

**DEPARTMENT OF COMMERCE****National Oceanic and Atmospheric Administration**

[I.D. 092498A]

**Small Takes of Marine Mammals Incidental to Specified Activities; Explosives Testing at Eglin Air Force Base, FL**

**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) has been issued to the U.S. Air Force to take small numbers of bottlenose dolphins, spotted dolphins, and possibly other cetacean species by harassment and non-serious injury incidental to explosive testing of obstacle and mine clearance systems at Eglin Air Force Base (Eglin), FL.

**DATES:** This authorization is effective from December 1, 1998, through March 31, 1999.

**ADDRESSES:** A copy of the application and draft environmental assessments (EAs) may be obtained by writing to the Chief, Marine Mammal Division, Office of Protected Resources, National Marine Fisheries Service, 1315 East-West Highway, Silver Spring, MD 20910-3225, or by telephoning one of the contacts listed here.

**FOR FURTHER INFORMATION CONTACT:** Kenneth Hollingshead 301-713-2055, or David Bernhart, 727-570-5312.

**SUPPLEMENTARY INFORMATION:****Background**

Section 101(a)(5)(A) of the MMPA (16 U.S.C. 1361 *et seq.*) directs the Secretary of Commerce to allow, upon request, the incidental, but not intentional, taking of 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.

Permission may be granted if NMFS finds that the taking will have a negligible impact on the species or stock(s) and will not have an unmitigable adverse impact on the availability of the species or stock(s) for subsistence uses and that the permissible methods of taking and requirements pertaining to the monitoring and reporting of such taking

are set forth. NMFS has defined "negligible impact" in 50 CFR 216.103 as "...an impact resulting from the specified activity that cannot be reasonably expected to, and is not reasonably likely to, adversely affect the species or stock through effects on annual rates of recruitment or survival."

Subsection 101(a)(5)(D) of the MMPA established an expedited process by which U.S. citizens can apply for an authorization to incidentally take small numbers of marine mammals by harassment for a period of up to 1 year. The MMPA defines "harassment" as:

...any act of pursuit, torment, or annoyance which (a) has the potential to injure a marine mammal or marine mammal stock in the wild; or (b) has the potential to disturb a marine mammal or marine mammal stock in the wild by causing disruption of behavioral patterns, including, but not limited to, migration, breathing, nursing, breeding, feeding, or sheltering.

Subsection 101(a)(5)(D) establishes a 45-day time limit for NMFS review of an application followed by a 30-day public notice and a comment period on any proposed authorizations for the incidental harassment of small numbers of marine mammals. Within 45 days of the close of the comment period, NMFS must either issue or deny issuance of the authorization.

**Summary of Request**

On July 20, 1998, NMFS received a complete application from the Air Force Development Test Center, Department of the Air Force, Eglin. The Air Force, in cooperation with the Naval Surface Warfare Center-Coastal Systems Station (NSWC-CSS), U.S. Navy, is requesting an authorization to take, by harassment and non-serious injury, bottlenose dolphins (*Tursiops truncatus*), spotted dolphins (*Stenella plagiodon*), and possibly other cetacean species incidental to explosive testing of obstacle and mine clearance systems at Eglin. Eglin is located in the Florida Panhandle, approximately midway between the cities of Pensacola and Panama City, FL. The location of the proposed action is on the beach areas on Santa Rosa Island (SRI), approximately 27 kilometers (km) (17 miles (mi)) west of Destin, FL.

The Navy's current capability to clear obstacles and mines in the surf zone is limited to the hand placement of explosive charges by Navy combat swimmers. The effectiveness of this capability is limited by the ability of swimmers to locate submerged targets and to carry sufficient explosives to destroy the targets. Such operations are considered highly hazardous, and the reliability of obstacle removal is

considered to be poor. To facilitate U.S. Marine amphibious assaults, the U.S. Navy is committed to developing and testing methods to safely and effectively clear a path through such obstacles.

