FINAL SUPPLEMENTAL ENVIRONMENTAL ASSESSMENT

EXPLOSIVES HANDLING WHARF 1 PILE REPLACEMENT PROJECT

NAVAL BASE KITSAP AT BANGOR

SILVERDALE, WA

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Abstract

This Supplemental Environmental Assessment supplements the analysis contained in the *Final Environmental Assessment, Explosives Handling Wharf 1 Pile Replacement Project, Naval Base Kitsap at Bangor* (May 2011). The Navy determined that a supplement was required to address changes that occurred and new information made available during the first year of a two-year construction period. The Navy reinitiated consultation with National Marine Fisheries Service, Northwest Region under the Endangered Species Act. The Navy requested an Incidental Harassment Authorization from National Marine Fisheries Service for the second year of construction.

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EXECUTIVE SUMMARY

This Supplemental Environmental Assessment was prepared pursuant to the Council on Environmental Quality regulations (40 Code of Federal Regulations (CFR) Parts §§ 1500-1508) implementing the National Environmental Policy Act (NEPA), 42 U.S.C. § 4331 et seq., and in accordance with the Department of Navy regulations implementing NEPA (32 CFR 775) and Chief of Naval Operations Instruction (OPNAVINST) 5090.1C (Change 1).

Per OPNAVINST 5090.1C (Change 1), a supplemental EA is prepared to amend an original environmental planning document when the action proponent determines: 1) substantial changes made in the proposed action are beyond the scope of the original environmental planning document; 2) significant new circumstances occur or information becomes available that could affect the proposed action and its potential environmental impacts; or 3) Navy determines that Navy interests or the purposes of NEPA or Executive Order 12114 will be furthered by doing so.

The Navy determined a supplemental analysis was required to address the following changes that occurred and new information made available since the FONSI:

- The Navy reinitiated consultation with National Marine Fisheries Service (NMFS), Northwest Region under the Endangered Species Act (ESA) for incidental takes of Steller sea lions. The Final EA concluded Steller sea lions would not be expected to occur in the July to October construction window; however, Steller sea lions were observed during construction activities in October 2011.
- The reinitiated ESA consultation with NMFS NW will include the humpback whale. The humpback whale was not considered in the Final EA based on a lack of confirmed sightings of the species in Hood Canal over the last several decades. However, a single humpback whale was documented in the Hood Canal over a period of weeks in January and February 2012.
- The project includes installation and removal of eight 16-inch diameter steel false work piles. The installation and removal of these false work piles was not included in the proposed action in the Final EA.
- Vibratory removal of piles and pneumatic chipping will occur from July 16, 2012 through February 15, 2013, instead of ending October 31, 2012, per the Final EA.

The Final EA covered both years of construction; however, NMFS approved an Incidental Take Authorization (IHA) for the first year of construction only. The Navy requested an IHA for remaining construction activities having the potential to affect marine mammals during the second year of construction beginning July 2012.

The proposed action remains as described in the Final EA, with the exception of the installation and removal of temporary false work piles by the construction contractor. That document described and analyzed a two-year project for the restoration of the EHW-1's structural integrity; the Navy is in the second year of that project. The proposed remaining project activities which could result in behavioral harassment to marine mammals are: 1) vibratory removal of steel piles; and 2) pneumatic chipping for concrete pile removal.

The purpose of the EHW-1 Pile Replacement Project is to remove and install piles and associated structures to maintain the structural integrity of the wharf. The need for the EHW-1 Pile Replacement Project is to maintain the functionality and structural integrity of the concrete piles which have deteriorated since it was built in 1977. Repairs and maintenance are needed to meet the operational requirements of the TRIDENT program.

Existing environmental conditions are consistent with what was evaluated in the Final EA with the exception of the occurrences and estimated densities of marine mammals. Based on marine mammal monitoring conducted during the first year of construction at EHW-1 and as part of the Test Pile Program (TTP), the data provided in the Final EA for the Steller sea lion and harbor porpoise was revised in the supplement. In addition, based on recent observations in Hood Canal, data was provided for the humpback whale, which was not included in the Final EA.

The SEA addresses one action alternative (the proposed action). The action alternative requires installation and removal of eight steel false work piles. Additionally, the proposed action includes vibratory extraction and use of a pneumatic chipping hammer for pile removal to be conducted between July 2012 and February 2013.

