

GOMEX Range Complex Monitoring Plan

FINAL

January 2011

INTRODUCTION

This Monitoring Plan for the Gulf of Mexico (GOMEX) Range Complex has been developed to provide marine mammal and sea turtle monitoring as required under the Marine Mammal Protection Act (MMPA) of 1972 and the Endangered Species Act (ESA).

In order to issue an Incidental Take Authorization (ITA) for an activity, Section 101(a) (5) (a) of the MMPA states that the National Marine Fisheries Service (NOAA/NMFS) must set forth “requirements pertaining to the monitoring and reporting of such taking.” The MMPA implementing regulations at 50 CFR Section 216.104 (a) (13) note that requests for Letters of Authorization (LOAs) must include the suggested means of accomplishing the necessary monitoring and reporting that will result in increased knowledge of the species and of the level of taking or impacts on populations of marine mammals that are expected to be present (NMFS, 2005).

While the Endangered Species Act does not have specific monitoring requirements, recent Biological Opinions issued by NOAA have included terms and conditions requiring the Navy to develop a monitoring program.

In addition to the GOMEX monitoring plan, a number of other Navy range complex monitoring plans are being developed for protected marine species, primarily marine mammals and sea turtles, as part of the environmental planning and regulatory compliance process associated with a variety of training activities. Goals of these monitoring plans are to assess the impacts of training activities on marine species and effectiveness of the Navy’s current mitigation practices.

Navy-wide Integrated Comprehensive Monitoring Program:

The Integrated Comprehensive Monitoring Program (ICMP) is Navy-wide and will provide the overarching structure and coordination that compiles data from range specific monitoring plans. The GOMEX plan is one component of the ICMP and will contribute to many studies being implemented throughout other range complexes (Figure 1). The overall goal of the ICMP is to assimilate relevant data collected across Navy range complexes in order to answer questions pertaining to the impact of active sonar and explosives on marine mammals and sea turtles.

The primary objectives of the ICMP are to:

- Coordinate monitoring of Navy training events, particularly those involving active sonar and underwater detonations (explosives), for compliance with the terms and conditions of ESA Section 7 consultations or MMPA authorizations;

- Coordinate data collection to support estimating the number of individual marine mammals and sea turtles exposed to sound levels above current regulatory thresholds;
- Assess the efficacy of the Navy’s current marine species mitigation;
- Add to the knowledge base on potential behavioral and physiological effects to marine species from active sonar and underwater detonations; and
- Assess the practicality and effectiveness of a number of mitigation tools and techniques (some not yet in use).

Additional Navy funded research and development (R&D) studies and ancillary research collaborations with academia and other institutions will be integrated as appropriate to enhance the data pool, and will be used in part to address objectives of the ICMP. Lastly, as an adaptive management strategy, the GOMEX monitoring plan will integrate elements from Navy-wide marine mammal research into the regional monitoring and data analysis proposed in this plan when new technologies and techniques become available.

GOMEX Range Complex Monitoring Plan:

The GOMEX Range Complex Monitoring Plan is one component of the overall effort the Navy is undertaking to understand its potential effects and the biological consequences of those effects to protected marine species. The GOMEX Range Complex Monitoring Plan has been designed to gather data that, when combined with other Navy range complex monitoring data, will allow us to address the following questions:

1. What are the behavioral responses of marine mammals and sea turtles that are exposed to explosives at specific levels?
2. Is the Navy’s suite of mitigation measures for explosives (e.g., PMAP, major exercise measures agreed to by the Navy through permitting) effective at avoiding TTS, injury, and mortality of marine mammals and sea turtles?

Marine Species Within the GOMEX Range Complex Study Area:

There are 29 marine mammal species with possible or confirmed occurrence in the marine waters off Texas, Louisiana, Mississippi, Alabama, and Florida within the GOMEX Range Complex. There are 28 cetacean species (whales, dolphins, and porpoises) and one sirenian species (Reviewed in DoN, 2007). In addition there are six species of threatened and endangered sea turtles.

