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**MARINE MAMMAL MONITORING PLAN FOR  
THE WHARF C-2 RECAPITALIZATION PROJECT  
AT NAVSTA MAYPORT, FLORIDA**

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Submitted to:

**Office of Protected Resources,  
National Marine Fisheries Service,  
National Oceanographic and Atmospheric Administration**

Prepared by:

**Naval Facilities Engineering Command Southeast  
And  
Naval Facilities Engineering Command Atlantic**

For:

**Naval Station Mayport**

June 2013

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## **TABLE OF CONTENTS**

<b>1.0 Introduction.....</b>	<b>1</b>
1.1 Purpose of the Monitoring Plan.....	1
1.2 Scope and Timing.....	1
1.3 Management.....	1
<b>2.0 Wharf C-2 Recapitalization Project.....</b>	<b>3</b>
2.1 Project Area.....	3
2.2 Activities to be Monitored.....	3
2.3 Monitoring and Shutdown Zones.....	6
<b>3.0 Marine Mammal Monitoring.....</b>	<b>8</b>
3.1 Observers and Procedures.....	8
3.2 Methods.....	8
3.3 Data Collection.....	9
3.4 Equipment.....	10
3.5 Observer Monitoring Locations.....	10
3.6 Interagency Notification.....	11
<b>4.0 Reporting.....</b>	<b>11</b>
<b>5.0 Source Level Verification.....</b>	<b>11</b>
<b>6.0 References.....</b>	<b>13</b>

**LIST OF FIGURES**

Figure 1-1. Regional Location – Naval Station Mayport, Mayport, Florida .....2  
Figure 2-1. Injury and Behavioral Zones of Influence for Marine Mammals<sup>1</sup> – Vibratory  
Driving of Steel King and Sheet Piles .....5  
Figure 2-2. Monitoring / Shutdown Zones .....7

**LIST OF TABLES**

Table 2-1. Activity Summary at Wharf C-2.....4  
Table 2-2. Monitoring and Shutdown Zones.....6

## **ACRONYMS AND ABBREVIATIONS**

C-2	Charlie Two (Wharf)
dB	decibel
EA	Environmental Assessment
ft.	foot / feet
IHA	Incidental Harassment Authorization
μPa	microPascal
m	meter
MMPA	Marine Mammal Protection Act
NAVSTA	Naval Station
NEPA	National Environmental Policy Act
NMFS	National Marine Fisheries Service
POC	point of contact
Project	Wharf C-2 Recapitalization Project
RMS	root mean squared
SEL	sound exposure level
USFWS	U.S. Fish and Wildlife Service
ZOI	Zone of Influence

## **1.0 INTRODUCTION**

### **1.1 Purpose of the Monitoring Plan**

The purpose of this Monitoring Plan is to provide protocols for marine mammal monitoring during the proposed recapitalization of Wharf Charlie Two (C-2) at Naval Station (NAVSTA) Mayport, Florida (Figure 1-1). Recapitalization includes demolishing and replacing the existing concrete pile cap, wharf deck, and utilities and installation of a new steel king pile/sheet pile bulkhead around the existing wharf. This plan was developed to support the National Marine Fisheries (NMFS) Incidental Harassment Authorization (IHA) Application (U.S. Department of the Navy 2013).

Marine mammal monitoring will be conducted before, during, and after pile driving activities within the zones detailed in Section 2.3, and will represent an important minimization measure to reduce the likelihood of potential injury to marine mammals.