Impacts resulting from the second year of the proposed action are generally consistent with what was evaluated in the Final EA with the exception of the number of behavioral disturbances of certain marine mammals and minimal impacts resulting from the installation and removal of temporary false work piles. The Proposed Action may have impacts to individual marine mammals, but any impacts observed at the population, stock, or species level will be negligible.
In accordance with the ESA, the Navy requested informal consultation with NMFS regarding the potential effect of the proposed action on Steller sea lions on August 11, 2010. The Navy received concurrence that the proposed action was “not likely to adversely affect” Steller sea lions on September 2, 2010. NBK reinitiated consultation with the NMFS Regional office on March 21, 2012 and requested formal consultation for the Steller sea lion. The Navy determined that the proposed action is “likely to adversely affect” the Steller sea lion based on the potential exposure of individuals to underwater noise levels above 120 dB RMS (referenced [re] 1 micro Pascal [1µPa]) from vibratory pile extraction and pneumatic chipping and requested incidental take be authorized. A Biological Opinion was received on May 24, 2012.

In accordance with the ESA, the Navy requested informal consultations with NMFS regarding the potential affect of the proposed action on humpback whales on February 10, 2010. The Navy received correspondence from NMFS on February 17, 2010 stating that the project was thought to have “no effect” to humpback whales based on lack of occurrence in Hood Canal. NBK reinitiated consultation with the NMFS Regional office on March 21, 2012 for the humpback whale. The Navy requested concurrence with its determination that the proposed action is “not likely to adversely affect” the humpback whale based on the discountable exposure to underwater noise levels above 120 dB RMS (re: 1µPa) from vibratory pile extraction and pneumatic chipping. Concurrence from NMFS was received on May 24, 2012.

Other marine mammals occurring in the vicinity will not be significantly affected by the Proposed Action. The Navy anticipates behavioral takes (level B) of marine mammals as defined by the Marine Mammal Protection Act (MMPA), but no injury or mortality. Mitigation and monitoring

measures required by NMFS have been adopted to reduce the impacts to marine mammals, including implementation of shutdown and buffer zones; visual monitoring; measuring underwater and airborne sound; observing agency-approved in-water work windows; using a soft-start procedure; and limiting work to daylight only.

Based on the analysis presented in the SEA, and coordination with NMFS, the Navy concludes the Proposed Action will not significantly impact the quality of the human or natural environment or generate significant controversy.

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ACRONYMS AND ABBREVIATIONS

CV	Coefficient of Variation
dB	Decibel
DPS	Distinct Population Segment
EA	Environmental Assessment
EHW-1	Explosives Handling Wharf #1
EHW-2	Explosives Handling Wharf #2
ESA	Endangered Species Act
FONSI	Finding of No Significant Impact
FR	Federal Register
GPS	Global Positioning System
Hz	Hertz
IHA	Incidental Harassment Authorization
K/B	Keyport/Bangor
kHz	Kilohertz
kg	Kilogram
km	Kilometer
m	Meter
MHHW	Mean Higher High Water
MMPA	Marine Mammal Protection Act
Navy	United States Navy
NBK	Naval Base Kitsap
NEPA	National Environmental Policy Act
NMFS	National Marine Fisheries Service
NOA	Notice of Availability
OPNAVINST	Office of the Chief of Naval Operations Instruction
RMS	Root Mean Square
SEA	Supplemental Environmental Assessment
SEL	Sound Exposure Level
SPL	Sound Pressure Level
SSL	Steller Sea Lion
Sq	Square
U.S.	United States
WAC	Washington Administrative Code
WRA	Waterfront Restricted Area
ZOI	Zone of Influence

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1 DESCRIPTION OF ACTIVITIES

1.1 Introduction

The Navy prepared this Supplemental Environmental Assessment (SEA) to supplement the environmental analysis contained in the *Final Environmental Assessment, Explosives Handling Wharf 1 Pile Replacement Project, Naval Base Kitsap at Bangor* (May 2011), herein referred to as the Final Environmental Assessment (EA)[1]. The Final EA and coordination with regulatory agencies and tribes concluded the proposed action at Naval Base Kitsap (NBK) at Bangor would not significantly impact the quality of the human or natural environment or generate significant controversy. As a result, a Finding of No Significant Impact (FONSI) was signed on May 20, 2011 and a revised FONSI signed on July 25, 2011[2].

Per the Office of the Chief of Naval Operations Instruction (OPNAVINST) 5090.1C (Change 1), Environmental Readiness Program Manual, of July 2011, a supplemental EA is prepared to amend an original environmental planning document when the action proponent determines:

- Substantial changes made in the proposed action are beyond the scope of the original environmental planning document (e.g., new or additional alternatives are being considered);
- Significant new circumstances occur or information becomes available that could affect the proposed action and its potential environmental impacts (e.g., baseline conditions have changed or new analytical methodologies are available to assess potential environmental impacts); or
- Navy determines that Navy interests or the purposes of the National Environmental Policy Act (NEPA) or executive order 12114 will be furthered by doing so.

