFS, and any other Federal, state or local agency monitoring the impacts of the activity on marine mammals.

(b) The Holder of the Authorization must notify NMFS immediately (or as soon as clearance procedures allow) if the specified activity identified in § 218.10(b) is thought to have resulted in the mortality or injury of any marine mammals, or in any take of marine mammals not identified in § 218.10(c).

(c) The Holder of the Letter of Authorization must conduct all monitoring and/or research required under the Letter of Authorization.

(d) The monitoring methods proposed for use during training events in JAX Range Complex include a combination of individual elements designed to allow a comprehensive assessment include:

(1) Vessel and aerial surveys:

(i) Visually survey two events per year. The primary goal shall be to survey two different types of explosive events with one of them being a multiple detonation event.

(ii) For surveyed training events, aerial or vessel surveys shall be used 1–2 days prior to, during if safely possible, and 1–5 days post detonation. The variation in the number of days after allows for the detection of animals that gradually return to an area, if they indeed do change their distribution in response to underwater detonation events.

(iii) Surveys shall include any specified exclusion zone around a particular detonation point plus 2000 yards beyond the exclusion zone. For vessel based surveys a passive acoustic system (hydrophone or towed array) could be used to determine if marine mammals are in the area before and/or after a detonation event. Depending on animals sighted, it may be possible to conduct focal surveys of animals outside of the exclusion zone (detonations could be delayed if marine mammals are observed within the exclusion zone) to record behavioral responses to the detonations.

(iv) When conducting a particular survey, the survey team shall collect:

(A) Species identification and group size;

(B) Location and relative distance from the detonation site;

(C) The behavior of marine mammals including standard environmental and oceanographic parameters;

(D) Date, time and visual conditions associated with each observation;

(E) Direction of travel relative to the detonation site; and

(F) Duration of the observation.

(2) Passive acoustic monitoring:

(i) When practical, a towed hydrophone array should be used whenever shipboard surveys are being conducted. The towed array shall be deployed during daylight hours for each of the days the ship is at sea.

(ii) A towed hydrophone array is towed from the boat and can detect and localize marine mammals that vocalize and shall be used to supplement the ship-based systematic line-transect surveys (particularly for species such as beaked whales that are rarely seen).

(iii) The array shall need to detect low frequency vocalizations (< 1,000 Hz) for baleen whales and relatively high frequency (up to 30 kHz) for odontocetes such as sperm whales. The use of two simultaneously deployed arrays can also allow more accurate localization and determination of diving patterns.

(3) Marine mammal observers on Navy platforms:

(i) Marine mammal observers (MMOs) shall be placed on a Navy platform during one of the exercises being monitored per year.

(ii) Qualifications must include expertise in species identification of regional marine mammal species and experience collecting behavioral data. Experience as a NMFS marine mammal observer is preferred, but not required. Navy biologists and contracted biologists shall be used; contracted MMOs must have appropriate security clearance to board Navy platforms.

(iii) MMOs shall not be placed aboard Navy platforms for every Navy training event or major exercise, but during specifically identified opportunities deemed appropriate for data collection efforts. The events selected for MMO participation shall take into account safety, logistics, and operational concerns.

(iv) MMOs shall observe from the same height above water as the lookouts.

(v) The MMOs shall not be part of the Navy's formal reporting chain of command during their data collection efforts; Navy lookouts shall continue to serve as the primary reporting means within the Navy chain of command for marine mammal sightings. The only exception is that if an animal is observed within the shutdown zone that has not been observed by the lookout, the MMO shall inform the lookout of the sighting for the lookout to take the appropriate action through the chain of command.

(vi) The MMOs shall collect species identification, behavior, direction of travel relative to the Navy platform, and distance first observed. All MMO sighting shall be conducted according to a standard operating procedure.

(e) Report from Monitoring required in paragraph (d) of this section. The Navy shall submit a report annually on September 1 describing the implementation and results (through June 1 of the same year) of the monitoring required in paragraph (d) of this section.

(f) JAX Range Complex Comprehensive Report The Navy shall submit to NMFS a draft report that analyzes and summarizes all of the multi-year marine mammal information gathered during explosive exercises for which individual reports are required in § 218.14 (e). This report will be submitted at the end of the fourth year of the rule (November 2012), covering activities that have occurred through June 1, 2012.

(g) The Navy shall respond to NMFS comments on the draft comprehensive report if submitted within 3 months of receipt. The report will be considered final after the Navy has addressed NMFS' comments, or three months after the submittal of the draft if NMFS does not comment by then.

(h) The Navy shall respond to NMFS comments on the draft comprehensive report if submitted within 3 months of receipt. The report will be considered final after the Navy has addressed NMFS' comments, or three months after the submittal of the draft if NMFS does not comment by then.

§ 218.15 Applications for Letters of Authorization.

To incidentally take marine mammals pursuant to these regulations, the U.S. citizen (as defined by § 216.103 of this chapter) conducting the activity identified in § 218.10(a) (the U.S. Navy) must apply for and obtain either an initial Letter of Authorization in accordance with § 218.16 or a renewal under § 218.17.

§ 218.16 Letters of Authorization.

(a) A Letter of Authorization, unless suspended or revoked, will be valid for a period of time not to exceed the period of validity of this subpart, but must be renewed annually subject to annual renewal conditions in § 218.17.