This monitoring plan has been designed to gather data on all species of marine mammals and sea turtles that are observed in the GOMEX Range Complex. The Plan recognizes that deep diving and cryptic species of marine mammals such as beaked whales and sperm whales have low probability of visual detection (Barlow and Gisiner, 2006). Therefore, methods will be utilized to attempt to address this issue (e.g., passive acoustic monitoring).

MONITORING PLAN

Data will be collected by Navy personnel, government contractors, academic institutions, or research organizations that will utilize qualified, professional marine mammal and sea turtle biologists. While annual reports will be prepared and provided to the NMFS, data collection, synthesis, and interpretation is expected to be an ongoing process over many years. It is not likely that firm conclusions can be drawn on most questions within a single year of monitoring effort due to the difficulty in achieving sufficient sample sizes for statistical analysis.

Data will also be collected from other range complex monitoring plans (i.e. Atlantic Fleet Active Sonar Training (AFAST) and Virginia Capes (VACAPES), Jacksonville (JAX), Cherry Point (CHPT), Southern California (SOCAL) and Hawaii (HRC) Range Complexes) and compiled in order to compare and analyze data from all the individual Navy monitoring efforts. All available data will be included in Navy's annual report to NMFS including an evaluation of the effectiveness of any given element within the monitoring plans. All subsequent analysis shall be completed in time for Navy's five year report to NMFS.

The Navy proposes to conduct monitoring during 1 event per year. Due to the limited number of events conducted in the GOMEX Range Complex, there is a potential that it may be impossible to coordinate required surveys to take place during the limited opportunities presented. In any case, any missed annual survey requirement will roll into the subsequent year ensuring that the appropriate number of surveys occurs over the 5-year period of effectiveness of the regulation. Likewise, additional surveys may be scheduled in any year where additional opportunities arise, with the number of surveys during the 5-year regulations not to exceed 5.

The monitoring methods proposed for use during training events in the GOMEX Range Complex include a combination of individual elements designed to allow a comprehensive assessment to be conducted. These elements include:

(1) Vessel and/or aerial surveys

(i) The Navy will visually survey a minimum of 1 explosive event per year. The vessel or aerial survey will involve professional trained marine mammal observers (MMOs). If it is impossible to conduct the required surveys due to lack of training exercises, the missed annual survey requirement will roll into the subsequent year, except that if there are less than 5 explosive events occurring over the 5-year period of effectiveness of this plan, the number of required annual surveys will not exceed the number of explosive events.

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

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

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

- (A) Location of sighting;
- (B) Species (if not possible, indicate whale, dolphin or pinniped);
- (C) Number of individuals;
- (D) Whether calves were observed;
- (E) Initial detection sensor;
- (F) Length of time observers maintained visual contact with marine mammal;
- (G) Wave height;
- (H) Visibility;
- (I) Whether sighting was before, during, or after detonations/exercise, and how many minutes before or after;
- (J) Distance of marine mammal from actual detonations (or target spot if not yet detonated);
- (K) Observed behavior - Report, in plain language and without trying to categorize in any way, the observed behavior of the animal(s) (such as animal closing to bow ride, paralleling course/speed, floating on surface and not swimming etc.), including speed and direction;
- (L) Resulting mitigation implementation - Indicate whether explosive detonations were delayed, ceased, modified, or not modified due to marine mammal presence and for how long; and
- (M) If observation occurs while explosives are detonating in the water, indicate munitions type in use at time of marine mammal detection.

(2) Passive acoustic monitoring

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

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

(iii) The array would need to detect low frequency vocalizations (< 1,000 Hz) for baleen whales and relatively high frequency vocalizations (up to 30 kHz) for

odontocetes such as sperm whales. The use of two simultaneously deployed arrays can also allow more accurate localization and determination of diving patterns.

(3) Marine mammal observers on Navy platforms

(i) To the extent practicable, marine mammal observers (MMOs) will be placed on a Navy platform during the exercises being monitored.

(ii) The MMO must possess expertise in species identification of regional marine mammal species and experience collecting behavioral data. Navy biologists and contracted biologists will be used; contracted MMOs must have appropriate security clearance to board Navy platforms.