The Navy determined a supplemental analysis was required to address the following changes that occurred and new information made available since the FONSI:

- The Navy reinitiated consultation with National Marine Fisheries Service (NMFS), Northwest Region under the Endangered Species Act (ESA) for incidental takes of Steller sea lions. The Final EA concluded Steller sea lions would not be expected to occur in the July to October construction window; however, Steller sea lions were observed during construction activities in October 2011.
- The reinitiated ESA consultation with NMFS NW includes the humpback whale. The humpback whale was not considered in the Final EA based on a lack of confirmed sightings of this species in Hood Canal over the last several decades. However, a single humpback whale was documented in the Hood Canal over a period of weeks in January and February 2012.

[1] The Final EA prepared by the Navy addressing this action is on file and interested parties may obtain a copy from: Commanding Officer, Naval Facilities Engineering Command Northwest, 1101 Tautog Circle, Silverdale, WA 98315.

[2] A Notice of Availability (NOA) for the FONSI was published in the Kitsap Sun for three consecutive days (May 25 to May 27, 2011).

- The project includes installation and removal of eight 16-inch diameter steel false work piles. The installation and removal of these false work piles was not included in the proposed action in the Final EA.
- Vibratory removal of piles and pneumatic chipping will occur from July 16, 2012 through February 15, 2013, instead of ending October 31, 2012, per the Final EA.

The Final EA covered both years of construction; however, NMFS approved an Incidental Harassment Authorization (IHA) for the first year of construction only. The Navy requested an IHA for remaining construction activities having the potential to affect marine mammals during the second year of construction beginning July 2012. The proposed remaining project activities that could result in behavioral harassment to marine mammals are vibratory removal of steel piles and pneumatic chipping for concrete pile removal.

1.2 Proposed Action

The proposed action remains generally as described in the Final EA. That document described and analyzed a two-year project for the restoration of the Explosives Handling Wharf (EHW-1)'s structural integrity; the Navy is in the second year of that project. The proposed action remains the same, with the exception of the installation and extraction of temporary false work piles used by the construction contractor to support ongoing work. The impacts and analysis affecting the remainder of the project have changed, which is why the Navy has undertaken this Supplemental EA. Table 1-1 provides a description of activities completed during the 2011/2012 in-water work window (year 1 of construction). Table 1-2 provides a description of remaining activities to be completed in the 2012/2013 in-water work window (year 2 of construction). The Final EA included the installation of 28 piles and removal of 138 piles; however, 36 piles (28 permanent and 8 temporary false work piles) were installed and only 136 piles will be removed as part of the project[3].

Table 1-1. Construction Activities Completed – First Year

Installation of twelve 30-inch diameter hollow steel pipe piles (approximately 74-122 feet [23-37 meters] long at the walkway)
Installation of sixteen 30-inch diameter hollow steel pipe piles (approximately 130 feet [40 meters] long at EHW-1 bents 8-10)
Installation of eight 16-inch diameter steel temporary false work piles
Removal of two 24-inch diameter steel fender piles at the main wharf and associated fender system components
Removal of eight 12-inch diameter steel fender piles
Construction of 6 cast-in-place concrete pile caps (scheduled for early 2012)

[3] The total number of piles to be removed (136) during both years of construction is less than what was proposed in the Final EA (138) based on minor changes to project design. The removal of the eight temporary false work piles is included in the 136 total to be removed by the end of the second year.

Table 1-2. Construction Activities Proposed – Second Year

Removal of one 24-inch diameter steel fender pile at the main wharf and associated fender system components (to be cut-off at mudline)
Removal of twenty-one 12-inch diameter steel fender piles
Removal of ninety-six 24-inch diameter hollow pre-cast concrete piles to the mud line
Removal of eight 16-inch diameter steel temporary false work piles
Removal of the EHW-1 fragmentation barrier and walkway
Construction of up to 6 cast-in-place concrete pile caps (if not completed as scheduled for early 2012)
Installation of a pre-stressed concrete superstructure for the walkway
Installation of four sled-mounted passive cathodic protection systems
Installation/re-installation of related appurtenances

Table 1-3 compares pile installation and removal activities completed in the 2011/2012 in-water work window to activities that remain to be completed in the 2012/2013 in-water work window. While impact pile driving was authorized for the project during the first in-water construction season, no impact pile driving is necessary to complete the repairs. Since all pile installation was completed within the first in-water construction season, the Navy does not anticipate requiring the use of an impact hammer for the remainder of the project. The proposed action described here includes remaining project activities at EHW-1 that were not completed during the first year of construction and activities completed during the first year of construction that were not included in the prior EA analysis (i.e., false work).

