

ADDENDUM TO JAX LOA (NOV 2008)

ADDENDUM
TO
REQUEST FOR LETTER OF AUTHORIZATION
UNDER SECTION 101(A)(5)(A) OF THE MARINE MAMMAL PROTECTION ACT
FOR THE INCIDENTAL HARASSMENT OF MARINE MAMMALS RESULTING
FROM NAVY TRAINING OPERATIONS CONDUCTED WITHIN THE
JACKSONVILLE RANGE COMPLEX
NOVEMBER 2008

Chapter 1

A new section 1.5 is added at the end of Chapter 1 (page 1-4):

1.5 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 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.

Operations	Platform	System/Ordnance	Event Duration	Number of Events
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 are used depending on the unit using the boat and their mission. Boats are mostly used by 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 are 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 use inboard or outboard, diesel or gasoline engines with either propeller or water jet propulsion.

ADDENDUM TO JAX LOA (NOV 2008)

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.

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.

Integrated and Sustainment Phase Training Scenarios

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

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.

Section 1.1 Surface Warfare

The number of hellfire MISSILEX events listed in the table on page 1-2 is revised from “30” to “70.” The modeling and predicted level of takes provided in the original application remains the same, as they are correctly based on 70 events.

Section 2.2 Levels and Locations of Explosive Operations

Table 3 on page 2-8 is revised by replacing “80” with “73” for the total number of Hellfire and Maverick missiles/yr for the preferred alternative.

Section 3.2 Estimated Marine Mammal Densities

Section 3.2 is revised by moving the bulleted list of “Species for Which Density Estimates Are Not Available” on page 3-4 to the end of the section and adding the following text prior to the bulleted list:

Density estimates could not be calculated for all species due to the limited available data for these species. Occurrence of these species in the Jacksonville Range Complex is considered rare.

Section 6.3 Explosive Ordnance Exposure Analysis

The first sentence of the second paragraph in Section 6.3 is revised as follows:

ADDENDUM TO JAX LOA (NOV 2008)

The exercises that use explosives include: FIREX with IMPASS, MISSILEX, and MINEX, and Small Arms Training (explosive hand grenades).

Table 23 is revised as follows:

The ordnance type under MINEX is revised by replacing “5 LB” with “20 LB” in both UNDET North and UNDET South. In addition, the following data strip needs to be added to the end of the table:

	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	

Section 6.3.4 Acoustic Effects Analysis

Section 6.3.4 is revised by adding the following subsection after MISSILEX (HELLFIRE AND MAVERICK):

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:

$$\begin{array}{ll} \text{Adult porpoise} & R_{AP} = 434 W_E^{0.28} \\ \text{20 ft. whale} & R_W = 327 W_E^{0.28} \end{array}$$

R = range in feet

W_E = weight of explosive in pounds

ADDENDUM TO JAX LOA (NOV 2008)

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.

Section 6.3.5 Summary of Potential Exposures from Explosive Ordnance Use

The entire first paragraph in section 6.3.5 is revised as follows:

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), ~~as well as~~ 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.

A subsection title of “**MISSILEX, MINEX, AND FIREX**” is added after the first paragraph.

The paragraph following the new **MISSILEX, MINEX, AND FIREX** subsection is then revised as follows:

An explosive analysis was conducted to estimate the number of marine mammals that could be exposed to impacts from explosions. **Table 28** 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 other the species with given densities since they are less likely to occur in the Study Area occurrence frequent enough for densities to be calculated. In addition to the low likelihood of exposure, the mitigation measures presented in Chapter 11 will be implemented. 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, common, pantropical spotted dolphins, Risso’s dolphins, rough-toothed dolphin, and striped dolphins. Implementation of mitigation measures will reduce the likelihood of exposure and potential effects.

After Table 28, the following subsection is added:

ADDENDUM TO JAX LOA (NOV 2008)

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) of the UNDET North and South boxes and detonate at a depth of no greater than 3 m. Most of the marine mammal species that may occur in the Jacksonville Range complex are known to occur in waters with depths of less than 30 m.

Using the 114 yd (104 m) ‘safe range’ calculated for the MK3A2 anti-swimmer concussion grenades as a representative ZOI (0.034 km²), 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 Chapter 11 are designed to reduce exposure of marine mammals to potential impacts to achieve the least practicable adverse effect on marine mammal species or populations.

Chapter 11

Sections 11.1 through 11.4 are replaced with the following:

11.1 Standard Operating Procedures (General Maritime Measures)

The mitigation measures presented below are taken by Navy personnel on a regular and routine basis. These are routine measures and are considered “Standard Operating Procedures.”

11.1.1 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 highly 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,

ADDENDUM TO JAX LOA (NOV 2008)

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 will 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.