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

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

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

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

IMPLEMENTATION – ANALYSIS – REPORTING

The Navy will be investing significant funding and resources towards monitoring programs and intends to conduct the research in a scientifically valid and robust manner. The Navy is committed to conducting research until these questions have been addressed to the satisfaction of both NMFS and Navy. Therefore, it is in the best interest of the Navy to choose studies wisely in each range complex that are the most likely to collect large data sets, and will enable the Navy and NMFS to answer the required questions. Some field methods may be applied throughout Navy ranges, while other methodologies may be specially selected for one or two ranges that are most likely to produce the best quality data. For example, in Hawaii, there are some baseline data on odontocetes from previous tagging (Baird et al., 2006), which can be used to provide a context for any tagging data collected during training events.

Using the ATOC and SURTASS monitoring programs as a guideline for success it is clear that the key to the success of the plan's execution and analysis is using scientific professionals that are the top of their field. It is the Navy's intention that monitoring be implemented by a team of qualified, professional marine mammal and sea turtle biologists who are experts in their field. This team of experts will include statistical analysts to analyze data and make recommendations as to when they are beginning to see a pattern in the data and/or when the study designs need to be altered for more robust data collection. This adaptive management process will provide a critical feedback loop to allow for adapting to new methods and evolving methodology. The process will be transparent to the public in the sense of yearly reporting to NMFS under the MMPA permit as well as encouraging the scientific team to publish results as they become available.

New technology and techniques will be incorporated as part of the Navy's adaptive management strategy. Adaptive measures and feedback from the experts will allow flexibility within a given year and/or within years so as to best achieve monitoring plan goals and take into consideration shifting demands, inclement weather and other unforeseen events. For example, flexibility is built in to monitor an alternate but equal training exercise within the year and/or in a following year in the instance an operational schedule changes, is delayed or cancelled. This flexibility ensures monitoring will occur under the best of circumstances and conditions.

Integrated Comprehensive Monitoring Program:

The ICMP is currently in development by the Navy, with Chief of Naval Operations Environmental Readiness Division (CNO-N45) having the lead. The program does not duplicate the monitoring plans for individual areas (e.g. AFAST, HRC, SOCAL, VACAPES, JAX, CHPT); instead it is intended to provide the overarching coordination that will support compilation of data from both range-specific monitoring plans as well as Navy funded research and development (R&D) studies. The ICMP will coordinate the monitoring programs progress towards meeting its goals and develop a data management plan. A program review board is also being considered to provide additional guidance. The ICMP will be evaluated annually to provide a matrix for progress and goals for the following year, and will make recommendations on adaptive management for refinement and analysis of the monitoring methods.

Reporting:

The Navy will submit a report annually on March 1 describing the implementation and results (through January 1 of the same year) of the GOMEX Range Complex Monitoring Plan. Data collection methods will be standardized across range complexes to allow for comparison in different geographic locations. Although additional information will also be gathered, the MMOs collecting marine mammal data pursuant to the GOMEX Range Complex Monitoring Plan will, at a minimum, provide the same marine mammal observation data described in this document. The GOMEX Range Complex Monitoring

Plan Report may be provided to NMFS within a larger report that includes the required Monitoring Plan Reports from GOMEX Range Complex and multiple range complexes.

Data collected from the GOMEX monitoring plan will be added to a Navy wide analysis of monitoring from other permitted Navy range complexes via the ICMP framework. All available data will be included in Navy's annual report and individual exercise reports as detailed in the requirements specified in the LOA issued by NMFS. All subsequent analysis shall be completed in time for Navy's five year report to NMFS. The Navy's reports will provide information on the amount and spatial/temporal distribution of monitoring effort as well as summaries of data collected and any preliminary results that may be available from analysis. All data will be considered pre-decisional during the course of the research studies to protect from premature conclusions being drawn. While data will be prepared and analyzed over the course of the five years of the LOA, under no circumstances will conclusions be represented before the studies are completed. Final conclusions cannot be published nor information released outside of their organization without the written consent of the Secretary of the Navy or their designee.