### **1.2 Scope and Timing**

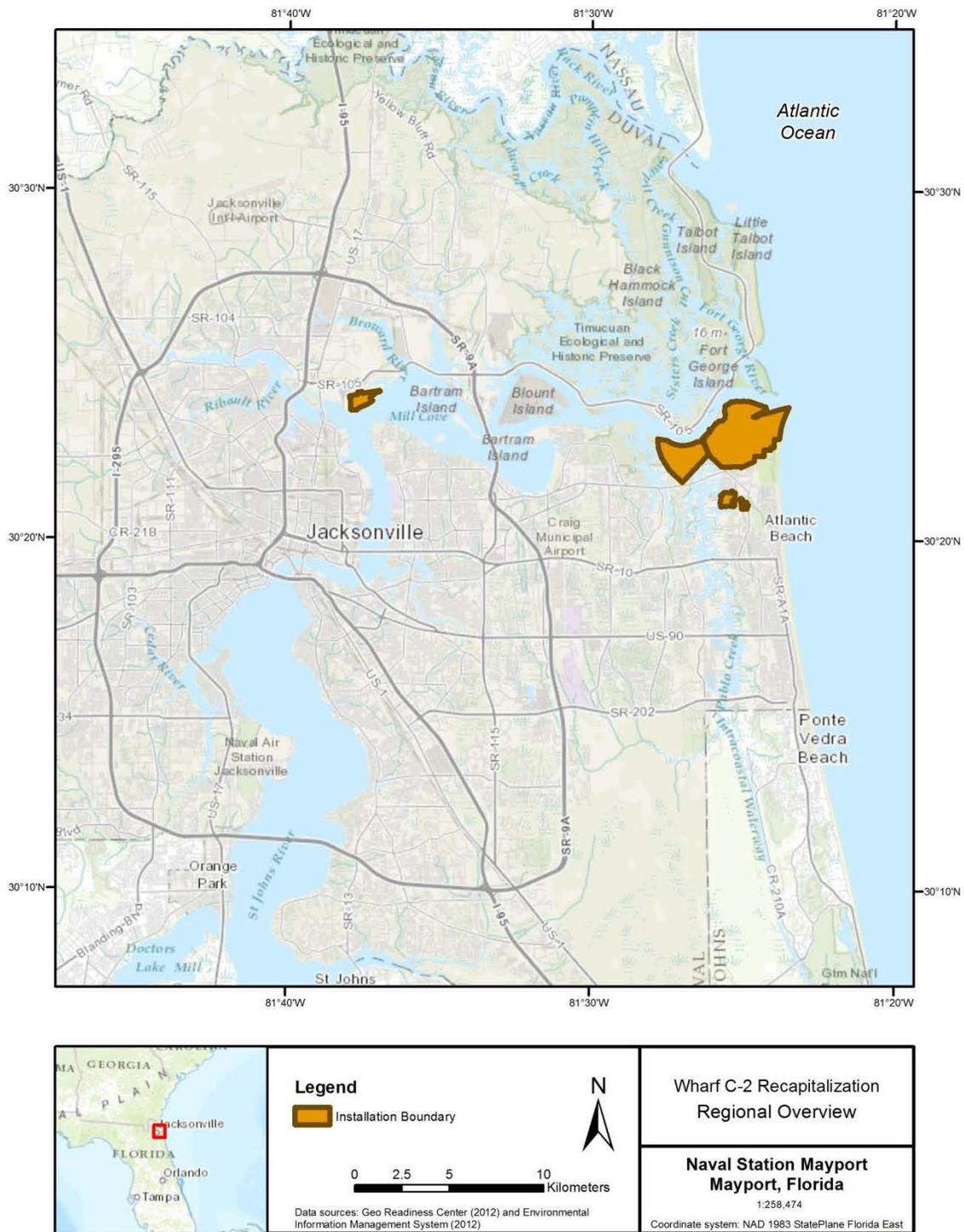
The scope of this Monitoring Plan includes pile driving activities that are necessary for the Wharf C-2 recapitalization project (Project). Sea turtles and smalltooth sawfish (as practicable) will be included in monitoring efforts. However, for the purposes of this submittal to NMFS in support of compliance with the Marine Mammal Protection Act (MMPA), the scope of monitoring in this document is limited to marine mammals. Marine mammal monitoring would be integrated with other marine environmental monitoring if it is required as a result of the Navy's National Environmental Policy Act (NEPA) project review or as a condition of approval by other regulatory agencies.

This Monitoring Plan will be implemented when pile driving is taking place during the period of the requested IHA (September 2013 through September 2014) for the Project.

### **1.3 Management**

The Monitoring Plan will be managed by Naval Facilities Engineering Command (NAVFAC) Southeast. Marine mammal monitoring will be carried out by private contractors supported by local technical staff from NAVFAC Southeast and NAVSTA Mayport. NAVFAC Southeast will also be responsible for preparation of the Monitoring Report for the IHA.

**Figure 1-1. Regional Location – Naval Station Mayport, Mayport, Florida**



## **2.0 WHARF C-2 RECAPITALIZATION PROJECT**

Refer to the Draft Environmental Assessment (EA) (U.S. Department of the Navy 2013a) and IHA Application (U.S. Department of the Navy 2013) for a full description of the Project.