(b) Each Letter of Authorization 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 Letter of Authorization 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).

§ 218.17 Renewal of Letters of Authorization.

(a) A Letter of Authorization issued under § 216.106 of this chapter and § 218.16 for the activity identified in § 218.10(c) will be renewed annually upon:

(1) Notification to NMFS that the activity described in the application submitted under § 218.15 will be undertaken and that there will not be a substantial modification to the described work, mitigation or monitoring undertaken during the upcoming 12 months;

(2) Timely receipt of the monitoring reports required under § 218.14(b); and

(3) A determination by the NMFS that the mitigation, monitoring and reporting measures required under § 218.13 and the Letter of Authorization issued under § 216.106 of this chapter and § 218.16, were undertaken and will be undertaken during the upcoming annual period of validity of a renewed Letter of Authorization.

(b) If a request for a renewal of a Letter of Authorization issued under § 216.106 of this chapter and § 218.17 indicates that a substantial modification to the described work, mitigation or monitoring undertaken during the upcoming season will occur, the NMFS will provide the public a period of 30 days for review and comment on the request. Review and comment on renewals of Letters of Authorization are restricted to:

(1) New cited information and data indicating that the determinations made in this document are in need of reconsideration, and

(2) Proposed changes to the mitigation and monitoring requirements contained in these regulations or in the current Letter of Authorization.

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

§ 218.18 Modifications to Letters of Authorization.

(a) Except as provided in paragraph (b) of this section, no substantive modification (including withdrawal or suspension) to the Letter of Authorization by NMFS, issued pursuant to § 216.106 of this chapter and § 218.16 and subject to the provisions of this subpart shall be made until after notification and an opportunity for public comment has been provided. For purposes of this paragraph, a renewal of a Letter of Authorization under § 218.17, without modification (except for the period of validity), is not considered a substantive modification.

(b) If the Assistant Administrator determines that an emergency exists that poses a significant risk to the well-being of the species or stocks of marine mammals specified in § 218.10(b), a Letter of Authorization issued pursuant to § 216.106 of this chapter and § 218.16 may be substantively modified without prior notification and an opportunity for public comment. Notification will be published in the **Federal Register** within 30 days subsequent to the action.

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DEPARTMENT OF COMMERCE

National Oceanic and Atmospheric Administration

50 CFR Part 679

RIN 0648–AX25

Fisheries of the Exclusive Economic Zone Off Alaska; Bering Sea and Aleutian Islands and Gulf of Alaska Groundfish; Limited Access Privilege Programs

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

ACTION: Notice of availability of fishery management plan amendments; request for comments.

SUMMARY: Amendment 90 to the Fishery Management Plan for Groundfish of the Bering Sea and Aleutian Islands Management Area and Amendment 78 to the Fishery Management Plan for Groundfish of the Gulf of Alaska would modify the Fishery Management Plans (FMPs) to allow unlimited post–delivery transfers of cooperative quota. This action is necessary to mitigate potential overages, reduce enforcement costs, and provide for more precise total allowable catch management. This action is intended to promote the goals and objectives of the Magnuson–Stevens Act, the FMPs, and other applicable laws.

DATES: Comments on the amendment must be submitted on or before February 17, 2009.

ADDRESSES: Send comments to Sue Salveson, Assistant Regional Administrator, Sustainable Fisheries Division, Alaska Region, NMFS, Attn: Ellen Sebastian. You may submit comments, identified by ''RIN 0648–AX25,'' by any one of the following methods:

- Electronic Submissions: Submit all electronic public comments via the FederaleRulemaking Portal website at *http://www.regulations.gov*.
- Mail: P. O. Box 21668, Juneau, AK 99802.
- Fax: (907) 586–7557.
- Hand delivery to the Federal Building: 709 West 9th Street, Room 420A, Juneau, AK.

All comments received are a part of the public record and will generally be posted to *http://www.regulations.gov* without change. All personal identifying information (e.g., name, address) voluntarily submitted by the commenter may be publicly accessible. Do not submit confidential business information or otherwise sensitive or protected information.

NMFS will accept anonymous comments (enter N/A in the required fields, if you wish to remain anonymous). Attachments to electronic comments will be accepted in Microsoft Word, Excel, WordPerfect, or Adobe portable document file (pdf) formats only.

Copies of Amendments 90 and 78, the Regulatory Impact Review/Initial Regulatory Flexibility Analyses (RIR/IRFAs) for this action, and the Categorical Exclusion prepared for the amendments may be obtained from the NMFS Alaska Region at the address above or from the Alaska Region website at *http://alaskafisheries.noaa.gov*. The proposed rule to implement Amendments 90 and 78 to the FMPs was categorically excluded from the need to prepare an environmental assessment under the National Environmental Policy Act.

FOR FURTHER INFORMATION CONTACT: Glenn Merrill, 907–586–7459, or Julie Scheurer, 907–586–7356.

SUPPLEMENTARY INFORMATION: The Magnuson–Stevens Act requires that each regional fishery management council submit any fishery management plan amendment it prepares to NMFS for review and approval, disapproval, or partial approval by the Secretary of Commerce. The Magnuson–Stevens Act also requires that NMFS, upon receiving a fishery management plan amendment, immediately publish a notice in the **Federal Register** announcing that the amendment is available for public review and comment. This notice announces that proposed Amendment 90 to the Fishery Management Plan for