NWSC-CSS has requested permission from Eglin to test four anti-mine systems in the shallow surf zone along U.S. Air Force-controlled lands of SRI. The four test systems are the Shallow Water Assault Breaching (SABRE) system, the Distributed Explosive Technology (DET) system, the MK-82 general purpose bombs (GPBs), and the MK-5 Mine Clearance System (MCS).

The proposed action is to perform up to a total of 10 underwater detonation tests (2 tests using the SABRE system and up to 8 tests using the DET array); and a series of tests of explosive systems at Eglin.

In order to avoid impacting the endangered West Indian manatee (*Trichechus manatus*) (which is more commonly found south of the region and during warmer months) and sea turtles, tests will be conducted in the fall and winter 1998/99. While a brief description of the four systems proposed for testing is included here, more detailed descriptions of the activity and the expected impact can be found in the application and in the two EAs on the activities. These documents are available upon request (see **ADDRESSES**).

**SABRE System**

An operational full-length SABRE-line charge consists of 130 10-pound (lb) (4.5 kg) net explosive weight (N.E.W.) charges on 3-ft (0.9 m) centers which is deployed from a Landing Craft Air-Cushion (LCAC) by an MK-22 Mod 4 rocket motor. Each charge consists of approximately 9.6 lb (4.3 kg) of PBXN-103 explosive and a W-11 booster, weighing approximately 0.4 lb (0.2 kg). A detonating cord runs through the centers of the booster and main charge.

For the two proposed tests, a total of 22 and 23 SABRE charges will be hand-laid on the sea bottom, perpendicular to the beach in 3 ft (.91 m) and 10 ft (3.0 m) of water, respectively. For both tests, the detonation sequence will be from the offshore end toward the beach. For these events, 27 to 31 inert mines will be placed perpendicular to the line charge and parallel to the shoreline. Total N.E.W. of the SABRE tests will be 221 lb (100.2 kg) and 232 lb (105.2 kg), respectively.

**DET System**

An operational, full-size DET array consists of parallel lines of detonating cord, whose overall footprint is 180 by 180 ft (54.9 m by 54.9 m). The array is

packed in a container and launched from an LCAC by two MK-22 Mod 4 rocket motors for expansion and subsequent deployment.

Full-scale systems are not required for these tests. Previous tests have shown that partial-length SABRE segments and partial-size DET arrays are adequate for evaluations. The data acquired from small-scale tests can be scaled up in order to make predictions for military applications. Thus, for the DET system, the Navy is proposing to use an 11-ft by 60-ft (3.3 m by 18.3 m) DET array in 3 ft (0.9 m) of water. There will be eight separate DET events, spanning several days, with two to three arrays tested per day. The NE.W. of each array is 42 lb (19 kg), with arrays being detonated at the seaward end. Each array will be placed above a maximum of four live mines consisting of either 22 or 26.4 lb (10 or 12 kg) of explosive. Therefore, depending upon the mine type, total NE.W. of each test would be up to either 130 lb (59 kg) or 147.6 lb (67 kg). DET events will be hand-deployed from a boat and exploded electronically by trained personnel.

#### **MK-82 GPBs**

The proposed action is an evaluation of the MK-82 GPBs to clear anti-invasion beach obstacles and mines in the surf zone. The MK-82 GPBs to be tested consist of seven GPBs, each containing 192 lb (87.1 kg) of explosive for a total NE.W. of 1,344 lb (610 kg). The configuration for testing will be a linear arrangement of seven bombs spaced 24 ft (7.3 m) apart, located parallel to the shoreline in 6 ft (1.8 m) of water.

Two separate deployments and firings are required to test this configuration. All MK-82s will be buried vertically to approximately one-half length (about 3 ft (0.9 m)) by jetting. The MK-82s will be detonated using approximately 1/4 block of C-4 explosive paced into the aft fuse well. The MK-82s will be detonated simultaneously in 6 ft (1.8 m) of water using remote detonators to detonate the C-4. Beach obstacles (log posts, concrete cubes, and steel hedgehogs) and inert mines will be placed around the bombs to serve as targets for bomb fragments and blast.