Table 1-3. Pile Installation/Removal Activities by In-Water Work Window

Activity Status for Each Construction In-Water Work Window (July 16 through February 15)	Piles Installed via Vibratory Driver		Piles Removed via Vibratory Driver/Direct Pull			Piles Removed via Pneumatic Chipping	Total
	16” steel false work	30” steel	12” steel fender	16” steel false work	24” steel fender	24” concrete	
Complete 2011/2012	8	28	8	0	2	0	46
Remaining for 2012/2013	0	0	21	8	1	96	126
Project Total	8	28	29	8	3	96	172

The eight false work (temporary) piles were driven during the first year of construction within the in-water work window which was not accounted for in the Final EA or IHA application. These temporary piles were used to support in-water construction activities and will be removed during the second year of construction. False work piles are common in the construction industry for temporary structural shoring. The false work piles for EHW-1 were used to support batter pile installation and frame concrete forms to hold concrete in place during curing. Typically, the piles do not carry the actual full load of the structure which allows them to be sized smaller than the actual load bearing piles. Installation of the eight 16-inch steel false work piles was conducted with a vibratory hammer and took 40 minutes over two days to install all eight piles. The

installation time for the individual false work piles ranged from 2 minutes, 19 seconds to 8 minutes, 10 seconds with an average installation time of about 5 minutes per false work pile. The false work piles will be extracted with a vibratory hammer, which is expected to take no more than 30 minutes per pile.

Remaining construction activities include the removal of the fragmentation barrier, walkway, and 126 steel and concrete piles (Table 1-2). Of the piles requiring removal, 96 are 24-inch diameter hollow pre-cast concrete piles, which will be removed down to the mudline with a pneumatic chipping hammer or similar device. An additional twenty-one 12-inch steel fender piles and eight 16-inch false work steel piles will be extracted using a vibratory hammer, direct pull, or, if necessary, cut off at the mudline. One 24-inch steel fender pile will be cut at the mudline because it is too close to the EHW-1 structure to be extracted. Other remaining project elements to be undertaken in the second phase (year) of the repair project are the installation of four sled-mounted cathodic protection systems, a new pre-stressed superstructure, and related appurtenances. Additionally, if any of the six cast-in-place pile caps scheduled to be constructed early in 2012 (see Table 1-1) are not completed by July 15, 2012; these will also be included in the second year of construction. The pile cap work does not involve in-water work.

In-water project activities will be conducted during the in-water work window that protects fish species (July 16 through February 15). Sound propagation data was collected in 2011 through hydroacoustic monitoring during pile installation and removal to support environmental analyses for the first year repair work and other future repair work that may be necessary to maintain the EHW-1 facility and other structures at the Bangor waterfront. In 2011, pneumatic chipping was not conducted; therefore, the Navy anticipates hydroacoustic monitoring will be conducted for pneumatic chipping during the 2012/2013 in-water work period and included in the second IHA. The presence of marine mammals will also be monitored during vibratory pile extraction and pneumatic chipping.

As part of the Final EA, the Navy proposed to use bubble curtains to minimize noise and sediment transport during impact pile driving; however, all pile driving in the first year of construction was accomplished with a vibratory hammer, so a bubble curtain was not employed. In addition, a turbidity curtain or similar device was not used, as proposed, for the installation or extraction of piles. The use of these devices is not required by either the Water Quality Certification or the Army Corps permit. The Navy is meeting all conditions of the Water Quality Certification and Army Corps permit.

