Instructions to the U.S. Customs and Border Protection

The Department will instruct CBP to suspend liquidation of all shipments of the subject merchandise produced and exported by the WFP Entities entered, or withdrawn from warehouse, for consumption, on or after the publication date of this notice at 3.78 percent (*i.e.*, the Doman Entities' cash deposit rate). This deposit rate shall remain in effect until publication of the final results of the ongoing administrative review, in which the WFP Entities/Doman Entities are participating.

This notice also serves as a reminder to parties subject to administrative protective orders (APOs) of their responsibility concerning the disposition of proprietary information disclosed under APO in accordance with 19 CFR 351.306. Timely written notification of the return/destruction of APO materials or conversion to judicial protective order is hereby requested. Failure to comply with the regulations and terms of an APO is a sanctionable violation.

This notice is published in accordance with sections 751(b) and 777(i)(1) of the Act, and section 351.216(e) of the Department's regulations.

Dated: August 12, 2005.

Barbara E. Tillman,

Acting Assistant Secretary for Import Administration.

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DEPARTMENT OF COMMERCE

National Oceanic and Atmospheric Administration

[I.D. 022304A]

Taking and Importing Marine Mammals; Taking Marine Mammals Incidental to Conducting the Precision Strike Weapon (PSW) Testing and Training by Eglin Air Force Base in the Gulf of Mexico

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

ACTION: Notice of issuance of an incidental harassment authorization.

SUMMARY: In accordance with provisions of the Marine Mammal Protection Act (MMPA) as amended, notification is hereby given that an Incidental Harassment Authorization (IHA) to take marine mammals, by harassment, incidental to testing and training during Precision Strike Weapon (PSW) tests in the Gulf of Mexico (GOM), a military readiness activity, has been issued to Eglin Air Force Base (Eglin AFB).

DATES: Effective from July 28, 2005, through July 27, 2006.

ADDRESSES: The application, a list of references used in this document, and/or the IHA are available by writing to Steve Leathery, Chief, Permits, Conservation and Education Division, Office of Protected Resources, National Marine Fisheries Service, 1315 East-West Highway, Silver Spring, MD 20910–3225, or by telephoning the contact listed here. A copy of the Final Environmental Assessment (Final EA) is available by writing to the Department of the Air Force, AAC/EMSN, Natural Resources Branch, 501 DeLeon St., Suite 101, Eglin AFB, FL 32542–5133. Documents cited in this notice may be viewed, by appointment, during regular business hours, at the aforementioned address.

FOR FURTHER INFORMATION CONTACT: Kenneth R. Hollingshead, NMFS, 301–713–2055, ext 128.

SUPPLEMENTARY INFORMATION:

Background

Sections 101(a)(5)(A) and 101(a)(5)(D) of the Marine Mammal Protection Act (16 U.S.C. 1361 *et seq.*)(MMPA) direct the Secretary of Commerce (Secretary) to allow, upon request, the incidental, but not intentional taking of small numbers of marine mammals by U.S. citizens who engage in a specified activity (other than commercial fishing) within a specified geographical region if certain findings are made and regulations are issued or, if the taking is limited to harassment, a notice of a proposed authorization is provided to the public for review. In 2004, The National Defense Authorization Act (NDAA) (Public Law 108–136) amended section 101(a)(5) of the MMPA to exempt military readiness activities from the ''specified geographical region'' and ''small numbers'' requirements.

An authorization may 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 monitoring and reporting of such takings 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.z4''

Section 101(a)(5)(D) of the MMPA established an expedited process by which citizens of the United States can apply for an authorization to incidentally take small numbers of marine mammals by harassment. The NDAA amended the definition of ''harassment'' in section 18(A) of the MMPA as it applies to a ''military readiness activity'' to read as follows:

(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 February 4, 2004, Eglin AFB submitted a request for a 1–year IHA under section 101(a)(5)(D) of the MMPA and for an authorization under section 101(a)(5)(A) of the MMPA (to take effect after the expiration of the IHA), for the incidental, but not intentional taking (in the form of noise-related harassment), of marine mammals incidental to PSW testing within the Eglin Gulf Test and Training Range (EGTTR) for the next 5 years. The EGTTR is described as the airspace over the GOM that is controlled by Eglin AFB; it is also referred to as the ''Eglin Water Range.''

PSW missions involve air-to-surface impacts of two weapons, the Joint Air-to-Surface Stand-off Missile (JASSM) AGM–158 A and B and the small-diameter bomb (SDB) (GBU–39/B) that result in underwater detonations of up to approximately 300 lbs (136 kg) and 96 lbs (43.5 kg, double SDB) of net explosive weight (NEW), respectively.

The JASSM is a precision cruise missile designed for launch from outside area defenses to kill hard, medium-hard, soft, and area-type targets. The JASSM has a range of more than 200 nautical miles (nm) (370 kilometers (km)) and carries a 1,000–lb (453.6 kg) warhead. The JASSM has approximately 300 lbs (136 kg) of TNT equivalent NEW. The explosive used is AFX–757, a type of plastic bonded explosive (PBX) formulation with higher blast characteristics and less sensitivity to many physical effects that could trigger unwanted explosions. The JASSM would be launched from an aircraft at altitudes greater than 25,000 ft (7620 m). The JASSM would cruise at altitudes greater than 12,000 ft (3658 m)

for the majority of the flight profile until it makes the terminal maneuver toward the target. The JASSM exercise involves a maximum of two live shots (single) and 4 inert shots (single) each year for the next 5 years. One live shot will detonate in water and one will detonate in air. Detonation of the JASSM would occur under one of three scenarios: (1) Detonation upon impact with the target (about 5 ft (1.5 m) above the GOM surface); (2) detonation upon impact with a barge target at the surface of the GOM; or (3) detonation at 120 milliseconds after contact with the surface of the GOM.

The SDB is a glide bomb. Because of its capabilities, the SDB system is an important element of the Air Force's Global Strike Task Force. The SDB has a range of up to 50 nm (92.6 km) and carries a 217.4–lb (98.6 kg) warhead. The SDB has approximately 48 lbs (21.7 kg) of TNT equivalent NEW. The explosive used is AFX–757. Launch from an aircraft would occur at altitudes greater than 15,000 ft (4572 m). The SDB would commence a non-powered glide to the intended target. The SDB exercise involves a maximum of six live shots a year, with two of the shots occurring simultaneously, and a maximum of 12 inert shots, with up to two occurring simultaneously. Detonation of the SDBs would occur under one of two scenarios: (1) Detonation of one or two bombs upon impact with the target (about 5 ft (1.5 m)above the GOM surface), or (2) a height of burst (HOB) test: Detonation of one or two bombs 10 to 25 ft (3 to 7.6 m) above the GOM surface. No underwater detonations of the SDB are planned.

The JASSM and SDBs would be launched from B–1, B–2, B–52, F–15, F–16, F–18, or F–117 aircraft. Chase aircraft would include F–15, F–16, and T–38 aircraft. These aircraft would follow the test items during captive carry and free flight but would not follow either item below a predetermined altitude as directed by Flight Safety. Other assets on site may include an E–9 turboprop aircraft or MH–60/53 helicopters circling around the target location. Tanker aircraft including KC–10s and KC–135s would also be used. A second unmanned barge may also be on location to hold instrumentation. Targets include a platform of five containers strapped, braced, and welded together to form a single structure and a hopper barge, typical for transportation of grain.

The proposed Eglin AFB action would occur in the northern GOM in the EGTTR. Targets would be located in water less than 200–ft (61–m) deep and from 15 to 24 nm (27.8 to 44.5 km) offshore, south of Santa Rosa Island and south of Cape San Blas.

Comments and Responses

A notice of receipt of Eglin AFB's application and proposed IHA was published in the **Federal Register** on April 22, 2004 (69 FR 21816). That notice described, in detail, Eglin AFB's proposed activity, the marine mammal species that may be affected by the activity, and the anticipated effects on marine mammals. During the 30–day public comment period, substantial comments were received from the Marine Mammal Commission (Commission), the Gulf Restoration Network (GRN), and the Acoustic Ecology Institute (AEI). Other comments received from individuals on this proposed action only expressed either support for, or concern over, missile launches based on a news article.

MMPA Concerns

Comment 1: The GRN has concerns that NMFS proposes to issue a 1–year IHA, followed by a 5–year authorization to Eglin AFB. The GRN is unclear why NMFS is presently contemplating the issuance of an IHA when it has already stated its intention to propose regulations. The GRN asks whether the interim action is being considered to enable Eglin AFB and/or NMFS to complete an in-depth environmental analysis of the potential long-term impacts of the activity prior to making a final decision on the regulations. Alternatively, GRN asks, is this an attempt to essentially allow Eglin AFB a 6–year LOA, which GRN believes would be impermissible under the MMPA?

Response: NMFS proposes to issue a 1–year IHA to Eglin AFB for its activities over the next 12 months. Subsequent authorizations will likely proceed under section 101(a)(5)(A) of the MMPA, which allows for take authorizations over a 5–year time horizon. The alternative to issuance of Letters of Authorization (LOAs) under section 101(a)(5)(A) regulations would be to continue processing applications under section 101(a)(5)(D) of the MMPA, and, presumably, issue IHAs annually to Eglin for PSW activities. Either way, the public would be provided another opportunity to comment on Eglin AFB's application and NMFS' proposed action. We disagree that it is not permissible to follow a one-year IHA with a 5–year rule and regulations that govern take authorizations. The MMPA does not limit the number of times or the period of time over which an applicant can receive an incidental take authorization so long as all the requirements are met. For our determination under the National Environmental Policy Act (NEPA), see that section later in this document.

Comment 2: The Commission notes that the proposed weapons test appear to fit within the definition of a ''military readiness activity'' as defined in section 315(f) of Public Law 107–314, which includes ''the adequate and realistic testing of military equipment, vehicles, weapons, and sensors for proper operation and suitability for combat use.'' As such, the revised definition of harassment adopted in the NDAA (Public Law 108–136) would seem to be applicable in this instance. However, NMFS' analysis of the small take request does not seem to have employed this definition. If NMFS' preliminary conclusion that no take by serious injury and/or death is anticipated, and the potential for temporary or permanent hearing impairment is low and will be avoided through the incorporation of (proposed) mitigation measures is correct, it may be that no taking by harassment can be expected and that no authorization is needed. The Commission therefore recommends that NMFS analyze the request for an IHA and the small take regulations being contemplated in light of the applicable definition of the term ''harassment.'' Although the Commission appreciates NMFS has yet to promulgate regulations or take other steps to implement the new definition, the statutory change cannot be ignored.

Response: In the preamble to the notice of proposed authorization and in this document, NMFS cited the NDAA definition of Level B harassment for military readiness activities. While NMFS believes that the monitoring to be implemented by Eglin AFB will ensure that the probability of Level A harassment will be very low (1–2 animals/year-see Table 4) and mortality likely to be zero (see Table 3), an authorization under section 101(a)(5) of the MMPA is warranted because some animals may be harassed if the mitigation and monitoring overlooks an animal.