#### **MK-5 MCS**

The MK-5 MCS consists of a 350-ft (106.7 m) continuous length charge of composition C-4 explosive (with a distribution of 5 lb (2.3 kg) per linear foot and a pair of detonating cords (totaling 11 lb (5 kg)). Total NE.W. of the system is 1,750 lb (794 kg). The MK-5 MCS would be deployed in the surf zone about 550 ft (167.6 m) from shore

by an LCAC. Once fully deployed, it will then be detonated. Testing will take place over a 3-day period. On the first day, there will be inert firings of four MK5 systems. The second day will consist of one inert firing and one live firing of a MK5 system. The third day will consist of three separate live firings.

#### **Comments and Responses**

A notice of receipt of the application and proposed authorization was published on October 13, 1998 (63 FR 54676), and a 30-day public comment period was provided on the application and proposed authorization. During the 30-day comment period, comments were received from the Marine Mammal Commission (MMC), the Animal Protection Institute (API), the Animal Rights Foundation of Florida, and two private citizens.

*Comment 1:* Two commenters expressed concern that the underwater explosions would affect the sensory perceptions of wild dolphins and would inflict unnecessary stress and possible injury to the animals.

*Response:* While underwater explosions have the potential to harass, injure, or kill marine mammals, the notice of proposed authorization and the accompanying EAs provided information on mitigation measures that would be undertaken by the applicant to ensure that no mortality or serious injuries and few harassment takings would occur. These measures are repeated later in this document.

*Comment 2:* Two individuals recommended that the tests be conducted at an inland lake or pond on the Eglin property.

*Response:* As discussed in the draft EAs, while some testing can be conducted in ponds, test ponds are unable to replicate the sea and surf conditions, including wave action and berm formation, found in the nearshore coastal waters. These conditions are necessary for successful testing.

*Comment 3:* While recognizing that subsection 101(a)(5)(D) of the MMPA authorizes the incidental harassment of marine mammals, the API expressed concern over the numbers of dolphins that may be impacted by the activity. They believe that the number of dolphins proposed for a take by harassment should not be considered a small number.

*Response:* Interim regulations implementing subsection 101(a)(5)(D) of the MMPA were issued on April 10, 1996 (61 FR 15884). These regulations contain specific definitions to interpret Congressional meaning of the terms "small numbers" and "negligible impact." For the purposes of this part,

"small numbers" means a portion of a marine mammal species or stock whose taking would have a negligible impact on that species or stock. "Negligible impact" is 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. Because, due to mitigation measures required under IHA, no marine mammals are likely to be killed or seriously injured by the proposed activities, harassment takings are expected to be reduced to the lowest level practicable, the number of authorized takings is considered small, and the takings have no more than a negligible impact on the affected species and stocks of marine mammals.

*Comment 4:* The API also believes that, because explosives have a potential lethal impact on marine mammals, the application and authorization would not fall under MMPA subsection 101(a)(5)(D).

*Response:* Depending upon the distance between the explosive and the animal and the charge weight, explosives in the marine environment have the potential to seriously injure or kill marine mammals. However, if mitigating measures imposed on an applicant's activity through an IHA reduce the impacts of the activity such that it is unlikely that serious injury or mortality will result, then an IHA may be appropriate. If however, upon review, an activity's mitigation measures are not considered sufficient to eliminate mortality and serious injury, NMFS will deny the application request and recommend the applicant apply for a taking authorization under subsection 101(a)(5)(A) of the MMPA. An authorization under that section of the MMPA allows for lethal takings incidental to an activity.

*Comment 5:* The API recommends that NMFS deny an IHA to the Air Force to test underwater anti-mine devices in the waters off Eglin. One individual recommended denial, partly because it would open the door to future testing that could be harmful to marine life.

*Response:* NMFS would like to clarify that NMFS' responsibility in this action is limited to the issuance or denial of an authorization for the short-term, incidental harassment of a small number of marine mammals by the Air Force while conducting explosive testing of obstacle and mine clearance systems at Eglin. NMFS does not authorize the activity itself, as such authorization is provided by the U.S. Department of Defense and is not within the jurisdiction of the Secretary of

Commerce. As provided by subsection 101(a)(5)(D) of the MMPA, unless NMFS finds that the activity will result in a taking of marine mammals that is either not small or results in more than a negligible impact, the authorization is warranted. Authorizations to take marine mammals incidental to detonating explosives in the marine environment have been issued previously.