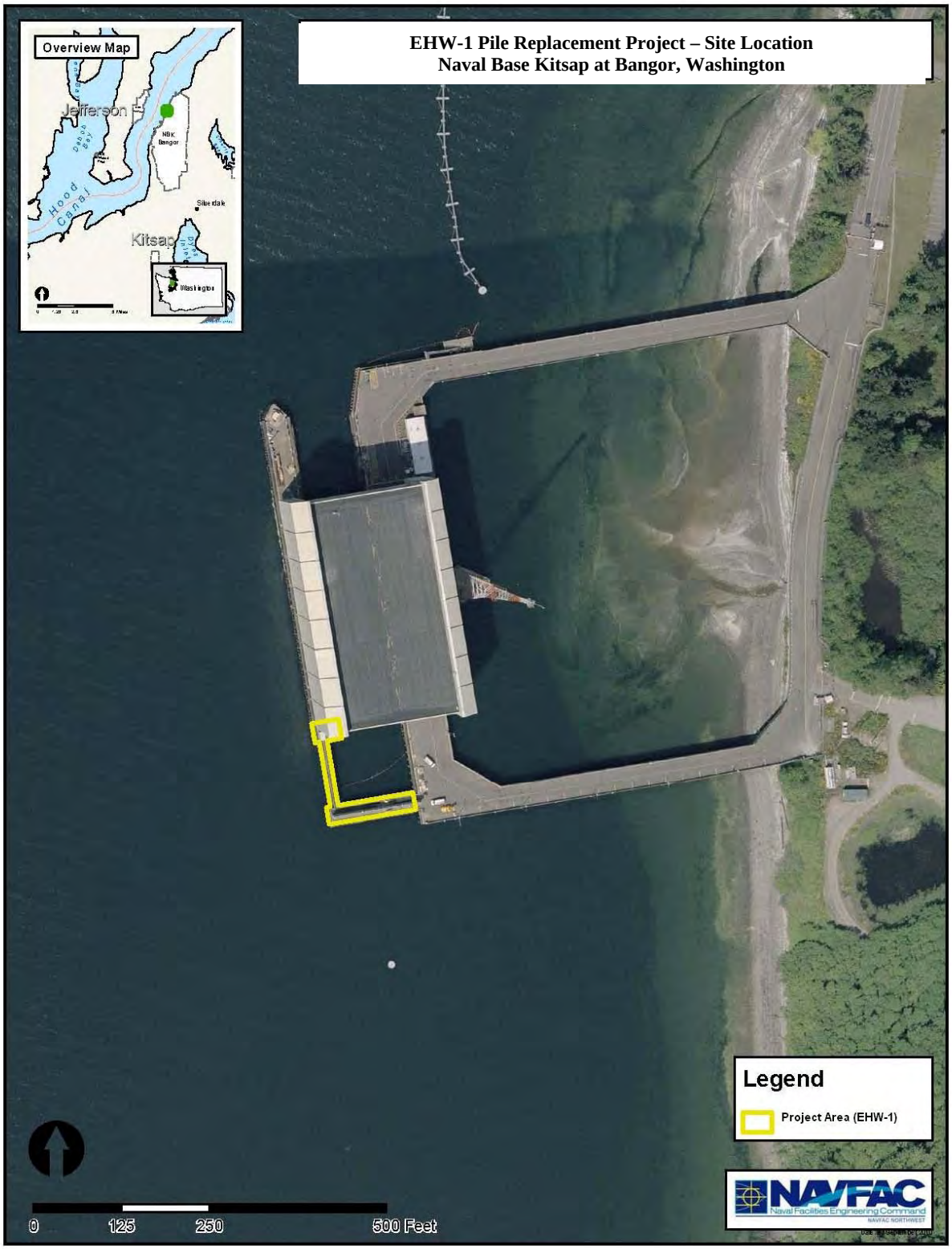

Figure 1-1. Proposed Project Area

1.3 Description of Pile Removal and Remaining Construction Activities

Installation of the eight 16-inch steel false work piles was conducted with a vibratory hammer and took 40 minutes over two days to install all eight piles. The installation time for the individual false work piles ranged from 2 minutes, 19 seconds to 8 minutes, 10 seconds with an average installation time of about 5 minutes per pile. The false work piles will be extracted with a vibratory hammer, which is expected to take no more than 30 minutes per pile. Extraction of the false work piles is discussed below in the second year construction activities.

The remaining construction activities at EHW-1 are described in detail below.

- Removal of piles:
  - One 24-inch steel fender pile;
  - Twenty-one 12-inch diameter steel fender piles;
  - Eight 16-inch diameter steel false work piles; and
  - Ninety-six 24-inch diameter hollow pre-cast concrete piles to the mudline (includes 72 at fragmentation barrier, 4 at walkway, 4 at Bent 8 outboard support, and 8 at Bents 9 and 10).

  The one 24-inch steel fender pile will be cut at the mudline because of its close proximity to the EHW-1 structure. A diver will use a torch to cut the pile at the mudline. All other steel piles will be removed by direct pull (rigging is attached to a pile and a crane pulls on the piling until it is removed) or extracted with a vibratory hammer. If these methods are not feasible, they will be cut off at the mudline.

  Concrete piles will be removed with a pneumatic chipping hammer. If possible, a diver using a small pneumatic chipping hammer will first score piles. The pile will then be moved slightly back and forth to break the pile at the score. Remaining parts of the pile will be chipped away with a pneumatic chipping hammer. If there is not room to move the pile, the entire base of the pile will be chipped away with a pneumatic chipping hammer for removal. A pneumatic chipping hammer is similar to an electric power tool, and performs much like a smaller version of a jackhammer, but uses the energy of compressed air instead of electricity. The pneumatic chipping hammer basically consists of a steel piston that is reciprocated (moved backward and forward alternately) in a steel barrel by compressed air. On its forward stroke, the piston strikes the end of the chisel. The reciprocating motion of the piston occurs at such a rate that the chisel edge vibrates against the concrete with enough force to fragment or splinter the pile. Rebar strands in the piles will be torched to cut and remove. Concrete debris will be captured as practicable using debris curtains/sheeting and removed from the project area. Removed piles and/or pile pieces will be placed on a barge for upland disposal.

- Removal of the concrete fragmentation barrier and walkway. The walkway is used to get from the Wharf Apron to the Outboard Support. These structures will likely be removed by cutting the concrete into sections using a wire saw, or other equipment, and removed using a crane. The crane will lift the sections from the existing piles and place them on a barge. Concrete pieces will be hauled to a barge for upland disposal.

- Construction of cast-in-place concrete pile caps. The pile caps will be situated on the tops of the steel piles that are located directly beneath the structure and function as a load transfer mechanism between the superstructure and the piles. Concrete formwork may be located below water level at high tide (Mean Higher High Water [MHHW]).