Given the scientific uncertainty associated with predicting animal presence and behavior in the field, NMFS accords some deference to applicants requesting an MMPA authorization for an activity that might fall slightly below the NDAA definition of harassment, so that they are covered for impacts that may rise to the level of take. Equally important, such an authorization also carries with it responsibilities to implement mitigation

and monitoring measures to protect marine mammals.

Marine Mammal Impact Concerns

Comment 3: The GRN is concerned with Eglin AFB's and/or NMFS' claim that the activity will only result in Level B harassment. The record before the agency clearly establishes the potential for injury (Level A harassment) or even death among marine mammals as a result of this testing.

Response: Neither Eglin AFB nor NMFS have claimed that there is no potential for incidental injury to occur as a result of this activity. While the application calculated that 6–7 marine mammals may incur a Level A (injury) harassment, recalculation of the potential for injury has resulted in a revised estimate of 1–2 animals annually. Also the criterion for mortality is lung hemorrhage calculated for a small dolphin calf at 31 psi-msec. For the PSW, the zone of potential lethality is approximately 75–320 m (246–1050 ft) around the detonation point (Table 2). Table 3 provides a risk analysis that indicates that less than 1 cetacean might be killed annually even if no mitigation measures were implemented. However, NMFS believes that due to the mitigation measures that Eglin AFB will implement, it is very unlikely that any cetaceans will be killed, and injury is also unlikely as a result of PSW activities.

Comment 4: The GRN notes that the **Federal Register** notice states that from 3 to as many as 103 cetaceans would potentially be exposed annually to 182 dB by the action and GRN contends that the impact of the action would therefore be more than negligible and would not be an appropriate subject of an IHA. The GRN disagrees with NMFS' claim that exposure to sound levels greater than 182 dB on possibly 13 percent of the GOM cetaceans would constitute only non-injurious Level B harassment.

Response: Neither Eglin AFB nor NMFS claim that 13 percent of the GOM cetacean population might be affected by Eglin's PSW activities. As shown in the proposed authorization notice (69 FR 21816, April 22, 2004), only four of the 29 species/stocks of marine mammals that inhabit the GOM would be within the area offshore Eglin AFB. Of the high estimate of 103 cetaceans that might be subject to sound exposure levels (SELs) of 182 dB re 1 microPa^2–s or higher, roughly half would be bottlenose dolphins and half would be Atlantic spotted dolphins. No more than a single *Kogia* individual might be subject to an SEL of 182 dB re 1 microPa2–s. As a result of an error in estimating the number of shots, those numbers in the application were higher than currently projected and analyzed in this document.

The rationale on why exposure to an SEL of this magnitude would result in only Level B harassment takes (by TTS) and why these takings would have only negligible impacts was discussed in the proposed IHA authorization **Federal Register** notice with reference to the scientific basis for that reasoning. That information is also provided in detail later in this document. To assess impacts on marine mammals from explosives, NMFS and Eglin used the energy flux density (EFD) metric. This is also explained in the proposed IHA notice and later in this document.

Comment 5: Citing from the Minerals Management Service's 2002 Draft Programmatic EA for GOM seismic activities, the GRN notes that a received sound pressure level of 180 dB re 1 micro Pa (rms) or greater is an indication of potential concern about temporary and/or permanent injury (to cetaceans, such as sperm whales). Thus, GRN believes, there is significant uncertainty as to whether Level A harassment would be limited to ''nearly 3 cetaceans'' or could instead affect 103 cetaceans. In the face of this uncertainty, the GRN would contend that the no action alternative is appropriate.

Response: The principal metric employed for determining harassment, injury and mortality in this action is EFD, not sound pressure levels. The scientific basis for employing this metric is explained in detail in Eglin's application and later in this document. Use of the energy metric has been employed in the shock trials of the USS SEAWOLF (see 63 FR 66069, December 1, 1998) and USS WINSTON S. CHURCHILL (66 FR 22450, May 4, 2001).

Comment 6: The Commission remains concerned that NMFS continues to categorize temporary threshold shift (TTS) as constituting Level B harassment, discounting the potential that diminishment of hearing capability in marine mammals, even if only of limited duration, may cause impairment that could lead to injury or even death (e.g. by lowering the ability of an animal to detect and avoid predators or ships). The Commission notes, however, that regardless of whether TTS is considered Level A or Level B harassment, taking could be authorized under a section 101(a)(5)(D) IHA, provided that mortalities do not occur.

Response: As mentioned in previous **Federal Register** documents, second level impacts due to a marine mammal having a temporary hearing impairment cannot be predicted and are, therefore, speculative. The principal reason that second level impacts are not considered in classification is that any Level B disruption of behavior could, with suppositions, be seen as potentially dangerous and, therefore, considered potential Level A harassment or even lethal. Similarly, Level A injuries could be seen as being accompanied by some disruption of behavior and, therefore, with both Level B disturbances and Level A injuries. Such reasoning blurs the distinctions between the definitions of harassment. NMFS believes that Level B harassment, if of sufficient degree and duration, can be very serious and require consideration, as has been done here. Moderate TTS does not necessarily mean that the animal cannot hear, only that its threshold of hearing is raised above its normal level. The extent of time that this impairment remains is dependent upon the amount of initial TS, which depends on the strength of the received sound and whether the TTS is in a frequency range that the animal depends on for receiving cues that would benefit survival. It should be noted that increased ambient noise levels, due to biologics, storms, shipping, and tectonic events may also result in short-term decreases in an animal's ability to hear normally. NMFS scientists believe that marine mammals have likely adopted behavioral responses, such as decreased spatial separation, slower swimming speeds, and cessation of socialization to compensate for increased ambient noise or hearing threshold levels.

Ship strikes of whales by large vessels suggest that at least certain species of large whales do not use vessel sounds to avoid interactions. Also, there is no indication that smaller whales and dolphins with TTS would modify behavior significantly enough to be struck by an approaching vessel. Finally, a hypothesis that marine mammals would be subject to increased predation presumes that the predators would either not be similarly affected by the detonation or would travel from areas outside the impact zone, indicating recognition between the signal of a single detonation at distance and potentially debilitated food sources. Therefore, NMFS does not believe the evidence warrants that all (or an unknown percentage) of the estimated numbers of Level B harassment be considered as Level A harassment or as potential mortalities.

Comment 7: The Commission states that NMFS seems to discount entirely the possibility that marine mammals may be harassed through changes in behavioral patterns other than by TTS.

The basis for this conclusion is not clear from the discussion on page 21819 of the **Federal Register** notice. Additional explanation is needed and should consider, among other things, whether marine mammals might alter their use patterns in the vicinity of detonations, or even abandon an area, as a result of infrequent or even a one-time exposure.

Response: NMFS does not have information to support the Commission's hypothesis that marine mammals would abandon or significantly alter their natural behavioral patterns in response to a single explosive detonation. Contrary to this hypothesis, NMFS believes that, unless the mammal was transiting the area, it is unlikely that a marine mammal would leave an area that provides important biological resources for sustenance and reproductive success from the sounds from a single distant water detonation (presuming here that it is more likely that an animal will spend the majority of its time in a biologically important area). In fact, the GOM has thousands of lightning strikes annually (approximately 10 strikes per sq km per year in the GOM with source levels of about 260 dB re 1 microPa (peak)(NASA, 2005). It is likely that marine mammals are evolutionarily adapted to natural events such as tectonics and lightning storms, which have similar characteristics to the explosives in this action. In the absence of additional information, NMFS concludes that a marine mammal may be startled by the received sound level from a single explosive detonation if near enough to the source, but it is highly unlikely that marine mammals would abandon or significantly alter their behavior patterns. Therefore, we do not believe effects rise to the level of a significant alteration or abandonment of natural behavioral patterns, i.e., Level B harassment. In any case, Level B takes are counted insofar as we consider TTS to be Level B harassment.

Comment 8: The Commission believes that NMFS needs to provide a better explanation of, and justification for, using the dual criteria established for determining non-lethal injury (i.e., the onset of slight lung hemorrhage and a 50 percent probability for eardrum rupture).

Response: Explanation and justification were provided in detail in both the SEAWOLF and CHURCHILL Final EISs (DoN 1998 and DoN 2001). An updated summary for using the dual injury criteria from those documents is provided here:

1. Auditory System Injury

Tympanic membrane (TM) rupture, while not necessarily a serious or life-threatening injury, is a useful index of injury that is well correlated with measures of permanent hearing loss (Ketten, 1995, 1998). The occurrence of 50 percent TM rupture has been correlated to 30 percent permanent threshold shift (PTS) (Ketten, 1995, 1998) and will be considered as the index for permanent auditory system injury. In this response, the criteria will be explained for conservatively estimating the range for occurrence of 50–percent TM rupture (30–percent PTS). Significant occurrence of TM rupture would be expected at ''near field'' ranges significantly closer to the charge than the ranges for TTS and onset of PTS. For the CHURCHILL EIS injury model, TM rupture criteria were based on a limited number of small charge underwater explosion tests conducted with small terrestrial mammals as reported by both Yelverton *et al.* (1973) and Richmond et al. (1973). TM rupture-specific tests were conducted with post-mortem dogs (nominal 25–kg body mass) using 1–lb (0.45–kg) TNT charges. Additional TM rupture data from general injury tests conducted with sheep (nominal 40–kg body mass) using 0.5–lb and 1–lb (0.23–kg and 0.45–kg) pentolite charges were also included.

Damage to terrestrial mammal internal organs typically has been referenced to total shock wave impulse (pressure integrated over time) (Richmond *et al.* (1973) and Yelverton *et al.* (1973)). Yelverton *et al.* (1973) state that eardrum ruptures would occur at sub-lethal impulses of 20 to 40–psi-msec (138 to 276–Pa-sec) and that an impulse of 10–psi-msec (69–Pa-sec) or less would not cause eardrum ruptures.

Acoustic energy (proportional to the square of pressure integrated over time) may be one of the appropriate parameters for evaluation of the response of the mammalian ear to the intensities of underwater noise at least sufficient to cause TTS. The shock wave's EFD appears to be at least as good an indicator/predictor of auditory system injury (TM rupture) as impulse and, for the CHURCHILL shock trial conditions, provided a means to include the potential effects of the bottom-reflected pressure wave.

Logarithmic interpolation of the test data for EFDs for 42 percent and 67 percent TM rupture indicates that the calculated EFD required for the occurrence of 50 percent TM rupture (approximately 30 percent PTS) is 1.17 in-lb/in2 (20.44 milli-Joules/cm^2). The small sample sizes for the reported terrestrial animal test data in combination with the inherent variability in the occurrence of TM rupture at levels less than approximately 50 percent preclude realistic predictions of low percentages of occurrence of TM rupture.