### **2.1 Project Area**

The project area is on the Atlantic coast of northern Florida, and includes the NAVSTA Mayport turning basin out to the limit of the most distant of the acoustic thresholds for all marine mammals being addressed for the Project (Figure 2-1). Underwater thresholds are based on criteria developed by NMFS (70 FR 1871; 74 FR 41684).

### **2.2 Activities to be Monitored**

Activities that would be subject to marine mammal monitoring include the following:

- Vibratory pile driving of steel king and sheet piles necessary to construct a new steel sheet pile wall outside the existing bulkhead. Approximately 120 steel sheet pile pairs and 119 steel king piles will be installed with a vibratory driver.
- Vibratory installation of 50 polymeric (plastic) fender piles.
- Contingency-only impact installation of steel king and/or sheet piles. Impact driving would be seldom and brief, if it occurs at all, and would only be used if an unforeseen buried obstruction prevents vibratory installation.

Marine mammal monitoring will be performed to ensure in-water activities are stopped if animals occur within the zone of influence (ZOI) for potential injury or a standard 50 feet (ft.) buffer from pile driving activities (Figure 2-2). Monitoring methods are described in Section 3 of this document.

Table 2-1 summarizes the in-water pile driving activities scheduled to take place during the timeframe covered by the IHA, and descriptions of pile installation activities follow.

**Table 2-1. Activity Summary at Wharf C-2**

Activity/Method	# Days	Pile Type	# Piles Installed
Structural pile driving (vibratory)	45	King pile	119
		Sheet pile	120
Fender pile driving (vibratory)	5	Polymeric pile	50
Structural pile driving (contingency impact)	20	King and sheet	contingency only <sup>1</sup>
<b>Total piles installed</b>			<b>289</b>

1 - A similar project that has been completed at adjacent Wharf Charlie One required impact pile driving on only seven piles.