- Installation of a pre-stressed concrete superstructure for the walkway. The superstructure is the pre-stressed concrete deck of the wharf found above, or supported by, the caps or sills, including the deck, girders, and stringers. It will be installed using a barge-based crane to situate the concrete slab above the piles.

- Installation of four sled-mounted passive cathodic protection systems. A passive cathodic protection system is a metallic rod or anode that is attached to a metal object to protect it from corrosion. The anode is composed of more active metal that is more easily oxidized, thus it corrodes first and acts as a barrier against of the structural member to which the anode is attached. At the EHW-1 facility, the passive cathodic protection systems will be banded to the steel piles to prevent the metallic surfaces of the wharf from corroding due to the saline conditions in Hood Canal.

- Installation/re-installation of related appurtenances would follow. Appurtenances are the associated parts of the superstructure that connect the superstructure to the piles. These pieces include all of the components such as bolts, welded metal hangers and fittings, brackets, etc.

Removal of piles by vibratory hammer and pneumatic chipping hammer will occur from July 16, 2012 to February 15, 2013. The installation of the concrete pile caps, the concrete superstructure, and sled mounted passive cathodic protection systems will occur out of the water and on the tops of the piles or attached to the wharf's superstructure. The removal of the fragmentation barrier and walkway will occur above the water with best management practices in place to prevent material from entering the water. While these activities will generate airborne noise that may enter the water, this is expected to be minimal. However, to be cautious, these activities will occur in the window of July 16 to February 15 to minimize impacts to listed species, particularly fish. Airborne noise is not expected to affect the marbled murrelet (See Section 2.10).

The Navy will monitor hydroacoustic sound levels associated with pneumatic chipping, as well as the presence and behavior of marine mammals during vibratory pile removal and pneumatic chipping activities.

1.4 Duration of Activities

No in-water work will begin for the second year of construction until all required permits and approvals are in place. The remaining work will occur during the construction window scheduled to begin in July 2012. All in-water construction, including vibratory pile extraction, pneumatic chipping, direct pull, or cutting at the mudline with a torch, will be limited to July 16, 2012 through February 15, 2013 (215 days).

All work during the first year of construction was completed within the construction window, which began in July 2011. Installation of the eight 16-inch steel false work piles was conducted

with a vibratory hammer and took 40 minutes over two days to install all eight piles. The installation time for the individual false work piles ranged from 2 minutes, 19 seconds to 8 minutes, 10 seconds with an average installation time of about 5 minutes per pile. The false work piles will be extracted with a vibratory hammer, which is expected to take no more than 30 minutes per pile.

The contractor estimates steel pile extraction will occur at an average rate of two piles per day. Steel piles will be extracted using a vibratory hammer, direct pull, or they will be cut at the mudline. Extraction is anticipated to take no more than 30 minutes per pile. Concrete piles will be removed using a pneumatic chipping hammer. It is estimated concrete pile removal could occur at a rate of five piles per day maximum, but removal will more likely occur at a rate of three piles per day. Concrete piles are expected to take a maximum of two hours of chipping per pile, or potentially six hours per day. Therefore, while 215 days of in-water work time is proposed for vibratory extraction or pneumatic chipping, only a fraction of the total work time per day will actually be spent conducting these activities. An average workday is approximately 8 to 9 hours, depending on the month. While its anticipated only one hour of vibratory pile extraction will be needed per day for steel piles, or 6 hours of pneumatic chipping will be needed for concrete piles, to account for deviations from the estimated times for pile removal, the Navy modeled the potential impact as if the entire 8 to 9 hour work day could be spent conducting vibratory pile removal or pneumatic chipping.

Based on the proposed action, the total duration for vibratory steel pile removal is estimated to be 15 days (29 steel piles at an average of two per day). The total time for concrete pile removal using a pneumatic chipping hammer would be 32 days (96 piles at an average of three per day).

2 ENVIRONMENTAL IMPACTS

Existing environmental conditions are consistent with what was evaluated in the Final EA with the exception of the occurrences and estimated densities of certain marine mammals. As such, the specific resource areas, with the exception of marine mammals (Section 2.9) below will only provide discussion of potential impacts.

The installation of the eight temporary false work piles occurred during the first year of construction. The vibratory pile driving of the false work piles was completed within the prescribed in-water work window and mitigation measures and visual monitoring were implemented in accordance with permit conditions. The vibratory installation of the false work piles took 40 minutes over two days to install all eight piles. Based on the analysis of the vibratory installation of steel piles contained in the Final EA, the driving of eight additional smaller temporary piles during the first year of construction resulted in only minor and temporary impacts.