*Comment 6:* Concerned that there is the possibility that a manatee could be within the zone of influence of the detonations, the MMC recommended the Air Force consult with the U.S. Fish and Wildlife Service (USFWS) under section 7 of the Endangered Species Act (ESA).

*Response:* The Air Force consulted with the USFWS under section 7 of the ESA on this activity. This consultation was principally for the Gulf sturgeon, a listed fish species. Neither agency indicated that manatees inhabit the test area during the time of the year that tests are authorized.

#### **Description of Habitat and Marine Mammals Affected by the Activity**

A description of the project area ecosystem in the eastern Gulf of Mexico (GOM) can be found in the application and in the associated draft EAs and needs not be repeated here.

#### *Marine Mammals*

Although approximately 27 species of marine mammals (whales, dolphins, and porpoises) reside in or pass through the northeastern GOM, the only species of marine mammals that are likely to be impacted by the activities proposed for the shallow coastal waters off SRI are the bottlenose dolphin (*Tursiops truncatus*) and the Atlantic spotted dolphin (*Stenella frontalis*). Information on these two species may be found in the application and in the supporting EAs for these projects. Additional information on these and other species of marine mammals in the GOM can be found in Blaylock *et al.* (1995) and Waring *et al.* (1997). Please refer to those documents for information on the biology, distribution, and abundance of these species.

#### **Potential Effects of Explosives on Marine Mammals**

Potential impacts to those marine mammal species known to occur in the SRI area from explosives include both lethal and non-lethal injury, as well as incidental harassment. The pressure wave from the explosive can impact air cavities, such as lungs and intestines. Extensive hemorrhaging into the lungs due to underwater shock waves may

cause death to a marine mammal through suffocation (Hill, 1978). Other common injuries which may result in mortality include circulatory failure, broncho-pneumonia in damaged lungs, or peritonitis resulting from perforations of the intestinal wall (Hill, 1978). Because impulse levels sufficient to cause lethal injury increase with increased mammal mass (Yelverton *et al.*, 1973), conservative criteria are based on the lowest possible affected mammalian weight (e.g., an infant dolphin). Extensive lung hemorrhage is an injury which would be debilitating, and not all animals would be expected to survive (1– percent mortality is predicted at the onset level). As the severity of extensive lung hemorrhage increases beyond the onset level, gastro-intestinal tract injuries can increase significantly. The expected mortality level associated with these combined severe injuries would be significantly higher than 1 percent (U.S. Navy, 1998).

Non-lethal injuries involve slight lung hemorrhage and tympanic membrane (TM) rupture from which the mammal is expected to recover (Yelverton *et al.*, 1973; Richmond *et al.*, 1973). Eardrum damage criteria are based upon a limited number of small charge tests (Yelverton *et al.*, 1973; Richmond *et al.*, 1973). Ranges for percent TM rupture incurred by underwater explosives can be calculated by a conservative TM damage model (U.S. Navy, 1996). General criteria for TM damage have been reported to occur at impulse levels down to 20 psi-msec (Yelverton *et al.*, 1973).

Because eardrum (e.g., TM) rupture, rather than slight lung hemorrhage, usually occurs at lower impulse levels, TM rupture is used by NMFS and others to conservatively define the non-lethal injury zone. A maximum impulse of 10 psi-msec is often considered to define the non-lethal injury zone, where a very low incidence of blast injuries are likely to occur (Yelverton *et al.*, 1973). A level of pressure impulse at which marine mammals are not expected to experience non-lethal injury (nor instantaneous mortality or lethal injury) is reported to be 5 psi-msec (Yelverton *et al.*, 1973). This is the impulse level adopted by the Air Force to designate no injurious takings by this activity.

