

ACTIVITY AND MONITORING REPORT  
IN COMPLIANCE WITH THE  
INCIDENTAL HARASSMENT  
AUTHORIZATION FOR THE OFFICE OF  
NAVAL RESEARCH ACOUSTIC  
TECHNOLOGY EXPERIMENTS



OFFICE OF NAVAL RESEARCH  
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## 1 INTRODUCTION

The purpose of this report is to comply with the reporting requirements of the Incidental Harassment Authorization (IHA) (Level B harassment only) and the Biological Opinion (BO)/Incidental Take Statement (ITS) issued 28 June 2013 pursuant to Section 101(a)(5)(d) of the Marine Mammal Protection Act (MMPA) (16 U.S.C 1361 et seq.) and Section 7 of the Endangered Species Act (ESA) (16 U.S.C. 1531 et seq.) applicable to the Office of Naval Research's Acoustic Technology Experiments (ATE). The Office of Naval Research (ONR) has prepared this report on the experiments' activities and monitoring results in accordance with the reporting requirements of the IHA and BO/ITS. No marine mammals were detected either visually or acoustically during the execution of ONR ATE.

## 2 SUMMARY OF EXPERIMENTS' ACTIVITIES

The ONR ATE were conducted in one province of the northwestern Pacific Ocean during late summer 2013. The goal of the experiments was to collect in situ scientific data on underwater acoustic technology from which the performance of the acoustic systems and their conceptual foundation could be assessed. During the execution of the experiments, underwater acoustic data were collected during four at-sea days. Two underwater acoustic sources were deployed from a stationary vessel during six experiment events; the two underwater sources did not transmit concurrently. Underwater sound signals were transmitted for a total of 35.6 hours (hr) of the permitted 69 hr; 19 hr of acoustic transmissions occurred at night. All acoustic transmission frequencies were below 1.5 kilohertz (kHz) and sound pressure levels of both sources were less than 220 decibels (dB). High sea states prevented any acoustic sources from being deployed or any source transmissions from occurring during one of the experiments' at-sea days.

An environmental survey of the experiments' area was planned using an oceanographic acoustic source, but the survey could only be partially completed due to high sea states and poor weather conditions (Figure 1). The oceanographic acoustic source was not deployed or used; environmental data were collected using expendable bathythermograph and conductivity, temperature, and depth sensors as well as a recoverable wave buoy, which measured wave height and direction. The wave buoy was only deployed once due to weather constraints and high current drift.

Two typhoons struck the region of the northwestern Pacific Ocean before and following the execution of the experiments. Wind speed during ONR ATE ranged from a high of about 46 kilometers per hour (kph) (25 knots [kt]) to a low speed of 11 kph (6 kt) (Figure 1). During the at-sea days, wave heights ranged from 3.4 to 1.8 meters (m) (11.2 to 5.9 feet [ft]) and no precipitation fell; no equipment was deployed from the vessel during the period during which waves reached the maximum height. Prior to the experiments' commencement, wave heights in the area reached 6.7 m (22 ft) and delayed the departure of the experiments' vessel from port.

## 3 MITIGATION AND MONITORING

MMPA Level B incidental harassment of 36 species or species groups of marine mammals were permitted during the execution of ONR ATE, with the implementation of required mitigation and monitoring measures. Taking by injury (MMPA Level A harassment), serious injury, or mortality of any marine mammals was prohibited. Any injured or dead marine mammals that were observed at sea were to be immediately reported to the National Marine Fisheries Service as were any marine mammals struck by the experiments vessel.

### 3.1 IMPLEMENTATION OF MITIGATION AND MONITORING REQUIREMENTS

#### 3.1.1 MITIGATION REQUIREMENTS

The following mitigation requirements were implemented when active acoustic sources were deployed and transmitting during ONR ATE to achieve the least practicable impact on potentially affected marine mammal species or stocks.