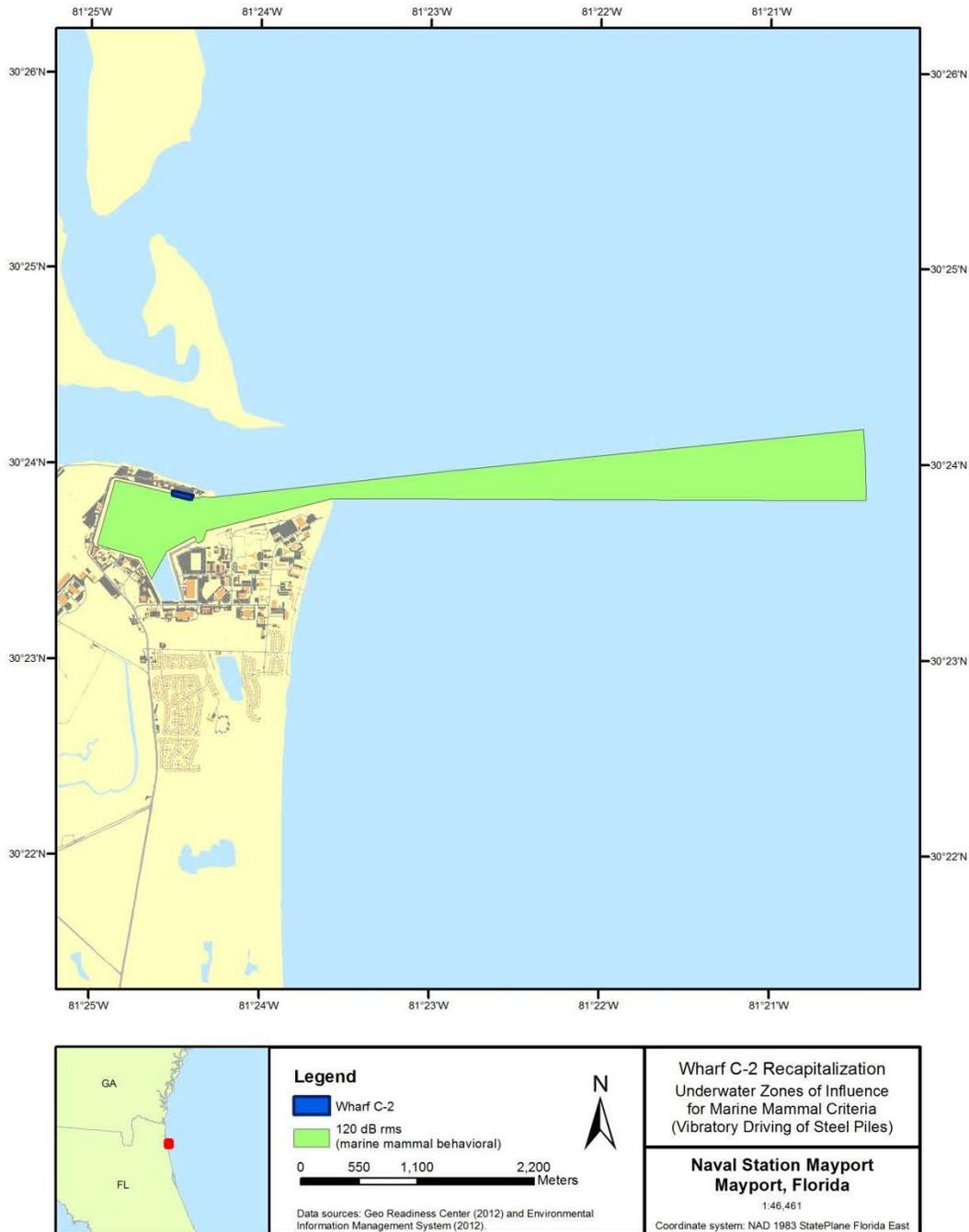
### **Pile Installation**

The acoustic analysis for vibratory pile driving used the assumption a maximum of three templates<sup>1</sup> (each consisting of five king piles and four sheet pile pairs) would be driven each day. Each pile is anticipated to require no more than 60 seconds to drive by vibratory methods. Impact pile driving would only be used as a contingency in cases when vibratory driving is insufficient (a similar project that has been completed at adjacent Wharf Charlie One required impact pile driving on only seven piles).

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<sup>1</sup>Templates are prefabricated or site constructed steel frames into which piles are set to hold piles in the proper position and alignment during driving (Hannigan 2011).

**Figure 2-1. Injury and Behavioral Zones of Influence for Marine Mammals<sup>1</sup> – Vibratory Driving of Steel King and Sheet Piles**



1 - Official criteria have not been established for West Indian manatees. The Navy's IHA application, Appendix C – Standards Manatee Conditions for In-Water Work, cover standards of practice promulgated by The U.S. Fish and Wildlife Service (USFWS) for manatees.

## **Monitoring and Shutdown Zones**

Table 2-2 lists the monitoring and shutdown zones, and measures associated with the occurrences of a marine mammal in each zone. For all in-water construction and demolition activities, a minimum protective shutdown zone of 15 m (50 ft.) is proposed. Sound-generating activities with larger shutdown zones follow, based on the maximum modeled distance to the Level A (injury) threshold:

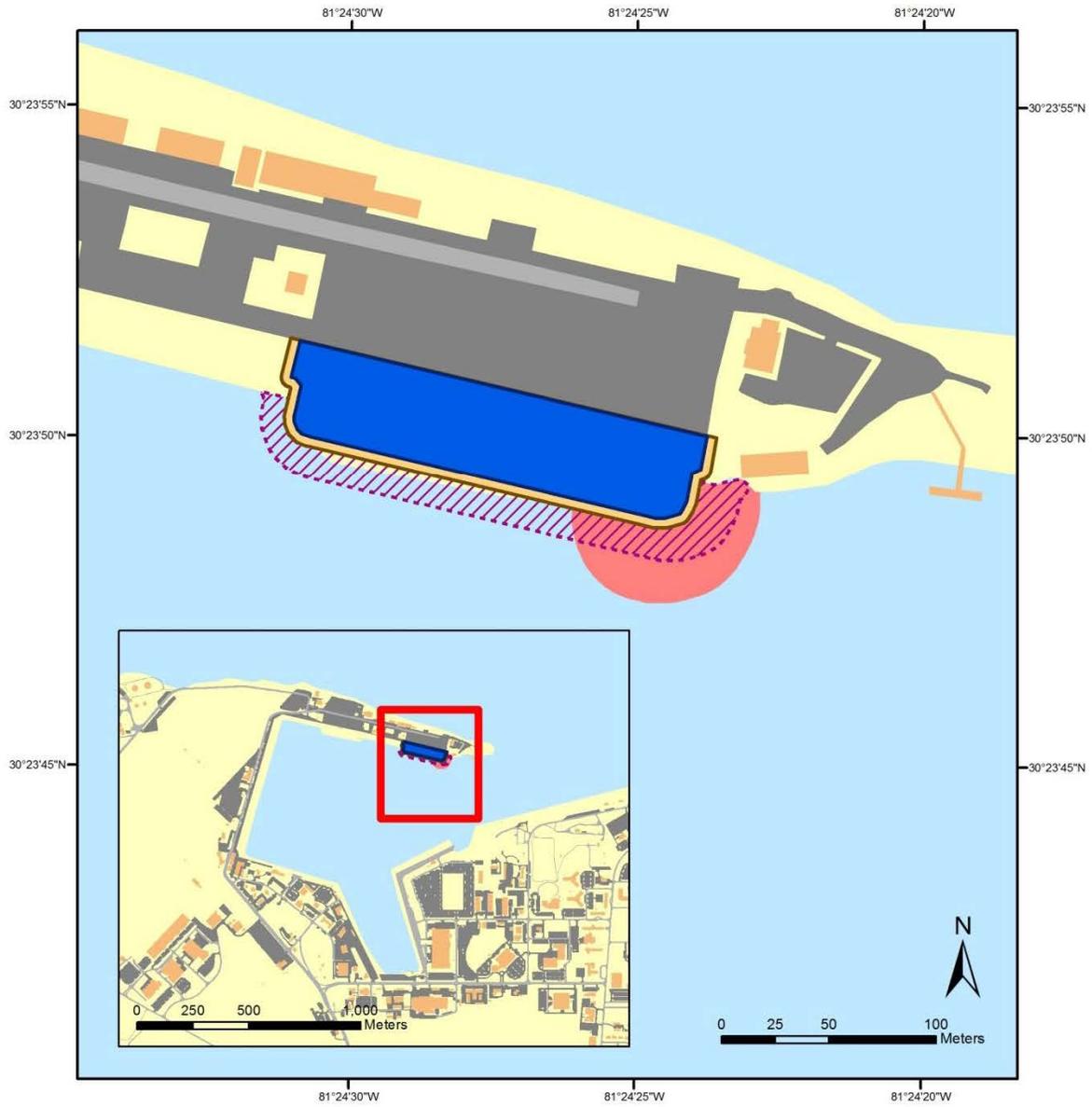
- During vibratory pile driving, the shutdown distance will initially be 15 m.
- If impact driving is needed, the shutdown distance for cetaceans will initially be 40 m during the brief duration of such activities.

**Table 2-2. Monitoring and Shutdown Zones**

<b>Type of Activity</b>	<b>Distance from Pile Being Driven and Active In-water Equipment (any direction in water)</b>	<b>Measure</b>
All in-water work <sup>1</sup>	50 ft. (15 m)	Shut down all in-water work if a marine mammal, sea turtle, or smalltooth sawfish (surface) is observed in the zone
Impact driving of steel piles (contingency only)	130 ft. (40 m)	Shut down pile driving if a marine mammal is observed in the zone

<sup>1</sup> In-water work is defined as any activity where personnel or equipment are working in the water column. Vessel movement does not constitute in-water work.

**Figure 2-2. Monitoring / Shutdown Zones**



	<p><b>Legend</b></p> <ul style="list-style-type: none"> <li><span style="display: inline-block; width: 15px; height: 15px; background-color: blue; border: 1px solid black; margin-right: 5px;"></span> Wharf C-2</li> <li><span style="display: inline-block; width: 15px; height: 15px; background-color: yellow; border: 1px solid black; margin-right: 5px;"></span> Wharf C-2 New Profile</li> <li><span style="display: inline-block; width: 15px; height: 15px; border-bottom: 2px dashed purple; margin-right: 5px;"></span> Protected Species Shutdown Zone (any vibratory pile driving)</li> <li><span style="display: inline-block; width: 15px; height: 15px; background-color: red; border: 1px solid black; margin-right: 5px;"></span> Notional Marinal Mammal Injury Zone (steel impact pile driving)</li> </ul> <p><small>Data sources: Geo Readiness Center (2012) and Environmental Information Management System (2012)</small></p>	<p>Wharf C-2 Recapitalization Protected Species Shutdown Zone</p>
		<p><b>Naval Station Mayport Mayport, Florida</b></p> <p><small>1:2,500</small></p> <p><small>Coordinate system: NAD 1983 StatePlane Florida East</small></p>

### **3.0 MARINE MAMMAL MONITORING**

#### **3.1 Observers and Procedures**

The Navy shall conduct a pre-construction briefing with the contractor. During the briefing, all contractor personnel working in the Project area will watch the Navy's Marine Species Awareness Training video.