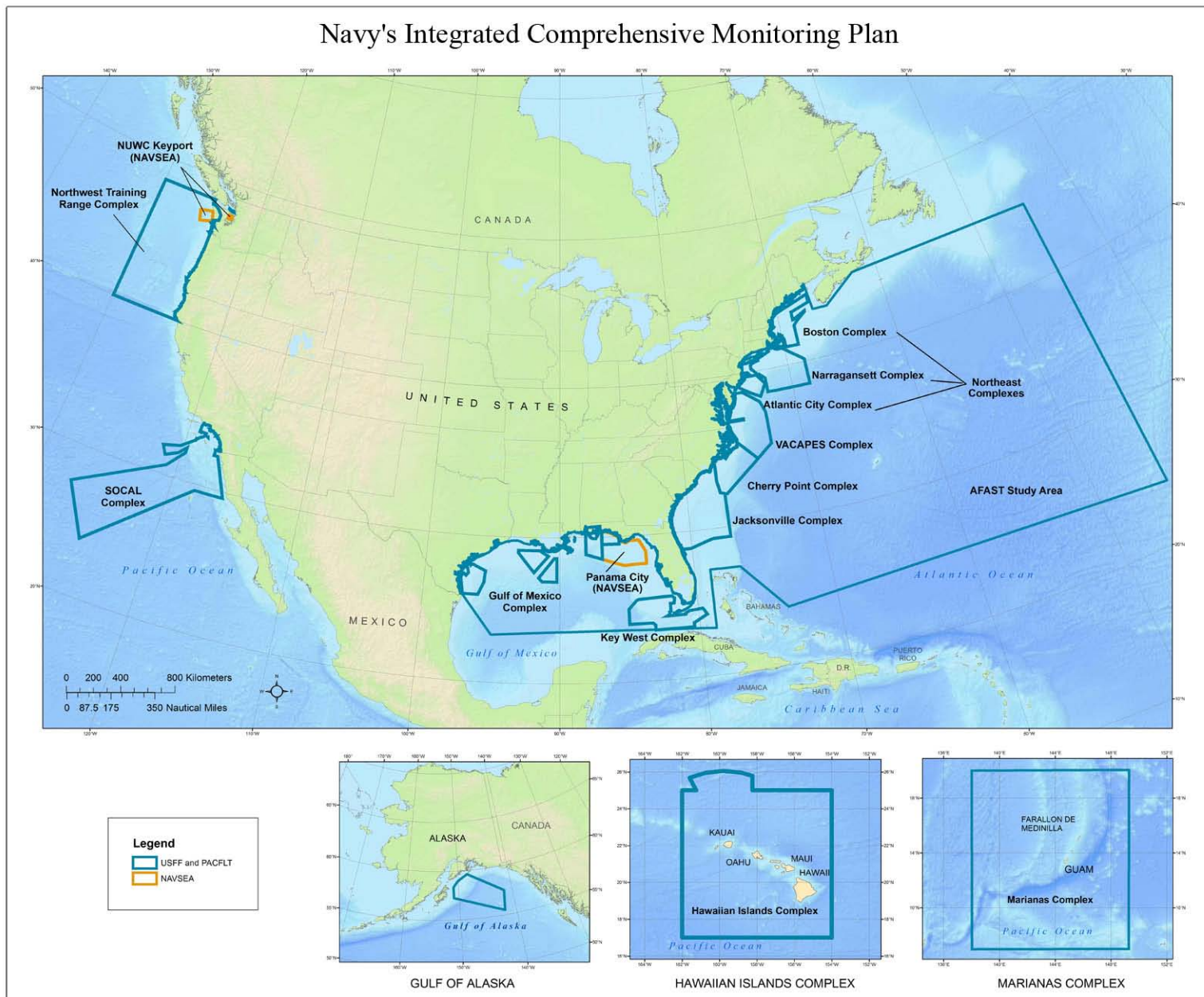


Figure 1. Navy Range Complexes included in the ICM.