In addition to lethal, serious, and non-serious injury, harassment of marine mammals may occur as a result of non-injurious physiological responses to an explosion-generated shockwave and its acoustic signature. Based upon information provided in the SEAWOLF shock trial final environmental impact statement (U.S. Navy, 1998), a dual criterion for marine mammal acoustic

harassment has been developed for explosive-generated signals: (1) An energy-based temporary threshold shift (TTS) injury criterion of 182 dB re 1  $\mu\text{Pa}^2$ -sec derived from experiments with bottlenose dolphins (Ridgway *et al.*, 1997), and (2) a 12– lbs/in<sup>2</sup> (psi) peak pressure cited by Ketten (1995) as associated with a “safe outer limit (for the 10,000 lb charge for minimal, recoverable auditory trauma” (i.e., TTS)). For this activity, noise levels that fall between the 5 psi-msec and out to a transmission distance where a noise level of 180 dB re 1  $\mu\text{Pa}^2$ -sec (Air Force, 1998) will be considered to fall within the incidental harassment zone.

The potential impact to Atlantic bottlenose dolphins and the Atlantic spotted dolphins, the two species that may potentially be affected, was evaluated using modeling on the effects of underwater explosions resulting from each of the test systems described previously (see application). Based upon data provided in Tables 5.2 and 5.3 in the application, the maximum number of Atlantic bottlenose dolphins potentially injured from all tests ranges from 4 to 13. The maximum number of Atlantic spotted dolphins potentially injured from all tests combined is less than 1. These are the maximum injury levels without implementation of mitigation.

The estimated total numbers of bottlenose dolphins and spotted dolphins potentially exposed to takes by harassment are 33 and 1, respectively. The total number of bottlenose dolphins potentially exposed to noise from the source of the noise to 180 dB re 1  $\mu\text{Pa}^2$ -sec ranges from 4 to 15 for the MK–82 GPB tests, 1 to 3 for the MK5 MCS tests, 1 to 2 for the combined SABRE tests, and 4 to 13 for all DET array tests combined. However, mitigation is expected to obviate any injury to marine mammals.

#### **Mitigation**

There are two forms of mitigation: (1) Natural, as provided by the environment and (2) human, designed to protect marine mammals to the greatest extent practicable.

Natural mitigation: Physical characteristics of the proposed test area and test methods will ameliorate the underwater shock wave. Tests will be conducted in approximately 3 to 10 ft (0.9 to 3.0 m) of water. At this shallow depth, some protection of the energy from the detonations will be directed through the surface of the water rather than transmitted through the water. Another consequence of the shallow, as opposed to the deep water detonation depth, is that bubble pulse is not

significant and there will be far less energy in any oscillations. Additionally, these tests will be conducted inside the offshore bar at the SRI site. The offshore bar ameliorates the transmission of the underwater portion of the shock wave. Also, MK-82 GPBs will be buried in bottom sands to approximately their center of gravity (3 ft (0.9 m), a factor expected to mitigate the transmission of the shock wave as the detonations will be directed downwards.

**Human mitigation:** Eglin has established safety zones to prevent marine mammal injury for each test. These safety zones are: 0.75 km (0.47 mi) for SABRE-22, 1.0 km (0.62 mi) for SABRE-23, 1.0 km (0.62 mi) for DET, 6.0 km (3.73 mi) for MK-82 GPB, and 0.5 km (0.31 mi) for MK-5 MCS.

Eglin has proposed that base personnel conduct a 30-minute pre-detonation aerial monitoring survey immediately prior to each test to ensure no marine mammals are within each test area's designated safety zone. With water depths less than 18 m (59 ft), low turbidity, and white sand bottom, exceptional marine mammal visibility is ensured. Aerial surveys will be conducted at approximately 100 ft (30.5 m) elevation.

In order to ensure adequate visibility for locating marine mammals (and sea turtles), no tests will take place if sea state conditions are greater than category 3 and water clarity is not adequate for conducting surveys. No tests will take place if marine mammals or sea turtles are sighted within the safety zone.

### Monitoring

In addition to pre-detonation monitoring mentioned previously, Eglin will conduct aerial surveys immediately following each detonation event. The post-test monitoring will be conducted in a similar manner to the pre-test monitoring, except that observation personnel will be focusing on locating any injured marine mammals. If any injured marine mammals are observed during post-test monitoring, subsequent detonations will be postponed, and the local stranding network notified. The project will be required to be reviewed by Air Force and NMFS personnel prior to conducting any additional tests.