2. Onset of Slight Lung Injury

Using data from tests with small terrestrial mammals from Yelverton *et al.* (1973) and Richmond *et al.* (1973), Goertner (1982) developed a conservative model for calculating the ranges for occurrence of two types of internal organ injury to marine mammals exposed to underwater explosion shock waves. The two injury mechanisms considered are (1) slight lung hemorrhage, and (2) contusions and hemorrhage of the gastrointestinal (G.I.) tract. For lung hemorrhage, the Goertner model considers lung volume as a function of animal weight and depth and considers shock wave duration and impulse tolerance as a function of animal weight and depth. Goertner indicated that slight injury to the G.I. tract could be related to the magnitude of the peak shock wave pressure over the hydrostatic pressure and would be independent of mammal size and weight. Slight contusions to the G.I. tract occurred during small charge tests (Richmond *et al.*, 1973) when the peak shock wave pressure was 104 psi above hydrostatic pressure. Onset of G.I. tract contusion and onset of slight lung hemorrhage are injuries from which a mammal would be expected to recover on its own and would not be debilitating. For small mammals, significant G.I. tract injury (G.I. tract hemorrhage) would be expected to occur at ranges significantly closer to the explosion than the maximum calculated ranges for the onset of slight lung injury. Injury ranges determined on the basis of the Goertner model are most appropriate for use in regions close to the explosive charge.

After correcting for the atmospheric and hydrostatic pressures for the data, the minimum impulse (I) for predicting onset of slight lung hemorrhage in a small mammal is:

I = 19.7 (M/42)1/3 psi-msec, or

I = 136 (M/42)1/3 Pa-sec,

where M is the body mass (in kg) of the subject animal. Impulse values from the above equation provide a shallow depth ''starting point'' for determining the maximum range and the corresponding ''at-depth'' impulse level for the specific charge weight and marine mammal size. A maximum range should not be calculated using only the above impulse/body mass relationship

and the total impulse similitude equation for a specific explosive.

The modified Goertner model is very sensitive to mammal weight. By assuming a small mammal weight for an impact analysis, the onset of slight injury range is maximized for conservatism. Injuries from explosions in relatively shallow water (i.e., on the continental shelf) may be exacerbated by strong bottom-reflected pressure pulses.

Comment 9: In reviewing NMFS' May 4, 2001, response to the Commission's January 26, 2001, comments (see 66 FR 22456, May 4, 2001), NMFS appears to agree with the Commission that eardrum rupture is a questionable measure of acoustic injury in marine mammals. NMFS notes that ''(b)ecause the criterion is based upon land mammals rather than marine mammals, and because TM (tympanic membrane) rupture research has not been conducted on marine mammals, it is not the 50–percent rupture itself that is the criterion used, but the 'impulse' in psi-msec that is associated with other impacts on the body...the EFD that causes either the 50 percent TM rupture or the impulse that causes slight lung hemorrhage is the real criterion.'' NMFS' response further indicates that ''because the impulse estimated to cause slight lung hemorrhage was more conservative (i.e., had a greater range), it is slight lung hemorrhage that is the defining criterion used for determining injury in this action, not the EFD used for 50–percent TM rupture.'' Based on this explanation, it appears that the 50 percent probability for eardrum rupture is not a useful metric in that it cannot be measured. In essence, the probability for eardrum rupture substitutes for another metric (PTS), which also cannot be measured. Because of these difficulties, neither metric is ultimately used in setting the safety zone.

Response: Although non-lethal impact cannot be measured for wild animals at the time of the action, acoustic thresholds for injury have been derived from tests on terrestrial animals in water. These thresholds are the best science available today. For the subject action, the impact range determined from the lung injury threshold is the most conservative. However, in other actions, the eardrum rupture threshold may be more conservative. For that reason, the dual criteria are needed to use a conservative approach for determining injury ranges for the variety of explosive activities considered by NMFS for incidental take authorizations.

Comment 10: Related to the previous comment, the Commission notes that both the May 4, 2001, and the April 22, 2004, **Federal Register** notices give a value of EFD that would cause 50 percent probability of TM rupture, but provide no reference for this value and no indication of the signal waveform or the time interval over which the energy density flux is integrated. Before using this value of EFD as the threshold of Level A harassment for an authorization, the applicant or NMFS needs to provide the waveform and integration time interval and explain the scientific basis for this choice.

Response: Explanation and reference for the EFD value are found in response to comment 8. The nominal source waveform at unit distance used for the Air Force risk assessment modeling is defined as follows:

$p(t) = 0$ for $t < 0$

$p(t) = p_{max} \exp(-t/t)$ for $t > 0$

where p(t) is pressure as a function of time, t. Pmax represents peak pressure at unit distance and t is the characteristic time at unit distance. The waveform and parameters are estimated using the similitude formulas of Weston (1960) (see, e. g., Urick, 1983)(note that this is the Friedlander waveform).

Consistent with NMFS' SEAWOLF and CHURCHILL rulemakings and the Navy's NEPA analyses for those actions, no bubble pulses were included (and are not considered important for near surface shots). The waveforms were 'propagated' using the similitude-based peak pressures and characteristic times as functions of distance. The propagation model was the Navy standard CASS-GRAB model, modified to calculate impulse response of the channel.

At range, the squared pressure for the entire set of arrivals was integrated over time, and normalized by the scalar acoustic impedance, to yield total energy (i.e., the integration was over the duration of all arrivals).

Comment 11: The Commission believes that additional clarification and justification is needed concerning the ''non-injurious behavioral response'' threshold proposed in Table 6–1 on page 14 of the application. The applicant suggests a level of 6 dB below TTS (i.e., 176 dB re 1 microPa^2-sec) as a reasonable criterion to assess potential behavioral responses of marine mammals. However, neither the application nor the NMFS notice provides information as to how this number was derived. Prior to issuing the requested authorization, the applicant or NMFS should provide additional information to support the scientific basis for using this criterion.

Response: As noted in the proposed authorization notice, the PSW action consists of single detonations. Based on the science used to develop the CHURCHILL criteria, for single detonations a significant response by a marine mammal is not expected to occur other than by TTS. The discussion in the application and **Federal Register** notice is relevant to actions involving multiple detonations. NMFS will address comments on this threshold criterion in an applicable proposed IHA authorization with multiple detonations.

Comment 12: The Commission notes that the **Federal Register** notice for the proposed IHA states that, in its rulemaking on the CHURCHILL ship shock testing, NMFS adopted two criteria for estimating the TTS threshold: 182 dB and 12 psi. The notice states that the second criterion ''was introduced to provide a more conservative safety zone for TTS when the explosive or the animal approaches the sea surface (for which the explosive energy is reduced but the peak pressure is not).'' The notice states that ''for large explosives (2,000 to 10,000 lbs) and explosives/animals not too close to the surface, the TTS impact zones for these two TTS criteria are approximately the same. However, for small detonations, some acousticians contend that ranges for the two TTS thresholds may be quite different, with ranges for the peak pressure threshold several times greater than those for energy.'' NMFS notes that the applicant is endorsing an approach being developed by the Navy for ''scaling'' the peak pressure threshold in order to estimate more accurately the TTS for small detonations while preserving the safety feature provided by the peak pressure threshold. The Commission recommends that, in any authorization issued to Eglin AFB, NMFS provide the full set of data, assumptions, and calculations considered in its review.

Response: This issue remains under review by the Navy, the U.S. Air Force and NMFS. Navy acousticians believe that Ketten (1995), which summarized earlier acoustic research, does not fully support using a 12–psi peak pressure threshold for TTS for underwater explosion impacts on marine mammals from small detonations. The original basis in Ketten (1995) for the use of the 12–psi threshold for the SEAWOLF and CHURCHILL actions (which were 10,000 lb (4,536 kg) detonations) is the use of a combination of in-air and in-water peak pressure measurements without adjustment for the medium. A re-examination of the basis for the 12–psi threshold by Navy acousticians indicate that, for underwater explosions of small charges, a higher threshold may

be warranted. This led the Navy and Eglin to suggest scaling 12 psi for small charges, which was used in the proposed authorization notice and analysis. Although this issue remains under review by NMFS and the Navy for future rulemaking actions (including the upcoming PSW proposed rule), as an interim criterion for this IHA, NMFS is adopting the experimental findings of Finneran *et al.* (2002) that TTS can be induced at a pressure level of 23 psi (at least in belugas). As explained here, this is considered conservative since a 23 psi pressure level was below the level that induced TTS in bottlenose dolphins.

Finneran *et al.* (2000; as described in Finneran *et al.* (2002)) conducted a study designed to measure masked TTS (MTTS) in bottlenose dolphins and belugas exposed to single underwater impulses. This study used an ''explosion simulator'' (ES) to generate impulsive sounds with pressure waveforms resembling those produced by distant underwater explosions. No substantial (i.e., 6 dB or larger) threshold shifts were observed in any of the subjects (two bottlenose dolphins and 1 beluga) at the highest received level produced by the ES: approximately 70 kPa (10 psi) peak pressure, 221 dB re re 1 micro Pa peak-to-peak (pk-pk) pressure, and 179 dB re 1 microPa^2–s total EFD. In Finneran *et al.* (2002), a watergun was substituted for the ES because it is capable of producing impulses with higher peak pressures and total energy fluxes than the pressure waveforms produced using the ES. It was also preferable to other seismic sources because its impulses contain more energy at higher frequencies, where odontocete hearing thresholds are relatively low (i.e., more sensitive). Hearing thresholds were measured at 0.4, 4 and 30 kHz. MTTSs of 7 and 6 dB were observed in the beluga at 0.4 and 30 kHz, respectively, approximately 2 minutes following exposure to single impulses with peak pressures of 160 kPa (23 psi), pk-pk pressures of 226 dB re 1 microPa, and total EFD of 186 dB re 1 microPa^2–s. Thresholds returned to within 2 dB of the pre-exposure value approximately 4 minutes post exposure. No MTTS was observed in the single bottlenose dolphin tested at the highest exposure conditions: peak pressure of 207 kPa (30 psi), 228 dB re 1 microPa pk-pk pressure, and 188 dB re 1 microPa^2–s total energy flux. Therefore, until additional scientific information is obtained, NMFS has determined that the pressure criterion for small explosions can be raised from 12 psi to 23 psi. At this time, NMFS believes that setting the pressure metric at 23 psi is conservative.

It should be noted that the PSW mission includes only a single JASSM detonation in water, all other detonations are in-air detonations. Analyses indicate that the ranges for the 23– psi TTS metric at depths greater than 20 ft (6.1 m) are less conservative than the originally provided ranges for the 182–dB (re 1 microPa^2–s) TTS energy metric. Conversely, ranges for the 23–psi TTS metric in air and at the 1–ft (0.3–m) water depth are more conservative than the ranges originally provided for the 182–dB energy metric. For the PSW activity, NMFS will use the more conservative values to determine impacts (Table 1).