Marine mammal observers ("observers") designated by the contractor will be placed at the best vantage point(s) practicable to monitor for marine mammals and implement shutdown/delay procedures when applicable by calling for shutdown to the equipment operator(s). The observers will have no other construction related tasks while conducting monitoring.

The contractor will adhere to all requirements of the following:

- U.S. Fish and Wildlife Services (USFWS) 2005 Standard Manatee Conditions for In-Water Work (Attachment 1)
- National Marine Fisheries Service 2006 Sea Turtle and Smalltooth Sawfish Construction Conditions (Attachment 2)
- National Marine Fisheries Services 2012 Southeast Region Marine Mammal and Sea Turtle Viewing Guidelines (Attachment 3)
- Requirements of IHA upon issuance by NMFS.

#### **3.2 Methods**

The observer(s) will monitor the shutdown zone before, during, and after pile driving and removal.

The observer(s) will be placed at the best vantage point practicable (e.g. from a small boat, construction barges, on shore, or any other suitable location) to monitor for marine mammals and implement shutdown/delay procedures when applicable by calling for the shutdown to the equipment operator(s). Elevated positions are preferable; it shall be the contractor's responsibility to ensure that appropriate safety measures are implemented to protect observers on elevated observation points. If a boat is used for monitoring, the boat shall maintain minimum distances from species (should they occur) as described in National Marine Fisheries Services' 2012 Southeast Region Marine Mammal and Sea Turtle Viewing Guidelines (Attachment 3).

- During all observation periods, observers shall use binoculars and the naked eye to search continuously for marine mammals;
- If the shutdown zone is obscured by fog or poor lighting conditions, pile driving shall not be initiated until the entire shutdown zone is visible.
- The shutdown zone shall be monitored for the presence of marine mammals before, during, and after any pile driving or removal activity.

#### Pre-Activity Monitoring:

The shutdown zone shall be monitored for 15 minutes prior to in-water construction/demolition activities. If a marine mammal is present within or approaching the shutdown zone, the activity would be delayed until the animal(s) leave the shutdown zone. Activity would resume only after the observer has determined, through re-sighting or by waiting 15 minutes that the animal(s) has moved outside the shutdown zone. The observer will notify the monitoring coordinator/construction foreman / POC when construction activities can commence.

#### During Activity Monitoring:

The shutdown zone shall include all areas where the underwater sound pressure levels are anticipated to equal or exceed the Level A (injury) criteria for marine mammals (180 dB re 1  $\mu$ Pa isopleth for cetaceans). The shutdown zone will always be a minimum of 15 meters (m) (50 ft.) to prevent injury from physical interaction of marine mammals with construction equipment (Figure 2-2).

If a marine mammal, sea turtle, or smalltooth sawfish enters a shutdown zone during any in-water work, activity will be halted and delayed until either the animal has voluntarily left and been visually confirmed beyond the shutdown zone or 15 minutes have passed without re-detection of the animal.

#### Post-Activity Monitoring:

Monitoring of the shutdown zone will continue for 15 minutes following the completion of the activity.

### **3.3 Data Collection**

The following information will be collected on sighting forms used by observers:

- Date and time that pile driving or removal begins or ends
- Construction activities occurring during each observation period
- Weather parameters identified in the acoustic monitoring (e.g., wind, temperature, percent cloud cover, and visibility)
- Tide state and water currents

If a marine mammal, sea turtle, or smalltooth sawfish enters the shutdown zone, the following information will be recorded once shutdown procedures have been implemented:

- Species, numbers, and if possible sex and age class of marine mammals
- Behavior patterns observed, including bearing and direction of travel
- Location of the observer and distance from the animal(s) to the observer

If possible, photographs of the animal(s) will be taken and forwarded to the Naval Facilities Engineering Command Southeast Environmental point of contact:

Jered Jackson  
NAVFAC Southeast  
Building 903  
NAS Jacksonville, FL 32212  
904-542-6308

Data collection forms shall be furnished to the Environmental point of contact within a mutually agreeable timeframe.