During the analysis included in the Final EA and the Navy's IHA application, the Navy anticipated that installation of the 28 permanent steel piles would take no more than one hour per pile (28 hours total) and that steel pile installation would occur over the course of 14 days. The installation of eight temporary steel false work piles was not specifically addressed in these analyses; however, during EHW-1 construction within the first in-water work window, the installation of these piles occurred within the bounds and analysis anticipated for the installation of the 28 permanent steel piles. During the first year of EHW-1 construction steel pile installation, including the falsework piles occurred over the course of 14 days. The installation of each of the 28 permanent steel piles took less time than anticipated. The installation time of the each of the 28 permanent piles ranged from 8 min 39 sec to 48 min 41sec, with a total installation time of just under 10 hours (9 hour 59 min and 32 sec), resulting in approximately 18 hours of steel pile installation time remaining on the permit. Installation of the eight temporary steel false work piles occurred during part of two of the 14 steel pile installation days and took less than 40 minutes in duration for all eight piles. Therefore, even with the installation of the additional eight temporary false work piles, steel pile installation took less than 11 hours total and was within all other permitted conditions assessed in the original Final EA. Impacts to environmental resource areas (i.e., bathymetry, sediment, noise, etc.) resulting from the installation of the false work piles is considered within the overall impacts of steel pile installation discussed in the Final EA. Removal of these piles will occur in the second in-water work window and the analysis of the effects of this action is included below in the subsequent sections.

2.1 Bathymetry

The extraction of eight temporary false work piles during the second year of construction would have a temporary impact on bathymetry as bottom sediments are re-suspended. The holes created by false work pile removal would refill naturally with the surrounding sediments. Extracted piles would be disposed of in accordance with applicable state and federal laws. False work piles, depending on the condition following extraction, may be reused by the construction contractor. No significant impacts to bathymetry would result from the false work activities.

2.2 Geology and Sediments

The removal of eight temporary false work piles during the second year of construction would disturb and re-suspend sediment in the water column. Such suspension would be localized to the immediate area of the pile being removed. The use of the vibratory hammer would cause the very fine soft sandy silt layers located above the hard glacial deposits to be susceptible to liquefaction and subsequent contraction. As a result, the sediments are expected to settle within hours to the bottom. There would be no effect on the subsurface slope stability within the project area.

False work piles do not result in the discharge of wastes containing metals or otherwise alter the concentrations of trace metals in bottom sediments. Nor would false work piles result in the discharge of contaminants or otherwise alter the concentrations of organic contaminants in bottom sediments. However, because the magnitude of metal and organic compound concentrations in sediment can vary as a function of grain size (higher concentrations typically are associated with fine-grained sediments due to higher interior surface areas), small changes to grain size associated with construction-related disturbances to bottom sediments could result in minor changes in metal and organic compound concentrations. This would mainly occur in the removal of the piles. These changes would not likely cause chemical constituents to violate sediment quality standards due to the general lack of sediment contaminants in the project area. In the event of accidental discharge of construction debris associated with false work activities, NBK at Bangor has an approved Spill Management Plan (DoN, 2006a) that complies with 40 CFR 112 and a regional Integrated Spill Contingency Plan (DoN, 2010) is in place. These plans outline procedures designed to reduce the likelihood of spills and increase the response time and efficiency of clean up. Piles would be disposed of in compliance with all applicable state and federal laws. Steel false work piles, depending on the condition, may be reused by the construction contractor. Therefore, the installation and removal of false work piles would not result in a significant impact to geology or sediments.

2.3 Water Resources

The removal of eight temporary false work piles during the second year of construction would not require dredging or placement of fill. Voids from pile removal would naturally refill. There would be no hazardous waste generated and no direct discharges of waste to the marine environment. Collected construction wastes, such as old piles would be handled in accordance with applicable state and federal laws. Impacts to water quality would be limited to short term, temporary, and localized changes. Impacts may include re-suspension of bottom sediments from pile removal, as well as accidental losses or spills of construction materials or fuel into Hood Canal. The turbidity plumes are not expected to violate applicable state or federal water quality standards. Fuel spills are unlikely, as boats, barges, and equipment would be fueled off-site.

As discussed in the Final EA, BMPs would be used during all activities to reduce the likelihood of deleterious materials entering the waterway. BMPs may include debris curtains/shield gather debris or retrieval of incidental debris with nets. NBK at Bangor has an approved Spill Management Plan (DoN, 2006a) that complies with 40 CFR 112 and a regional Integrated Spill Contingency Plan (DoN, 2010) in place. These plans outline procedures designed to reduce the likelihood of spills and increase the response time and efficiency of clean up. As a result,

accidental spills or discharges of deleterious materials would not be expected to adversely impact marine water quality at the EHW-1 project area.