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Table 1 . Zones of Impact for Underwater Explosions (Mid-Depth Animal)

Ordnance	NEW (TNT in lb)	Depth or Height of Explosion (m)	Ranges for 182 dB EFDLin 1/3-Octave Band (m)	Ranges for 23 psi (m)
Summer				
Single SDB	48	1.5	47	447*
		7.6	48	447*
Double SDB	96	1.5	65	550*
		7.6	66	550*
Single JASSM	300	0.3	520	770*
		>6.1	2490*	770
Winter				
Single SDB	48	1.5	47	471*
		7.6	48	471*
Double SDB	96	1.5	65	594*
		7.6	66	594*
Single JASSM	300	0.3	580	871*
		>6.1	3250*	871

* Range used for take calculations

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Mitigation and Monitoring Concerns

Comment 13: Based on the information contained in the application and **Federal Register** notice, the Commission believes that NMFS' preliminary determinations are reasonable, provided that the proposed mitigation and monitoring activities are adequate to detect all marine mammals in the vicinity of the proposed operations and sufficient to ensure that marine mammals are not being taken in unanticipated ways or numbers. The Commission notes however, that even under the best of conditions and using experienced observers, there is greater than an 80 percent likelihood that small cetaceans, particularly species such as dwarf or pygmy sperm whales, will not be observed if they are in the vicinity of the test site. Thus, although there may be a low probability that certain marine mammal species will be within the area where mortalities are considered possible at the time of weapon deployment, it is unclear that the proposed monitoring effort will be adequate to detect them if they are present. This being the case, the proposed monitoring activities may be insufficient to provide assurance that marine mammals are not being exposed to sound pressures or energy levels that could cause lethal injuries. Thus, NMFS, before issuing the requested authorization, should further explain its rationale for determining that the takings will only be by harassment.

Response: The monitoring effort for PSW is similar to that used in previous ship-shock actions wherein detonations of 10,000 lbs (4536 kg) were used without any serious injuries or mortalities being detected during extensive follow-up monitoring. While dwarf/pygmy sperm whales are unlikely to be in the general area and, therefore, not subject to potential injury or mortality, past shock trial exercises considered the detection of these species to be 50 percent by vessel observers and 10 percent by aerial observers. For the bottlenose and spotted dolphins, detection by shipboard observers is 100 percent and aerial observers at 50 percent giving an overall detection capability of 90 percent (DON, 1999, Appendix C). However, for safety reasons, monitoring personnel will need to vacate the respective safety zones in advance of detonation, as explained later in this document (see Table 6 in Mitigation). As a result, Eglin AFB and NMFS calculate an overall monitoring effectiveness of 30 percent for all species. Table 3 in this document indicates that the risk for a lethal take of an individual marine mammal from all PSW exercises with a 30–percent mitigation effectiveness is less than one animal.

There is a scientific methodology to estimate the probability of detecting marine mammals during vessel assessment surveys, as explained in detail in Buckland *et al.* (1993) and Barlow (1995). Methodology includes several components, including the probability that the mammal will be at the surface and potentially sightable while within visual range of the observers, the probability that an animal at the surface will in fact be detected, and the relationship between sighting probability and lateral distance from the ship's trackline. One factor providing better detection rates for *Kogia spp.* for this action is that the vessel observers will be monitoring a relatively small area, not conducting track line surveys at a high rate of speed as done in NMFS marine mammal abundance surveys. In addition, Eglin will be conducting aerial marine mammal surveys over an area of 12.56 nm^2 (2–nm (3.7–km) radius), further precluding animals from entering the safety zone undetected. As a result of all of these factors, NMFS is confident that no marine mammals will be killed as a result of Eglin's PSW activities.

Comment 14: The Commission recommends that, if NMFS determines that the potential for lethal injuries is sufficiently remote to warrant the issuance of an authorization under section 101(a)(5)(D) of the MMPA, any such authorization explicitly require that operations be suspended immediately if a dead or seriously injured animal is found in the vicinity of the test site, pending authorization to proceed or issuance of regulations authorizing such takes under section 101(a)(5)(A) of the MMPA.

Response: Testing consists of a single exercise with a single detonation with weeks or months likely between detonations. As a result, if a seriously injured or dead marine mammal is found in the vicinity of the test operations do not need to be ''immediately suspended,'' but future tests will not occur until the serious injury or mortality has been investigated as to likely cause.

Comment 15: The GRN and the AEI find that the proposed mitigation is inadequate to protect marine species in the GOM. Both groups claim that visual monitoring is not an effective method for detecting all cetaceans. The GRN notes that sperm whales, for instance, are known for their extremely long, deep-water dives. Up to 5000 ft (1524 m) dives have been reported for periods up to 2 hours long. The animals would not be visible to observers in either a helicopter 250 ft (76.2 m) above the surface of the water or on board a ship, and they could easily surface unnoticed in an area impacted by the testing. Reliance on visual monitoring is not sufficient to adequately protect cetacean populations in the GOM. Instead, if allowed to proceed with the proposed activity, Eglin AFB should be required to use passive acoustic monitoring to ensure that impacts to protect species are minimal.

Response: While sperm whales and other deep-diving marine mammals may remain submerged for long periods of time, the proposed action would be located in waters less than 200 ft (61 m) deep. This habitat is not expected to be utilized by sperm whales or beaked whales. The marine mammal species that inhabit the waters off Eglin AFB are the bottlenose dolphin, spotted dolphin and possibly *Kogia*. Other than *Kogia*, these species are easily sighted from aircraft and ships. While *Kogia* are more difficult to see, restricting exercises to sea states lower than 4, having aerial coverage in addition to shipboard observers, and the small zone for Level A harassment, should eliminate the likelihood that *Kogia* or other marine mammal species would be injured or killed. Therefore, requiring the use of passive acoustics is not warranted.

Comment 16: The GRN is also concerned by Eglin AFB's apparent emphasis on post-mission monitoring (affording 2 hours of aerial surveys after the activity and only one hour of continuous aerial surveying prior to detonation of the weapons). The GRN believes that, although post-mission monitoring is important, major emphasis should be placed on preventing harm, not quantifying the number of dead and injured marine mammals and sea turtles.

Response: NMFS believes that both pre-detonation monitoring and post-detonation monitoring are important. Eglin will begin vessel surveys 5 hours prior to the test and aerial surveys of the test site 2 hours prior to the proposed time of detonation (Eglin, 2004). For safety reasons, aircraft and ships will need to begin exiting the area 15 minutes prior to detonation (see Table 6). While it is very unlikely that marine mammals will enter the relatively small impact zone between the time vacating the area and the time of detonation, post monitoring will provide valuable information on whether current mitigation measures are fully effective at preventing mortality and serious injury.

Comment 17: The AEI believes that NMFS should consider the use of active

acoustic systems (i.e., fish-finding sonar) to identify large schools of fish and/or individual sea turtles that may be affected by the bombing exercises.

Response: Large fish schools and sea turtles will be more effectively sighted by the marine mammal monitoring aircraft than by standard ''fish finding'' sonars. However, to the extent that the monitoring vessel can utilize its acoustic equipment to detect fish schools and sea turtles, NMFS recommends that it do so. This acoustic equipment is of low intensity and, therefore, is not expected to result in marine mammal harassment. However, the use of more sophisticated high-intensity military sonars are not recommended for use as a mitigation/monitoring tool here because of its potential impacts to marine mammals and other marine life.

Comment 18: The AEI notes that the recent calibration test for Lamont-Doherty Earth Observatory's marine seismic array in the GOM indicates that in relatively shallow water, loud low-frequency acoustic sources may lead to received levels of concern at greater distances than current models would suggest. As a result, received level models of the bombing exercises should be based at least on the most recent propagation models. Also, the most reliable safety radii would be determined by real-world tests in the areas planned for the exercises.

Response: The model employed by L-DEO for seismic arrays is different from the model used by Eglin and the Navy for explosives. The subject risk assessment employs the CASS/GRAB Navy Standard propagation model and Navy Standard environmental databases (including bathymetry, sound speed, and 15–parameter geo-acoustic sediment properties). These are considered state of the art. The propagation model starts with impulse response and accounts for multipath propagation in the water column and in the sediments. Hence, it estimates the effects of the 'bottom' in shallow water. For sediments like those found at the coastal water sites for Eglin's risk assessment, propagation of sound energy at the lower frequencies (below several hundred Hertz) is generally much better than that in deep water. This enhanced propagation for energy metrics is included in the range estimates for the risk assessment.

It should be noted that sound propagation in shallow water has been a topic of intense study and measurement for at least 50 years, primarily by the U.S. Navy, but also by other nations and international bodies. Shallow-water bottom effects('reverberant' multipaths, shallow water waveguides, low-frequency cutoff, influence of sea state, etc.) are all covered in most basic underwater-acoustics textbooks (e.g., Urick, 1967).

Comment 19: The GRN questions whether post-activity monitoring, when limited to 2 hours, can accurately estimate the effectiveness of pre-activity monitoring. While many dead marine mammals and sea turtles may rise to the surface immediately after the mission, it is possible that the lethal impacts of the activity may not be immediate. As a result, sea turtles and marine mammals may resurface days later, float to shore, and may or may not be reported to a stranding network.

Response: Considering the extensive pre-mission mitigation measures implemented to prevent injury or mortality, NMFS believes it is unnecessary to remain at the site with vessels and aircraft for longer periods of time after completion of a test. Eglin AFB will coordinate its activities with the NMFS stranding network and with local stranding networks to locate any stranded marine mammals after an event. In addition, Eglin AFB maintains its own stranding network team. Stranding events are tracked by year, season and NMFS statistical zone, both Gulf-wide and along the coastline of Eglin AFB.

Activity Concerns

Comment 20: The GRN notes that in the event that a live warhead fails to explode during the strike, Eglin AFB will likely detonate the warhead where it fell to the bottom of the ocean. An underwater detonation creates a much larger chance of injury or death to all marine species, yet Eglin does not provide an adequate description of the level of potential impact to protected species taken under that scenario.

Response: The noise analysis was conservatively modeled by Eglin for 20 ft (6 m) below the surface in order to cover any water depth, including detonation on the sea bottom. There would be no difference in the noise zone of influence from what is modeled and mitigated from a 20–ft (6 m) depth detonation and a bottom detonation. However, the missile itself is programmed to lose power and will not detonate after 15 minutes. Therefore, it is safe to retrieve the missile after 15 minutes and they do not need to be detonated on-site.

Description of Marine Mammals Affected by the Activity

There are 29 species of marine mammals documented as occurring in Federal waters of the GOM. Information on those species that may be impacted by this activity are discussed in the Eglin AFB application and the Draft EA. A summary of that information is provided in this section.

General information on these species can be found in Wursig *et al.* (2000. The Marine Mammals of the Gulf of Mexico, TAMU Press, College Station, TX) and in the NMFS Stock Assessment Reports (Waring, 2002). This latter document is available at: *http://www.nmfs.noaa.gov/prot__res/PR2/Stock__Assessment__Program/sars.html#Stock Assessment Reports*

Marine mammal species that potentially occur within the EGTTR include several species of cetaceans and one sirenian, the West Indian manatee. During winter months, manatee distribution in the GOM is generally confined to southern Florida. During summer months, a few may migrate north as far as Louisiana. However, manatees primarily inhabit coastal and inshore waters and rarely venture offshore. PSW missions would be conducted offshore. Therefore, effects on manatees are considered very unlikely.