11.1.2 Operating Procedures & 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

ADDENDUM TO JAX LOA (NOV 2008)

requirement. As part of their regular duties, lookouts will watch for and report to the OOD the presence of marine mammals and sea turtles.

4. On surface vessels equipped with a mid-frequency active sonar, pedestal mounted “Big Eye” (20x110) binoculars will be properly installed and in good working order to assist in the detection of marine mammals and sea turtles in the vicinity of the vessel.
5. Personnel on lookout will employ visual search procedures employing a scanning method in accordance with the Lookout Training Handbook (NAVEDTRA 12968-D).
6. After sunset and prior to sunrise, lookouts will employ Night Lookouts Techniques in accordance with the Lookout Training Handbook (NAVEDTRA 12968-D).
7. 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.
8. When whales have been sighted in the area, Navy vessels will increase vigilance and take reasonable and practicable actions to avoid collisions and activities that might result in close interaction of naval assets and marine mammals. Actions may include changing speed and/or direction and are dictated by environmental and other conditions (*e.g.*, safety, weather).
9. 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.
10. Where feasible and consistent with mission and safety, vessels will avoid closing to within 200-yd (183 m) of sea turtles and marine mammals other than whales (whales addressed above).
11. Floating weeds, algal mats, Sargassum rafts, clusters of seabirds, and jellyfish are good indicators of sea turtles and marine mammals. Therefore, increased vigilance in watching for sea turtles and marine mammals will be taken where these are present.
12. 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.
13. 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.

ADDENDUM TO JAX LOA (NOV 2008)

11.2 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.

11.3 Mitigation Measures Applicable to Vessel Transit 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 occurring 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 identified 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 29 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 29
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 between 41-4.49N 071-51.15W and 41-18.58N 070-50.23W
New York / New Jersey	Sep–Oct and Feb–Apr	40-30.64N 073-57.76W
Delaware Bay (Philadelphia)	Oct–Dec and Feb–Mar	38-52.13N 075-1.93W
Chesapeake Bay (Hampton Roads and Baltimore)	Nov–Dec and Feb–Apr	37-1.11N 075-57.56W

ADDENDUM TO JAX LOA (NOV 2008)

North Carolina	Dec–Apr	34-41.54N 076-40.20W
South Carolina	Oct–Apr	33-11.84N 079-8.99W 32-43.39N 079-48.72W

11.3.1 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 United States (U.S.) Navy, U.S. Coast Guard (USCG), U.S. Army Corps of Engineers (USACE), and National Marine Fisheries Service (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.

11.3.2 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)¹ will exercise extreme caution and use slow safe speed, that is, the slowest speed that is consistent with essential mission, training, and operations.

¹ The AAOC is the area extending 5 nm seaward of the designated critical habitat boundaries.

ADDENDUM TO JAX LOA (NOV 2008)

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 safely 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.
 - o 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 U.S. Coast Guard 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.
 - o 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).
 - o 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, high frequency, plain old 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.

11.4 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.

ADDENDUM TO JAX LOA (NOV 2008)

11.4.1 Firing Exercise (FIREX) Using the Integrated Maritime Portable Acoustic Scoring System (IMPASS) (5-inch 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, 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 during North Atlantic right whale calving season 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/sea turtles 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 any marine mammals or sea turtles are detected within or approaching the 600 yd (548 m) buffer zone until the area is cleared. If marine mammals or sea turtles 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)² or less.
9. The visibility must be such that the fall of shot is visible from the firing ship during the exercise.

⁶³. The Beaufort Scale of Wind Force was developed as a means for sailors to gauge wind speeds through visual observations of the sea state. The scale runs from 0 for calm to force 12 for Hurricane.

ADDENDUM TO JAX LOA (NOV 2008)

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

11.4.2 Air-to-Surface Missile Exercises (explosive)

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. Ordnance shall not be targeted to impact within 1,800 yards (1,646 m) of known or observed *Sargassum* rafts or coral reefs.
3. Aircraft will visually survey the target area for marine mammals and sea turtles. Visual inspection of the target area will be made by flying at 1,500 feet 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 and sea turtles.

11.4.3 Mine Neutralization Training Involving Underwater Detonations (up to and including 20-lbs NEW charges)

Mine neutralization involving underwater detonations occurs in shallow water (0-120 feet) 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 (10L) and Undet South (12I). These sites are located in the Charleston/JAX OPAREAs offshore of Charleston, South Carolina.
2. Observers will survey the buffer zone, a 700 yard (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 yards (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.

ADDENDUM TO JAX LOA (NOV 2008)

4. If a sea turtle or 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 sea turtles and 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 of an estuarine inlet (*e.g.*, Charleston Harbor).
7. No detonations will take place within 1.6 nm of shoreline.
8. No detonations will take place within 1,000 ft 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.

11.4.4 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 yard (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 and sea turtles.