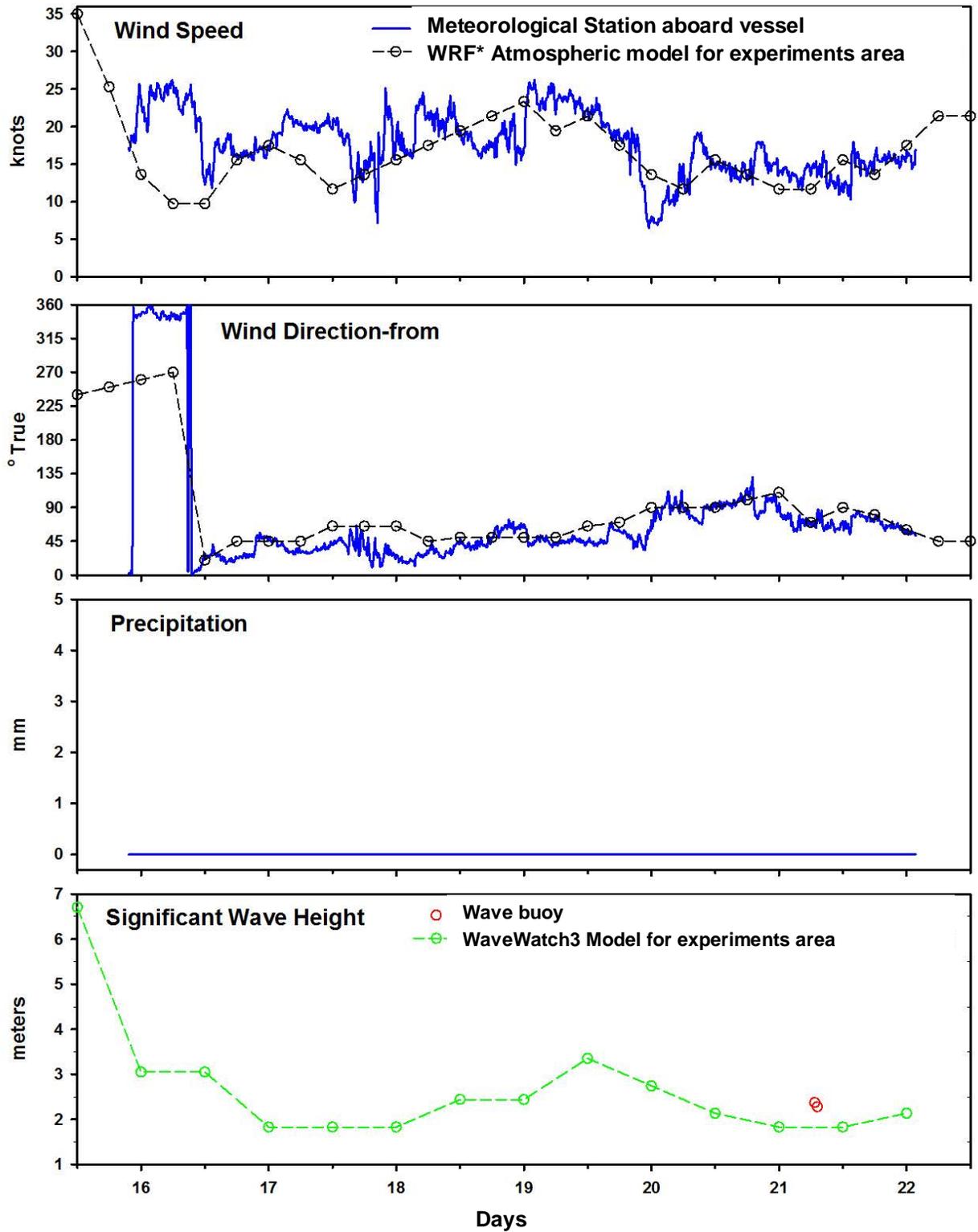


Figure 1. Environmental data collected during ONR ATE including wind speed, wind direction, precipitation, and wave height.

\*WRF=Weather Research Forecasting

### **3.1.1.1 Mitigation Zone**

During active acoustic source transmissions, a 1-kilometer (km) mitigation zone was established around each of the deployed sound sources. This mitigation zone was continuously monitored for marine mammals by visual observers aboard the vessel during daylight hours. Visual monitoring began 30 minutes before active source transmissions commenced during each of the five experiment events that occurred during daylight and continued during the event's transmissions until 30 minutes after the source transmissions had stopped, or 30 minutes after sunset (whichever came first). Shutdown of the active source transmissions was to occur if a marine mammal was visually detected within the 1-km mitigation zone.

### **3.1.1.2 Shutdown/Delay Procedures**

During daylight, underwater active acoustic source transmissions would have been immediately delayed or shut down if a marine mammal had been visually detected within the 1-km mitigation zone. Source transmissions were not to commence/resume for 15 minutes (for small odontocetes and pinnipeds) or 30 minutes (for large whales) after the animal had moved out of the mitigation zone or there had been no further visual detection of the animal.