Cetacean abundance estimates for the study area are derived from GulfCet II (Davis *et al.*, 2000) aerial surveys of the continental shelf within the Minerals Management Service Eastern Planning Area, an area of 70,470 km^2. Texas A&M University and NMFS conducted these surveys from 1996 to 1998. Abundance and density data from the aerial survey portion of the survey best reflect the occurrence of cetaceans within the EGTTR, given that the survey area overlaps approximately one-third of the EGTTR and nearly the entire continental shelf region of the EGTTR where military activity is highest. The GulfCet II aerial surveys identified different density estimates of marine mammals for the shelf and slope geographic locations. Only the shelf data is used because PSW missions will only be conducted on the shelf.

In order to maximize species conservation and protection, the species density estimate data were adjusted to reflect more realistic encounters of these animals in their natural environment. Refer to ''*Conservative Estimates of Marine Mammal Densities*'' in this document and Eglin AFB's application for more information on density estimates. A brief description of each marine mammal species observed during GulfCet II aerial surveys on the shelf that has the potential to be present in the PSW test area is summarized here.

Atlantic Bottlenose Dolphins (Tursiops truncatus)

Bottlenose dolphins are distributed worldwide in tropical and temperate waters. In the GOM, several coastal and offshore stocks have been identified (see Waring et al. 2002) and one stock occurs in the inshore waters of the entire GOM. Waring *et al.* (2002) provides the following minimum population estimates for the GOM bottlenose dolphin stocks: outer shelf, 43,233; shelf and slope, 4,530; western Gulf, 2,938; northern Gulf, 3,518; eastern Gulf, 8,953; and Bay, Sound & Estuarine waters, 3,933. Baumgartner *et al.* (2001) suggest a bimodal distribution in the northern GOM, with a shelf population occurring out to the 150–m (492 ft) isobath and a shelf break population out to the 750–m (2461 ft) isobath. Occurrence in water with depth greater than 1,000 m (3281 ft) is not considered likely. Migratory patterns from inshore to offshore are likely associated with the movements of prey rather than a preference for a particular habitat characteristic (such as surface water temperature) (Ridgeway, 1972; Irving, 1973; Jefferson *et al.*, 1992).

The average herd or group size of Atlantic bottlenose dolphins in shelf and slope waters was approximately four and 10 individuals, respectively, per herd as determined by GulfCet II surveys of eastern Gulf waters (Davis *et al.*, 2000). The diet of Atlantic bottlenose dolphins consists mainly of fish, crabs, squid, and shrimp (Caldwell and Caldwell, 1983).

Atlantic Spotted Dolphins (Stenella frontalis)

Atlantic spotted dolphins are endemic to the tropical and warm temperate Atlantic Ocean. This species ranges from the latitude of Cape May, NJ, along mainland shores to Venezuela, including the GOM and Lesser Antilles (Caldwell and Caldwell, 1983). Sightings of this species are concentrated along the continental shelf and shelf edge (Fritts *et al.*, 1983), but they also occur farther offshore. At one time, Atlantic spotted dolphins were considered to be the most abundant species of dolphin in offshore waters (Schmidly, 1981), with most sightings occurring at an average of 168 km (90.7 nm) offshore. The best available abundance estimate for this species in the northern GOM is the combined estimate of abundance for both the OCS (39,307, CV=0.31) and oceanic (238, CV=0.87) waters from 1996 to 2001, which is 39,545 (CV=0.31)(NMFS, 2003).

The preferred depth of the spotted dolphin is believed to be associated with food availability and water temperature. The diet of the Atlantic spotted dolphin consists of squid and fish.

Dwarf Sperm Whales and Pygmy Sperm Whales

Dwarf sperm whales (*Kogia simus*) commonly inhabit the deeper offshore water, generally eating squid, crustaceans, and fish (Caldwell and Caldwell, 1983), but they do move into inshore waters during calving season. The pygmy sperm whale (*Kogia breviceps*) has a diet similar to that of the dwarf sperm whale. Both pygmy and dwarf sperm whales have been sighted in the northern GOM primarily along the continental shelf edge and in deeper shelf waters during all seasons except winter (Mullin *et al.*, 1994). The estimate of abundance for dwarf and pygmy sperm whales in oceanic waters is 809 (CV=0.33)(Mullin and Fulling, in prep), which is the best available abundance estimate for these species in the northern GOM. Separate estimates of abundance cannot be made due to uncertainty of species identification (NMFS, 2003). Dwarf and pygmy sperm whales have a high percentage of strandings relative to percent population of all cetaceans (Mullin *et al.*, 1994).

Impacts to Marine Mammals

Potential impacts to marine mammals from the detonation of the PSWs and SDBs include both lethal and non-lethal injury, as well as Level B behavioral harassment. Although unlikely due to the extensive mitigation measures proposed by Eglin AFB, marine mammals have the potential to be killed or injured as a result of a blast due to the response of air cavities in the body, such as the lungs and bubbles in the intestines. Effects are likely to be most severe in near surface waters where the reflected shock wave creates a region of negative pressure called ''cavitation.'' This is a region of near total physical trauma within which no animals would be expected to survive. A second criterion used by NMFS for categorizing taking by mortality is the onset of extensive lung hemorrhage. Extensive lung hemorrhage is considered to be debilitating and thereby potentially fatal. Suffocation caused by lung hemorrhage is likely to be the major cause of marine mammal death from underwater shock waves.

For the acoustic analysis, the exploding charge is characterized as a point source. The impact thresholds used for marine mammals relate to potential effects on hearing from underwater noise from detonations. For the explosives in question, actual detonation heights would range from 0 to 25 ft (7.6 m) above the water surface. Detonation depths would range from 0 to 80 ft (73.2 m) below the surface. To bracket the range of possibilities, detonation scenarios just above and below the surface were used to analyze bombs set to detonate on contact with the target barge. Potentially, the barge may interact with the propagation of noise into the water. However, barge effects on the propagation of noise into the water column cannot be determined without in-water noise monitoring at the time of detonation.

Potential exposure of a sensitive species to detonation noise could theoretically occur at the surface or at any number of depths with differing consequences. As a conservative measure a mid-depth scenario was selected to ensure the greatest direct path for the harassment ranges, and to give the greatest impact range for the injury thresholds.

Explosive Criteria and Thresholds for Impact of Noise on Marine Mammals

Criteria and thresholds that are the basis of the analysis of PSW noise impacts to cetaceans were initially used in U.S. Navy's environmental impact statements (EISs) for ship shock trials of the SEAWOLF submarine and the USS WINSTON S. CHURCHILL vessel (DON, 1998; DON, 2001) and accepted by NMFS as representing the best science available (see 66 FR 22450, May 4, 2001). With a single exception mentioned in this document, NMFS believes that the criteria developed for the shock trials represent the best science available. The following sections summarize the information contained in those actions.

Criteria and Thresholds: Lethality

The criterion for mortality for marine mammals used in the CHURCHILL Final EIS is 'onset of severe 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 take. The threshold is stated in terms of the Goertner (1982) modified positive impulse with value ''indexed to 31 psi-ms.'' Since the Goertner approach depends on propagation, source/animal depths, and animal mass in a complex way, the actual impulse value corresponding to the 31–psi-ms index is a complicated calculation. The acoustic threshold is derived from:

$I_{1\%} = 42.9\ (M/34)^{1/3}$ psi-ms,

where M is animal mass in kg. Again, to be conservative, CHURCHILL used the mass of a calf dolphin (at 12.2 kg), so that the threshold index is 30.5 psi-ms.

Criteria and Thresholds: Injury (Level A Harassment)

Non-lethal injurious impacts are defined in this document as eardrum rupture (i.e., tympanic-membrane (TM) rupture) and the onset of slight lung injury. These are considered indicative of the onset of injury. The threshold for 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 is stated in terms of an EFD value of 1.17 in-lb/in^2, which is about 205 dB re 1 microPa^2–s. (Note: EFD is the time integral of the squared pressure divided by the impedance in values of dB re 1 microPa^2–s.) This recognizes that TM rupture is not necessarily a life-threatening injury, but is a useful index of possible injury that is well-correlated with measures of permanent hearing impairment (e.g., Ketten (1998) indicates a 30 percent incidence of permanent threshold shift (PTS) at the same threshold).

Criteria and Thresholds: Non-injurious Impacts (Level B Harassment)

Marine mammals may also be harassed due to noise from PSW missions involving high explosive detonations in the EGTTR. The CHURCHILL criterion for non-injurious harassment from detonations, as established through NMFS' incidental take rulemaking (see 66 FR 22450, May 4, 2001), is temporary (auditory) threshold shift (TTS), which is a slight, recoverable loss of hearing sensitivity (DoN, 2001). The criterion for TTS used in this document is 182 dB re 1 microPa^2–s maximum EFD level in any 1/3–octave band at frequencies above 100 Hz for all toothed whales (e.g., sperm whales, beaked whales, dolphins). (Note: 1/3–octave band is the EFD in a 1/3–octave frequency band; the 1/3 octave selected is the hearing range at which the affected species' hearing is believed to be most sensitive.) A 1/3–octave band above 10 Hz is used for impact assessments on all baleen whales, but those species do not inhabit the affected environment of this project.

The CHURCHILL rulemaking also established a second criterion for estimating TTS threshold: 12 psi. The appropriate application of this second TTS criterion is currently under debate, as this 12–psi criterion was originally established for estimating the impact of a 10,000–lb (4536–kg) explosive to be employed for the Navy's shock trial. It was introduced to provide a more conservative safety zone for TTS when the explosive or the animal approaches the sea surface (for which cases the explosive energy is reduced but the peak pressure is not).

For large explosives (2000 to 10,000 lbs (907–4536 kg)) and explosives/animals not too close to the surface, the TTS impact zones for these two TTS criteria are approximately the same. However, for small detonations, some acousticians contend the ranges for the two TTS thresholds may be quite different, with ranges for the peak pressure threshold several times greater than those for energy. In its application, Eglin AFB endorsed an approach, currently being developed by the Navy, for appropriately ''scaling'' the peak pressure threshold, in order to more accurately estimate TTS for small shots while preserving the safety feature provided by the peak pressure threshold. As such, in its application, Eglin AFB requested the energy-based criterion for TTS, 182 dB re 1 microPa2–s (maximum EFD level in any 1/3–octave band), be used alone to conservatively estimate the zone in which non-injurious (Level B) harassment of marine mammals may occur.

NMFS acousticians have reviewed the scientific basis for this proposal and agree, in part, with the statements made by Eglin AFB that the pressure criterion of 12 psi is not fully supportable for small charges or when either the charge or the recipient are at the surface. The model used in CHURCHILL assumed the detonation occurred in deep water with the charge placed below 318 ft (100 m) in depth, and that the bottom depth is at least 20 times the detonation depth. In contrast, in PSW missions, both the detonation and the recipient will be near the surface in relatively shallow water. Therefore, although this issue remains under review by NMFS and the Navy for future rulemaking actions, as an interim criterion for this IHA, NMFS is adopting the experimental findings of Finneran et al. (2002) that TTS can be induced at a pressure level of 23 psi (at least in belugas). As explained here, this is considered conservative since a 23–psi pressure level was below the level that induced TTS in bottlenose dolphins.