### **3.4 Equipment**

The observer(s) shall be equipped with the following:

- binoculars (7 x 50 power or greater) to ensure sufficient visual acuity while investigating sightings
- portable radios or cellular phone(s) to rapidly communicate with the appropriate construction personnel to initiate shutdown of pile driving activity if required
- a digital camera for photographing any marine species sighted
- data collection forms
- Compass/GPS

### **3.5 Observer Monitoring Locations**

In order to effectively monitor the shutdown zones, marine mammal observers will be positioned at the best practicable vantage point(s), taking into consideration the behavior of marine mammal species likely to enter the area, security, safety, and space limitations at the waterfront, in order to properly monitor these zones. Observers may be stationed in small vessels or on the wharf at a location that will provide adequate visual coverage for the marine mammal shutdown zone.

### **3.6 Interagency Notification**

If the Navy encounters an injured, sick, or dead marine mammal, NMFS will be notified immediately. Such sightings will be called into the NMFS Stranding Coordinator for the Southeast:

Erin Fougères, Ph.D.  
Marine Mammal Stranding Program Administrator  
NOAA Fisheries  
Southeast Regional Office  
263 13th Avenue South  
St. Petersburg, FL 33701  
e-mail: [erin.fougeres@noaa.gov](mailto:erin.fougeres@noaa.gov)  
office: 727-824-5323  
fax: 727-824-5309

The Navy will provide NMFS with the species or description of the animal(s), the condition of the animal (including carcass condition if the animal is dead), location, the date and time of first discovery, observed behaviors (if alive), and photo or video (if available).

Care should be taken in handling dead specimens to preserve biological materials in the best possible state for later analysis of cause of death, if that occurs. In preservation of biological materials from a dead animal, the finder (i.e. marine mammal observer) has the responsibility to ensure that evidence associated with the specimen is not unnecessarily disturbed.

The Florida Fish and Wildlife Conservation Commission (1-888-404-FWCC) and U.S. Fish and Wildlife Service (1-904-232-2580) will be notified if an injured, sick, or dead manatee is encountered.

### **4.0 REPORTING**

A draft report of any incidents of marine mammals entering the shutdown zone will be forwarded to NMFS / USFWS. The Navy shall comply with reporting requirements outline in the final IHA issued by NMFS, which generally call for a draft report within 90 days of IHA expiration, and final report issued 30 days after NMFS comments are received on draft report.

### **5.0 SOURCE LEVEL VERIFICATION**

As a part of the Navy's ongoing research on in-water acoustics, source level verification is planned concurrent to pile driving activities at NAVSTA Mayport. A contracted Senior Acoustic Consultant and Staff Consultant will collect pile driving noise data to estimate airborne and underwater source levels. Monitoring will include two underwater positions and one airborne monitoring position. These exact positions would be determined in the field during consultation with Navy personnel. All required permits and security clearances will be obtained in advance of the actual monitoring work.

Underwater sound monitoring would include the measurement of peak sound pressures, root-mean-square sound pressure levels (RMS) and sound exposure levels (SEL) of pile driving activities at Wharf C-2. Typical ambient levels would be measured during lulls in the pile installation and reported in terms of RMS sound pressure levels. Frequency spectra in narrow-band or 1/3rd octave bands would be provided for pile driving sounds. A technical report summarizing the data collected will be prepared within 75 days of completion of monitoring.

## **6.0 REFERENCES**

Hannigan, P. (2011). Pile Driving Equipment. 2011 PDCA Professor Pile Institute. Produced by GRL Engineers, Inc. Retrived from <http://www.piledrivers.org/pdpi-pat-hannigan.htm>. Accessed on 04 November 2012

Jacksonville Environmental Protection Board. (1995). Rule 4: Noise Pollution Control. Chapter 368 Ordinance Code. Retrieved from <http://www.coj.net/departments/regulatory-boards-and-commissions/docs/environmental-protection-board/epb-rule-4.aspx>. Accessed on 20 December 2012.

U.S. Department of the Navy. (2013). Request for an Incidental Harassment Authorization Under the Marine Mammal Protection Act for the Wharf C-2 Recapitalization Project, Navy Region Southeast.

U.S. Department of the Navy (2013a). Draft Environmental Assessment Wharf C-2 Recapitalization at Naval Station Mayport, Florida.