### Reporting

Any takes of marine mammals other than those authorized by the IHA will be reported to the Regional Administrator, NMFS, by the next working day. A draft final report of the entire test results and marine mammal observations for pre- and post-detonation monitoring will be submitted

to NMFS within 90 days after completion of the last test. Unless notified by NMFS to the contrary, that draft final report will be considered the final report under the IHA.

### National Environmental Policy Act (NEPA)

As part of its request for a small take authorization, the Air Force prepared two EAs, one for SABRE and DET and a second document for the MK-82/MK-5 systems. These EAs, which supplement information contained in the application, are necessary for determining whether the activities proposed for receiving small take authorizations are having a negligible impact on affected marine mammal stocks. NMFS has reviewed the EAs and concurs with the findings. As a result, NMFS finds that it is unnecessary to prepare its own NEPA documentation and hereby adopts the Air Force EAs as its own, as provided by 40 CFR 1506.3. NMFS finds that the issuance of an IHA to the Air Force will not result in a significant environmental impact on the human environment and that it is unnecessary to either prepare its own NEPA documentation or to recirculate the Air Force EAs for additional comments.

### Consultation

On October 15, 1998, NMFS completed consultation with the Air Force under section 7 of the ESA. The finding of that consultation was that the proposed testing activity is not likely to adversely affect endangered or threatened species of whales or sea turtles, if the conservation and mitigation measures specified in the Biological Assessment prepared by the Air Force are undertaken. NMFS concludes, therefore, that the issuance of an IHA to the Air Force to take small numbers of bottlenose dolphins, spotted dolphins and possibly other cetacean species by harassment incidental to explosive testing at Eglin is not likely to adversely affect endangered or threatened species of whales or sea turtles.

### Conclusions

NMFS has determined that the short-term impact of incidentally taking small numbers of bottlenose dolphins, spotted dolphins, and possibly other cetacean species by harassment and non-serious injury incidental to explosive testing of obstacle and mine clearance systems at Eglin, as described previously in this document, will result, at worst, in the brief harassment of these species and possibly in a temporary behavioral modification. While behavioral

modifications may be made by these species to avoid the resultant acoustic disturbance, this action is expected to have a negligible impact on both individual animals and the stocks of these mammals. In addition, no take by injury and/or death is anticipated, and harassment takes will be at the lowest level practicable due to incorporation of the mitigation measures mentioned above.

Since NMFS is assured that the taking would not result in more than the incidental harassment (as defined by the MMPA) of small numbers of bottlenose dolphins, spotted dolphins and possibly other cetacean species and would result in the least practicable impact on the stocks, NMFS has determined that the requirements of subsection 101(a)(5)(D) have been met and the authorization can be issued.

### Authorization

For the above reasons, NMFS has issued an IHA to the Air Force for the incidental harassment and non-serious injury of a small number of bottlenose dolphins, spotted dolphins, and possibly other cetacean species. NMFS has determined that, provided the mitigation, monitoring, and reporting requirements described in the authorization are undertaken the short-term impact of explosives testing for obstacle and mine clearance systems at Eglin has the potential to result in no more than a negligible impact on affected marine mammal stocks.

Dated: December 3, 1998.

### Patricia A. Montanio,

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

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## COMMISSION OF FINE ARTS

### 1999 National Capital Arts and Cultural Affairs Program

Notice is hereby given that Pub. L. 99-190, as amended, authorizing the National Capital Arts and Cultural Affairs Program, has been funded for 1999 in the amount of \$7,000,000.00. All requests for information and applications for grants should be received by 31 December 1998 and addressed to: Charles H. Atherton, Secretary, Commission of Fine Arts, National Building Museum, Suite 312, 441 F Street, NW, Washington, DC 20001, Phone: 202-504-2200.

Deadlines for receipt of submission of grants applications is 1 March 1999.

This program provides grants for general operating support of