Finneran *et al.* (2000; as described in Finneran *et al.* (2002)) conducted a study designed to measure MTTS in bottlenose dolphins and belugas exposed to single underwater impulses. This study used an ''explosion simulator'' (ES) to generate impulsive sounds with pressure waveforms resembling those produced by distant underwater explosions. No substantial (i.e., 6 dB or larger) threshold shifts were observed in any of the subjects (two bottlenose dolphins and 1 beluga) at the highest received level produced by the ES: approximately 70 kPa (10 psi) peak pressure, 221 dB re re 1 micro Pa peak-to-peak (pk-pk) pressure, and 179 dB re 1 microPa^2–s total EFD. In Finneran *et al.* (2002), a watergun was substituted for the ES because it is capable of producing impulses with higher peak pressures and total energy fluxes than the pressure waveforms produced using the ES. It was also preferable to other seismic sources because its impulses contain more energy at higher frequencies, where odontocete hearing thresholds are relatively low (i.e., more sensitive). Hearing thresholds were measured at 0.4, 4 and 30 kHz. MTTSs of 7 and 6 dB were observed in the beluga at 0.4 and 30 kHz, respectively, approximately 2 minutes following exposure to single impulses with peak pressures of 160 kPa (23 psi), pk-pk pressures of 226 dB re 1 microPa, and total EFD of 186 dB re 1 microPa^2–s. Thresholds returned to within 2 dB of the pre-exposure value approximately 4 minutes post exposure. No MTTS was observed in the single bottlenose dolphin tested at the highest exposure conditions: peak pressure of 207 kPa (30 psi), 228 dB re 1 microPa pk-pk pressure, and 188 dB re 1 microPa^2–s total energy flux. Therefore, until more scientific information is obtained, NMFS has determined that the pressure criterion for small explosions can be amended from 12 psi to 23 psi. At this time, NMFS believes that setting the pressure metric of the dual explosive criteria at 23 psi is conservative, while setting the pressure metric at a higher level has not been scientifically validated at this time. Table 2 illustrates estimated zones of impact for potential mortality, injury and TTS.

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Table 2. Zones of Impact for Underwater Explosions (Mid-depth Animal).

Ordnance	NEW (TNT in lb)	Depth or Height of Explosion (m)	Ranges for 31 psi (m)	Ranges for EFDL > 205 dB (m)	Ranges for 182 dB EFDL in 1/3-Octave Band/ 12 psi (m)*
Summer					
Single SDB	48	1.5	n/a	12	447
		7.6	n/a	12	447
Double SDB	96	1.5	n/a	16	550
		7.6	n/a	17	550
Single JASSM	300	0.3	75	170	770
		>6.1	320	550	2490
Winter					
Single SDB	48	1.5	n/a	12	471
		7.6	n/a	12	471
Double SDB	96	1.5	n/a	16	594
		7.6	n/a	16	594
Single JASSM	300	0.3	75	170	871
		>6.1	320	590	3250

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Criteria and Thresholds: Behavioral Modification (Sub-TTS)

No strictly sub-TTS behavioral responses (i.e., Level B harassment) are anticipated with the JASSM and SBD test activities because there are no successive detonations (the 2 SBD explosions occur almost simultaneously) which could provide causation for a behavioral disruption rising to the level of a significant alteration or abandonment of behavioral patterns without also causing TTS. Also, repetitive exposures (below TTS) to the same resident animals are highly unlikely due to the infrequent JASSM and SBD test events, the potential variability in target locations, and the continuous movement of marine mammals in the northern GOM.

Incidental Take Estimation

For Eglin AFB's PSW exercises, three key sources of information are necessary for estimating potential take levels from noise on marine mammals: (1) The zone of influence (ZOI) for noise exposure; (2) The number of distinct firing or test events; and (3) the density of animals that potentially reside within the ZOI.

Noise ZOIs were calculated for depth detonation scenarios of 1 ft (0.3 m) and 20 ft (6.1 m) for lethality and for harassment (both Level A and Level B). To estimate the number of potential ''takes'' or animals affected, the adjusted data on cetacean population information from ship and aerial surveys were applied to the various impact zones.

Table 2 in this document give the estimated impact ranges for various explosive weights for summer and wintertime scenarios for JASSM and SDB. For example, the JASSM, the range, in winter, extends to 320 m (1050 ft), 590 m (1936 ft) and 3250 m (10663 ft) for potential mortality (31 psi-ms), injury (205 dB re 1 microPa^2–s) and TTS (182 dB re 1 microPa^2–s/23 psi) zones, respectively. SDB scenarios are for in-air detonations at heights of 1.5 m (5 ft) and 7.6 m (25 ft) during both seasons. JASSM detonations were modeled for near surface (i.e., 1–ft (0.3–m) depth) and below surface (>20–ft depth (> 6.1 m)). To account for ''double'' (2 nearly simultaneous) events, the charge weights are added (doubled) when modeling for the determination of energy estimates (since energy is proportional to weight). Pressure estimates only utilize the single charge weights for these estimates.

Applying the lethality (31 psi) and harassment (182 and 205 dB) impact ranges in Eglin AFB's Table 2 to the calculated species densities, the number of animals potentially occurring within the ZOIs without implementation of mitigation was estimated. These results are presented in Tables 3, 4, and 5 in this document. In summary, without any mitigation, a remote possibility exists for a bottlenose and an Atlantic spotted dolphins to be exposed to blast levels sufficient to cause mortality. Additionally, less than 2 cetaceans could be exposed to injurious Level A harassment noise levels (205 dB re 1 microPa^2–s), and as few as 31 or as many as 52 cetaceans (depending on the season and water depth) would potentially be exposed (annually) to a non-injurious (TTS) Level B harassment noise level (182 dB re 1 microPa^2–s). None of these impact estimates consider mitigation measures that will be employed by Eglin AFB to minimize potential impacts to protected species. These mitigation measures are described elsewhere in this document and are anticipated to reduce potential impacts to marine mammals, in both numbers and degree of severity.

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Table 3. Marine Mammal Densities and Risk Estimates for Lethality (31 psi) Noise Exposure for All In-Water and In-Air Detonations

Species	Density	Number of Animals Exposed from All In-Air and In-Water Detonations	Adjusted Number Exposed Based on 30% Mitigation Effectiveness
Summer			
Dwarf/pygmy sperm whale	0.013	0.004	0.003
Bottlenose dolphin	0.81	0.262	0.183
Atlantic spotted dolphin	0.677	0.219	0.153
T. truncatus/S. frontalis	0.053	0.017	0.012
TOTAL		**0.502**	**0.351**
Winter			
Dwarf/pygmy sperm whale	0.013	0.004	0.003
Bottlenose dolphin	0.81	0.262	0.183
Atlantic spotted dolphin	0.677	0.219	0.153
T. truncatus/S. frontalis	0.053	0.017	0.012
TOTAL		**0.502**	**0.351**

Table 4. Marine Mammal Densities and Risk Estimates for Level A Harassment (205 dB EFD 1/3-Octave Band) Noise Exposure for All In-Water and In-Air Detonations

Species	Density	Number of Animals Exposed from All In-Air and In-Water Detonations	Adjusted Number Exposed Based on 30% Mitigation Effectiveness
Summer			
Dwarf/pygmy sperm whale	0.013	0.014	0.010
Bottlenose dolphin	0.81	0.893	0.625
Atlantic spotted dolphin	0.677	0.747	0.523
T. truncatus/S. frontalis	0.053	0.058	0.041
TOTAL		**1.712**	**1.198**

Winter			
Dwarf/pygmy sperm whale	0.013	0.014	0.010
Bottlenose dolphin	0.81	0.893	0.625
Atlantic spotted dolphin	0.677	0.747	0.523
T. truncatus/S. frontalis	0.053	0.058	0.041
TOTAL		**1.712**	**1.198**

Table 5. Marine Mammal Densities and Combined Risk Estimates for the 23 psi Peak Pressure and the 182 dB EFD 1/3-Octave Band Level B Harassment Metrics for All In-Water and In-Air Detonations

Species	Density	Number of Animals Exposed from In-Air and In-Water Detonations	Adjusted Number Exposed Based on 30% Mitigation Effectiveness
Summer			
Dwarf/pygmy sperm whale	0.013	0.26	0.182
Bottlenose dolphin	0.81	16.209	11.3463
Atlantic spotted dolphin	0.677	13.547	9.4829
T. truncatus/S. frontalis	0.053	1.061	0.7427
TOTAL		**31.076**	**21.7532**
Winter			
Dwarf/pygmy sperm whale	0.013	0.44	0.308
Bottlenose dolphin	0.81	27.387	19.1709
Atlantic spotted dolphin	0.677	22.89	16.023
T. truncatus/S. frontalis	0.053	1.792	1.2544
TOTAL		**52.509**	**36.7563**

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Mitigation and Monitoring

Eglin will survey the Zone of Influence (ZOI) and a buffer zone around a planned detonation site. The buffer zone will be twice the size of the ZOI. Prior to the planned detonation, trained observers aboard aircraft will survey (visually monitor) the ZOI and buffer area, a very effective method for detecting sea turtles and cetaceans. The aircraft/helicopters will fly approximately 500 ft (152 m) above the sea surface to allow observers to scan a large distance. In addition, trained observers aboard surface support vessels will conduct ship-based monitoring for non-participating vessels as well as protected species. Using 25X power ''Big-eye'' binoculars, surface observation would be effective out to several kilometers.

Weather that supports the ability to sight small marine life (e.g., sea turtles) is required to effectively mitigate impacts on marine life (DON, 1998). Wind, visibility, and surface conditions in the GOM are the most critical factors affecting mitigation operations. Higher winds typically increase wave height and create ''white cap'' conditions, both of which limit an observer's ability to locate surfacing marine mammals and sea turtles. PSW missions would be delayed if the Beaufort scale sea state are greater than 3.5. This would maximize detection of marine mammals and sea turtles.

Visibility is also a critical factor for flight safety issues. A minimum ceiling of 305 m (1000 ft) and visibility of 5.6 km (3 nm) is required to support mitigation and safety-of-flight concerns (DON, 2001).

Aerial Survey/Monitoring Team

Eglin will complete an aerial survey before each mission and train personnel to conduct aerial surveys for protected species. The aerial survey/monitoring team would consist of two observers. Aircraft provides a preferable viewing platform for detection of protected marine species. Each aerial observer will be experienced in marine mammal and sea turtle surveying and be familiar with species that may occur in the area. Each aircraft would have a data recorder who would be responsible for relaying the location, the species if possible, the direction of movement, and the number of animals sighted. The aerial monitoring team would also identify large schools of fish, jellyfish aggregations, and any large accumulation of *Sargassum* that could potentially drift into the ZOI. Standard line transect aerial surveying methods, as developed by NMFS (Blaylock and

Hoggard, 1994; Buckland *et al.*, 1993) would be used. Aerial observers are expected to have above average to excellent sighting conditions at sunrise to 1.85 km (1 nm) on either side of the aircraft within the weather limitation noted previously. Observed marine mammals and sea turtles would be identified to the species or the lowest possible taxonomic level and the relative position recorded. In order to ensure adequate daylight for pre- and post-mission monitoring, the mission activity would occur no earlier than 2 hours after sunrise and no later than 2 hours prior to sunset.