During nighttime, underwater active acoustic source transmissions would have been immediately delayed or shutdown if a marine mammal had been detected using passive acoustic monitoring. Source transmissions were not to commence/resume for 15 minutes (for small odontocetes and pinnipeds) or 30 minutes (for large whales) after there had been no further detection of the animal.

## **3.1.2 MONITORING REQUIREMENTS**

The following monitoring requirements were implemented during the execution of ONR ATE to assist in increasing knowledge of marine mammal species in the northwestern Pacific Ocean and of the level of taking or impacts on populations of marine mammals that occurred in the experiments' area.

### **3.1.2.1 Observer Training**

Prior to the commencement of ONR ATE, the visual observers and backup personnel scheduled to monitor for marine mammals during ONR ATE participated in a training workshop conducted by a marine mammal biologist qualified in performing at-sea monitoring of marine mammals from surface vessels. The observers were trained in the IHA monitoring requirements, monitoring and reporting procedures, factors affecting sightability, and the marine mammal species potentially occurring in the experiments' area.

A training workshop led by a marine mammal biologist qualified in performing at-sea passive acoustic monitoring also took place prior to the commencement of ONR ATE for the acoustic observer scheduled to conduct passive acoustic monitoring during ONR ATE. Training included a review of the equipment and computer software that would be used to receive the acoustic signals passively detected by deployed sonobuoy receivers during the experiments as well as familiarization with detecting and identifying the visual and aural signatures of vocalizing marine mammals.

### **3.1.2.2 Visual Monitoring**

During ONR ATE, two protected species observers continuously visually monitored for marine mammals at the sea surface during the approximate 16.6 hr of daytime active acoustic source transmissions; about 1 hr of visual monitoring occurred simultaneously with initiation of passive acoustic monitoring during an acoustic event that spanned both daylight and nighttime hours. One observer was positioned on the deck level above the vessel's bridge (at about 7 to 7.6 m [24 to 25 ft] above the sea surface) while the second observer was positioned on the bridge level, which was located about 5 m (16 ft) above the sea surface.

Throughout each of the four experiment events involving active acoustic source transmissions during daylight hours, visual monitoring for marine mammals began 30 minutes before active acoustic source transmissions commenced and continued until 30 minutes after active acoustic source transmissions

were terminated, or 30 minutes after sunset (whichever came first). No marine mammals were observed during the 22 hr of visual monitoring effort completed during ONR ATE by both observers. Thus, the active source transmissions were never delayed or suspended as a result of marine mammals having been visually detected.

### **3.1.2.3 Passive Acoustic Monitoring**

Throughout the 19 nighttime hr when active acoustic sources were transmitting during three ONR ATE acoustic events (and any other periods of decreased visual observation capabilities), one acoustic observer continuously monitored received passive acoustic signals for marine mammal presence. Passive acoustic monitoring included listening for vocalizations and visually inspecting spectrograms of radio frequency transmitted signals from a deployed AN-SSQ53F sonobuoy. Passive acoustic monitoring began 30 minutes before active acoustic source transmissions started and continued until 30 minutes after active acoustic source transmissions were terminated, or 30 minutes after sunrise (whichever came first).

No marine mammals were detected visually or aurally from the sonobuoy receiver signals transmitted during the 23 hr of passive acoustic monitoring effort conducted during ONR ATE. Since no marine mammals were detected acoustically, the active acoustic source transmissions were never delayed or suspended during the night periods of source transmissions.

## **3.2 SUMMARY OF MITIGATION AND MONITORING MEASURES**

No marine mammals were observed either visually or acoustically during the 45 hr of total monitoring effort conducted during the experiment periods when active acoustic sources were transmitting. No visual or acoustic monitoring occurred on the at-sea day when it was too rough to deploy any acoustic sources. No marine mammals were struck by the experiments' vessel nor were any injured or dead marine mammals (or sea turtles) observed at sea during the experiments' duration or during transit between port and the experiments' area.

## **3.3 EFFECTIVENESS OF MITIGATION AND MONITORING REQUIREMENTS**

To achieve the least practicable impact on potentially affected marine mammal species or stocks and lessen any potential impacts to marine mammals resulting from possible exposure to the underwater acoustic sources employed during ONR ATE, mitigation and monitoring measures were undertaken when active sources were transmitting. ONR has concluded that the mitigation and monitoring measures were implemented properly, and accordingly, have successfully minimized potential effects to marine mammals possibly resulting from exposure to the underwater acoustic transmissions of ONR ATE. Both visual and acoustic observers were trained in the procedures to detect and identify marine mammals and more than 45 hr of total monitoring effort was expended during the execution of ONR ATE.