Shipboard Monitoring Team

Eglin AFB will conduct shipboard monitoring to reduce impacts to protected species. The monitoring would be staged from the highest point possible on a mission ship. Observers would be familiar with the marine life of the area. The observer on the vessel must be equipped with optical equipment with sufficient magnification (e.g., 25X power ''Big-Eye'' binoculars, as these have been successfully used in monitoring activities from ships), which should allow the observer to sight surfacing mammals from as far as 11.6 km (6.3 nm) and provide overlapping coverage from the aerial team. A team leader would be responsible for reporting sighting locations, which would be based on bearing and distance.

The aerial and shipboard monitoring teams will have proper lines of communication to avoid communication deficiencies. The observers from the aerial team and operations vessel will have direct communication with the lead scientist aboard the operations vessel. The lead scientist will be a qualified marine biologist familiar with marine surveys. The lead scientist reviews the range conditions and recommends a Go/No-Go decision to the test director. The test director makes the final Go/No-Go decision.

Mitigation Procedures Plan

All zones (injury, ZOI and buffer zones) are monitored. Although unexpected, any mission may be delayed or aborted due to technical reasons. Actual delay times depend on the aircraft supporting the test, test assets, and range time. Should a technical delay occur, all mitigation procedures would continue and remain in place until either the test takes place or is canceled. The ZOI and buffer zone around JASSM missions will be effectively monitored by shipboard observers from the highest point of the vessel. Vessels will be positioned as close to the safety zone as allowed without infringing on the missile flight corridor. The SDB has many mission profiles and does not have a flight termination system; therefore, the safety buffer may be quite large (5–10 nm radius (9.3–18.5 km)).

PSW mitigation must be regulated by Air Force safety parameters (pers. comm. Monteith and Nowers, 2004) to ensure personnel safety. Therefore, mitigation effectiveness may be reduced for some missions due to mandatory safety buffers which limit the time and type of mitigation. Even though mitigation may be limited for SDB missions, all detonations are above the water surface (5–25 ft (1.5–7.6 m) above the surface) and of much smaller net explosive weight than JASSM. Table 6 describes safety zones and clearance times for JASSM and SDB missions (time in minutes).

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Table 6. Safety Zone Monitoring Time Frames and Effectiveness

	Flight Time	Safety Clearance Time for Vessels before Launch	Safety Clearance Time for Aircraft before Launch	Total Time of Vessel Safety Clearance before Detonation	Total Time of Aircraft Safety Clearance before Detonation	Safety Area
JASSM	:30 – 1 hr	:30	:15	1:30	1:15	2 NM
SDB	:20	:60	:30	1:20	:50	5-10 NM

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Stepwise mitigation and monitoring procedures for PSW missions are outlined here.

Pre-mission Monitoring

The purposes of pre-mission monitoring are to (1) evaluate the test site for environmental suitability of the mission (e.g., relatively low numbers of marine mammals and turtles, few or no patches of *Sargassum*, etc.) and (2) verify that the ZOI is free of visually detectable marine mammals, sea turtles, large schools of fish, large flocks of birds, large *Sargassum* mats, and large concentrations of jellyfish (both are possible indicators of turtle presence). On the morning of the test, the lead scientist would confirm that the test sites can still support the mission and that the weather is adequate to support mitigation.

Five Hours Prior to Mission:

Approximately 5 hours prior to the mission, or at daybreak, the appropriate vessel(s) would be on-site in the primary test site near the location of the earliest planned mission point. Observers onboard the vessel will assess the suitability of the test site, based on visual observation of marine mammals and sea turtles, the presence of large *Sargassum* mats, and overall environmental conditions (visibility, sea state, etc.). This information will be relayed to the lead scientist.

Two Hours Prior to Mission:

Two hours prior to the mission, aerial monitoring would commence within the test site to evaluate the test site for environmental suitability. Evaluation of the entire test site would take approximately 1 to 1.5 hours. Shipboard observers would monitor the ZOI and buffer zone, and the lead scientist would enter all marine mammals and sea turtle sightings, including the time of sighting and the direction of travel, into a marine animal tracking and sighting database. The aerial monitoring team would begin monitoring the ZOI and buffer zone around the target area. The shipboard monitoring team would combine with the aerial team to monitor the area immediately around the

mission area including both the ZOI and buffer zone.

One to 1.5 Hours Prior to Launch

As noted in Table 6 and depending upon the mission, aerial and shipboard viewers would be instructed to leave the area and remain outside the safety area (over 2 nm (3.7 km) from impact for JASSM and 5–10 nm (9.3–18.5 km) for SDB). The aerial team would report all marine animals spotted and the directions of travel to the lead scientist onboard the vessel. The shipboard monitoring team would continue searching the buffer zone for protected species as it leaves. The aircraft will leave the area and land on base. The surface vessels will stay on the outside of the safety area until after impact (5–10 nm for SDB and 2 nm for JASSM).

Fifteen Minutes Prior to Launch and Go/No-Go Decision Process

Visual monitoring from surface vessels outside the safety zone would continue to document any animals that may have gone undetected during the past two hours and track animals moving in the direction of the impact area.

The lead scientist would plot and record sightings and bearing for all marine animals detected. This would depict animal sightings relative to the mission area. The lead scientist would have the authority to declare the range fouled and recommend a hold until monitoring indicates that the ZOI is and will remain clear of detectable animals.

As indicated in the previous table, the ZOI (for preventing TTS (182 dB re 1 microPa^2–s/23 psi)) is estimated for the specific charge weight being used, the depth of blast, and the season. The mission would be postponed if:

(1) Any marine mammal or sea turtle is visually detected within the ZOI prior to mission launch. The delay would continue until the marine mammal or sea turtle that caused the postponement is confirmed to be outside of the ZOI due to the animal swimming out of the range.

(2) Any marine mammal or sea turtle is detected in the buffer zone and subsequently cannot be reacquired. The mission would not continue until the last verified location is outside of the ZOI and the animal is moving away from the mission area.

(3) Large *Sargassum* rafts or large concentrations of jellyfish are observed within the ZOI. The delay would continue until the *Sargassum* rafts or jellyfish that caused the postponement are confirmed to be outside of the ZOI due to either the current and/or wind moving them out of the mission area.

(4) Large schools of fish are observed in the water within the ZOI. The delay would continue until the large fish schools are confirmed to be outside the ZOI.

In the event of a postponement, pre-mission monitoring would continue as long as weather and daylight hours allow. Aerial monitoring is limited by fuel and the on-station time of the monitoring aircraft. If a live warhead failed to explode operations would attempt to recognize and solve the problem while continuing with all mitigation measures in place. The probability of this occurring is very remote but does exist. Should a weapon fail to explode, the activity sponsor would attempt to identify the problem and detonate the charge with all marine mammal and sea turtle mitigation measures in place as described. If a live warhead fails to explode the weapon is rendered safe after 15 minutes. The feasibility and practicality of recovering the warhead will be evaluated on a case-by-case basis. If at all feasible, the warhead will be recovered.

It should be noted that for economic (costs of testing $2 million per test) and practical (in-air destruction of the missile) reasons, Eglin AFB will not be required to terminate an in-flight missile or bomb due to sighting of a protected species.

Launch to Impact

Visual monitoring from vessels would continue to survey the ZOI and surrounding buffer zone and track animals moving in the direction of the impact area. The lead scientist would continue to plot and record sightings and bearing for all marine animals detected. This will depict animal sightings relative to the impact area.

Post-mission monitoring

Post-mission monitoring is designed to determine the effectiveness of pre-mission mitigation by reporting any sightings of dead or injured marine mammals or sea turtles. Post-detonation monitoring via shipboard surveyors would commence immediately following each detonation; no aerial surveys would be conducted during this monitoring stage. The vessels will move into the ZOI from outside the safety zone and continue monitoring for at least two hours, concentrating on the area down current of the test site.

Although it is highly unlikely that marine mammals or sea turtles would be killed or seriously injured by this activity, marine mammals or sea turtles killed by an explosion would likely suffer lung rupture, which would cause them to float to the surface immediately due to air in the blood stream. Animals that were not killed instantly but were mortally wounded would likely resurface within a few days, though this would depend on the size and type of animal, fat stores, depth, and water temperature (DON, 2001). The monitoring team would attempt to document any marine mammals or turtles that were killed or injured as a result of the test and, if practicable, recover and examine any dead animals. The species, number, location, and behavior of any animals observed by the observation teams would be documented and reported to the lead scientist.

Post-mission monitoring activities include coordination with marine animal stranding networks. NMFS maintains stranding networks along coasts to collect and circulate information about marine mammal and sea turtle standings. Local coordinators report stranding data to state and regional coordinators. Any observed dead or injured marine mammal or sea turtle would be reported to the appropriate coordinator.

Summary of Mitigation Plan

The PSW test will be postponed if any human safety concerns arise, protected species are sighted within the ZOI, any protected species is detected in the buffer zone and subsequently cannot be reacquired, or a protected species is moving into the ZOI from the buffer zone. PSW testing would be delayed if definitive indicators of protective species (i.e., large *Sargassum* mats) were present. The delay would continue until the marine mammal, sea turtle, and/or indicators that caused the postponement is confirmed to be outside of the ZOI due to the animal swimming out of the range.

Avoidance of impacts to pods of cetaceans will most likely be realized through these measures since groups of dolphins are relatively easy to spot with the survey distances and methods that will be employed. Typically solitary marine mammals such as dwarf/pygmy sperm whales and sea turtles, while more challenging to detect, will also be afforded substantial protection through pre-test monitoring.

The safety vessels would conduct post-mission monitoring for two hours after each mission. The monitoring team would attempt to document any marine mammals or turtles that were killed or injured as a result of the test and, if practicable, recover and examine any dead animals.

Hard-bottom habitats and artificial reefs will be avoided to alleviate any potential impacts to protected habitat. PSW testing will be delayed if large Sargassum mats are found in the ZOI.

Testing will resume only when the mats move outside of the largest ZOI.

Conservative Estimates of Marine Mammal Densities

By using conservative mathematic calculations, conservative density estimates can serve as a respectable mitigation technique for take estimates. Marine mammal densities used to calculate takes were based on the most current and comprehensive GOM surveys available (GulfCet II). The densities are adjusted for the time the animals are submerged, and further adjusted by applying standard deviations to provide an approximately 99 percent confidence level. As an example, the density estimates for bottlenose dolphins range from 0.06 to 0.15 animals/km^2 in GulfCet II aerial surveys of the shelf and slope. However, the final adjusted density used in take calculations is 0.81 animals/km^2.

Reporting

NMFS will require Eglin AFB to submit an annual report on the results of the monitoring requirements. This annual report will be due within 120 days of the expiration of the IHA. This report will include a discussion on the effectiveness of the mitigation in addition to the following information: (1) date and time of each of the detonations; (2) a detailed description of the pre-test and post-test activities related to mitigating and monitoring the effects of explosives detonation on marine mammals and their populations; (3) the results of the monitoring program, including numbers by species/stock of any marine mammals noted injured or killed as a result of the detonations and numbers that may have been harassed due to undetected presence within the safety zone; and (4) results of coordination with coastal marine mammal/sea turtle stranding networks.

Research

Although Eglin AFB does not currently conduct independent Air Force monitoring efforts, Eglin AFB's Natural Resources Branch does participate in marine animal tagging and monitoring programs lead by other agencies. Additionally, the Natural Resources Branch also supports participation in annual surveys of marine mammals in the GOM with NOAA Fisheries. From 1999 to 2002, Eglin AFB's Natural Resources Branch has, through a contract representative, participated in summer cetacean monitoring and research opportunities. The contractor participated in visual surveys in 1999 for cetaceans in GOM, photographic identification of sperm whales in the northeastern Gulf in 2001, and as a visual observer during the 2000 Sperm Whale Pilot Study and the 2002 sperm whale Satellite-tag (S-tag) cruise. Support for these research efforts is anticipated to continue.

Eglin AFB conducts other research efforts that utilize marine mammal stranding information as a means of ascertaining the effectiveness of mitigation techniques. Stranding data is collected and maintained for the Florida panhandle and Gulf-wide areas. This is undertaken through the establishment and maintenance of contacts with local, state, and regional stranding networks. Eglin AFB assists with stranding data collection by maintaining its own team of stranding personnel. In addition to simply collecting stranding data, various analyses are performed. Stranding events are tracked by year, season, and NOAA Fisheries statistical zone, both Gulf-wide and on the coastline in proximity to Eglin AFB. Stranding data is combined with records of EGTTR mission activity in each water range and analyzed for any possible correlation. In addition to being used as a measure of the effectiveness of mission mitigation, stranding data can yield insight into the species composition of cetaceans in the region.

Endangered Species Act (ESA)

NMFS has issued a biological opinion regarding the effects of this action on ESA-listed species and critical habitat under the jurisdiction of NMFS. That biological opinion concluded that this action is not likely to jeopardize the continued existence of listed species or result in the destruction or adverse modification of critical habitat. A copy of the Biological Opinion is available upon request (see **ADDRESSES**).

National Environmental Policy Act (NEPA)

In December, 2003, Eglin AFB released a Draft EA on this proposed activity. On April 22, 2004 (69 FR 21816), NMFS noted that Eglin AFB had prepared an EA for PSW activities and made this EA was available upon request. Eglin AFB has updated that draft EA.

In accordance with NOAA Administrative Order 216–6 (Environmental Review Procedures for Implementing the National Environmental Policy Act, May 20, 1999), NMFS has reviewed the information contained in Eglin's draft Final EA and determined that the Eglin AFB EA accurately and completely describes the proposed action alternative, reasonable additional alternatives, and the potential impacts on marine mammals, endangered species, and other marine life that could be impacted by the preferred alternative and the other alternatives. Based on this review and analysis, NMFS is adopting Eglin's EA under 40 CFR 1506.3 and has made its own FONSI. Therefore, NMFS has determined it is not necessary to issue a new EA, supplemental EA or an environmental impact statement for the issuance of an IHA to Eglin AFB for this activity. A copy of NMFS' FONSI for this activity is available upon request (see **ADDRESSES**). A copy of the Eglin AFB EA for this activity is available by contacting either Eglin AFB or NMFS (see **ADDRESSES**).

Determinations

NMFS has determined that this action is expected to have a negligible impact on the affected species or stocks of marine mammals in the GOM. No take by serious injury and/or death is anticipated, and the potential for temporary or permanent hearing impairment is low and will be avoided through the incorporation of the mitigation measures mentioned in this document. The information contained in Eglin's EA and incidental take application support NMFS' finding that impacts will be mitigated by implementation of a conservative safety range for marine mammal exclusion, incorporation of aerial and shipboard survey monitoring efforts in the program both prior to, and after, detonation of explosives, and delay/postponement/cancellation of detonations whenever marine mammals are either detected within the safety zone or may enter the safety zone at the time of detonation or if weather and sea conditions preclude adequate aerial surveillance. Since the taking will not result in more than the incidental harassment of certain species of marine mammals, will have only a negligible impact on these stocks, will not have an unmitigable adverse impact on the availability of these stocks for subsistence uses, and, through implementation of required mitigation and monitoring measures, will result in the least practicable adverse impact on the affected marine mammal stocks, NMFS has determined that the requirements of section 101(a)(5)(D) of the MMPA have been met and the IHA can be issued.

Authorization

NMFS has issued an IHA to take marine mammals, by harassment, incidental to testing and training during Precision Strike Weapons (PSW) tests in the Gulf of Mexico for a 1–year period, provided the mitigation, monitoring,

and reporting requirements described in this document and the IHA are undertaken.

Dated: August 11, 2005.

James H. Lecky,

Director, Office of Protected Resources, National Marine Fisheries Service.

[FR Doc. 05–16390 Filed 8–18–05; 8:45 am]

BILLING CODE 3510–22–S

DEPARTMENT OF DEFENSE

Office of the Secretary

Notice; Meeting of the Independent Review Panel To Study the Relationships Between Military Department General Counsels and Judge Advocates General—Open Meeting

AGENCY: Department of Defense.

SUMMARY: Pursuant to the Federal Advisory Committee Act (FACA), Public Law 96–463, notice is hereby given that the Independent Review Panel to Study the Relationships between Military Department General Counsels and Judge Advocates General will hold an open meeting at the Hilton Crystal City, 2399 Jefferson Davis Highway, Arlington, Virginia 22202, on August 29, 2005, if needed, from 8:30 a.m. to 11:30 a.m. and 1 p.m. to 4 p.m.

DATES: August 29, 2005: 8:30 a.m.–11:30 a.m., and 1 p.m.–4 p.m.

ADDRESSES: Hilton Crystal City, 2399 Jefferson Davis Highway, Arlington,Virginia 22202.

FOR FURTHER INFORMATION CONTACT: Any member of the public wishing further information concerning this meeting may contact: Mr. James R. Schwenk, Designated Federal Official, Department of Defense Office of the General Counsel, 1600 Defense Pentagon, Arlington, Virginia 20301–1600, Telephone: (703) 697–9343, Fax: (703) 693–7616, *schwenkj@dodgc.osd.mil.*

SUPPLEMENTARY INFORMATION: The Panel will meet on August 29, 2005, from 8:30 a.m. to 11:30 a.m. and 1 p.m. to 4 p.m., if needed, to conduct deliberations concerning the relationships between the legal elements of their respective Military Departments. These sessions will be open to the public, subject to the availability of space. The Panel has held eight public hearings and has provided the public opportunities to address the Panel both in person and in writing. The Panel has also deliberated in several sessions open to the public, including deliberations on an initial draft of a final report prepared by the Panel's staff. The Panel must complete its report during August so that Congress may consider it during this legislative session as envisioned in section 574 of the Ronald W. Reagan National Defense Authorization Act for Fiscal Year 2005. Due to this exceptional circumstance, the Panel decided to hold its final deliberation session, if needed, open to the public, on August 29. This decision, based on that exceptional circumstance, was made on August 12, thus making it impossible for the Department to provide the 15 calendar days notice normally required for Panel meetings. On August 12, the Panel completed deliberations necessary for the staff to prepare a final report. If, after reviewing the final report prepared by the staff, any member of the Panel believes that additional deliberations are necessary, the meeting on August 29 will occur. If all Panel members believe that the final report prepared by the staff properly addresses all issues and no additional deliberations are necessary, there will not be a meeting on August 29. Please call the Designated Federal Official at the number listed below for additional information including whether the meeting scheduled for August 29 will be held.

Dated: August 16, 2005.

Jeannette Owings-Ballard,

OSD Federal Register Liaison Officer, Department of Defense.

[FR Doc. 05–16505 Filed 8–16–05; 3:25 pm]

BILLING CODE 5001–06–P

DEPARTMENT OF ENERGY

Federal Energy Regulatory Commission

[Docket No. CP05–402–000]

Columbia Gas Storage, LLC; Notice of Petition

August 12, 2005.

Take notice that on August 9, 2005, Columbia Gas Storage, 20333 State Highway 249, Suite 400, Houston, TX 77070, filed a petition for Exemption of Temporary Acts and Operations from Certificate Requirements, pursuant to Rule 207(a)(5) of the Commission's Rules of Practice and Procedure (18 CFR 385.207(a)(5)), and section 7(c)(1)(B) of the Natural Gas Act (15 U.S.C. 717(c)(1)(B)), seeking approval of an exemption from certificate requirements to perform temporary activities related to drilling a test well and performing other activities to assess the feasibility of developing an underground natural gas storage facility in Benton County, Washington, all as more fully set forth in the application which is on file with the Commission and open to public inspection. The filing may also be viewed on the Web at *http://www.ferc.gov* using the ''eLibrary'' link. Enter the docket number excluding the last three digits in the docket number field to access the document. For assistance, call (202) 502–3676 or TYY, (202) 502–8659.

Any questions regarding the petition should be directed to Joseph H. Fagan, Heller Ehrman LLP, 1717 Rhode Island Ave., NW., Washington, DC 20036–3001 and Phone: 202–912–2162; Fax 202–912–2020.

There are two ways to become involved in the Commission's review of this project. First, any person wishing to obtain legal status by becoming a party to the proceedings for this project should, on or before the comment date, file with the Federal Energy Regulatory Commission, 888 First Street, NE., Washington, DC 20426, a motion to intervene in accordance with the requirements of the Commission's Rules of Practice and Procedure (18 CFR 385.214 or 385.211) and the Regulations under the NGA (18 CFR 157.10). A person obtaining party status will be placed on the service list maintained by the Secretary of the Commission and will receive copies of all documents filed by the applicant and by all other parties. A party must submit 14 copies of filings made with the Commission and must mail a copy to the applicant and to every other party in the proceeding. Only parties to the proceeding can ask for court review of Commission orders in the proceeding.

Persons who wish to comment only on the environmental review of this project, or in support of or in opposition to this project, should submit an original and two copies of their comments to the Secretary of the Commission. Environmental commenters will be placed on the Commission's environmental mailing list, will receive copies of the environmental documents, and will be notified of meetings associated with the Commission's environmental review process. Environmental commenters will not be required to serve copies of filed documents on all other parties. The Commission's rules require that persons filing comments in opposition to the project provide copies of their protests only to the applicant. However, the non-party commenters will not receive copies of all documents filed by other parties or issued by the Commission (except for the mailing of environmental documents issued by the Commission) and will not have the right to seek court review of the Commission's final order.