The removal of eight temporary false work piles would not impact water temperature, salinity, dissolved oxygen levels, or discharge of wastes containing nutrients nor would this action impact fecal indicator bacteria or pH levels. Removal of temporary false work piles would re-suspend bottom sediments within the immediate construction area, resulting in short-term and localized increases in suspended sediment concentrations that, in turn, would cause increases in turbidity levels. Construction activities would not result in persistent increases in turbidity levels or cause changes that would violate water quality standards because processes that generate suspended sediments, which result in turbid conditions, would be short-term and localized and suspended sediments would settle rapidly.

2.4 Air Quality

Kitsap County is in attainment for all National Ambient Air Quality Standards (NAAQS) criteria pollutants. Air emissions were calculated using methodology prescribed in the most recent edition of the USEPA AP-42 document (USEPA, 1996). Emissions were calculated for NAAQS and greenhouse gas pollutants (specifically CO_2) with known emissions factors. The contractor will be held to opacity regulations (Puget Sound Clean Air Agency [PSCAA] Regulation 1, Section 9.03). Table 2.1 depicts the anticipated emissions from the removal of temporary false work piles for pollutants which had emissions factors in the AP-42 (USEPA, 1996).

The following assumptions were made in calculating total estimated emissions:

- A maximum of thirty minutes would be required to remove each pile (four hours maximum);
- A vibratory driver would be used for the entire duration of extraction;
- The vibratory hammer would utilize 600 horsepower (hp) diesel engine;
- One tugboat with a 600 hp diesel engine would operate at 100% of capacity 100% of the time during pile and removal (four hours maximum); and
- Fugitive dust and smoke emissions associated with pile driving are negligible.

TABLE 2.1. EMISSIONS ANTICIPATED ASSOCIATED WITH THE REMOVAL OF TEMPORARY FALSE WORK PILES

Air Pollutant	Emissions (lbs)		Emissions (tons)	
NOx	149	lbs.	0.07	tons
CO	32	lbs.	0.02	tons
SOx	10	lbs.	< 0.01	tons
PM10	11	lbs.	< 0.01	tons
SUM	202	lbs.	0.10	tons
CO2	5,520	lbs.	2.76	tons

As illustrated in the above table, the potential air emissions associated with the removal of eight temporary false work piles are minimal and would not exceed any of the PSCAA thresholds or greenhouse gas reporting thresholds established by USEPA. When the emissions resulting from extraction of false work piles are added to the estimated emissions in the Final EA (refer to Table 3.7 of Final EA), total construction activity does not result in exceedances of any air quality standards. Additionally, reasonable precautions would be implemented to minimize fugitive dust from pile removal/installation and no temporary construction permit from PSCAA would be required because the emissions are below the PSCAA thresholds of 100 tons/ year for NO_x, CO, SO_x and PM_{10}. Therefore, in accordance with NEPA, no significant impacts would be anticipated.

2.5 Airborne Noise

The removal of eight temporary false work piles would result in a temporary increase in noise in the vicinity of the project area. The Final EA assumed that the vibratory hammer extracting a 24-inch pile would produce noise levels of 95 dBA re 20µPa at 50 ft (WSDOT, 2010a). The false work piles are 16 inches. Noise associated with the vibratory hammer is expected to attenuate to 60 dBA at 0.53 miles (860 m). These estimates assume a free-flowing medium (e.g. over water) without obstructions. Trees and other vegetation obstruct sound transmission and can create a 10 dBA reduction in sound; therefore, the sound would actually be below 60 dBA before reaching the nearest residential area that is 1.5 miles away. The estimates do not account for the 10 dBA reduction in sound associated with vegetation and other structures obstructing sound transmission. Thus, the residences north of NBK at Bangor would not be able to hear vibratory activities above ambient conditions.

Recreational activities such as boating, scuba diving, kayaking, and fishing on Hood Canal occur adjacent to the base. Recreational users in the vicinity could be exposed to noise levels exceeding permissible residential exposure levels as they could be closer to the construction than land based receptors. The sound levels would not be injurious but could result in behavioral disturbances such as increased respiration and elevated heart rates. The adverse noise impact would be experienced by greater numbers of recreational users during the summer months when

recreational uses are likely to increase. However, the floating security barrier would prevent recreational users from getting close enough to the pile driver to receive injurious noise levels.

In addition, the duration of false work activities is short; removal of a false work pile would take no more than 30 minutes (four hours total).

2.6 Marine Vegetation

Marine surveys at NBK at Bangor have shown that eelgrass is only present in water down to 20 ft (6 m) MLLW, which is shallower than the project area. The false work activity would occur in water depths of 55 to 65 ft (16.8 to 19.8 m) relative to MLLW. Red and green algae are present nearby the pile locations, but in low densities due to the inherent light limitation at the deepwater depths at the project area, limiting potential impacts. Brown algae, including understory kelp, are also distributed outside of the project area. Sediments would settle back in the general vicinity from which they rose and indirect effects to macroalgae and eelgrass from changes in water quality during construction would be temporary and would not affect the overall health or distribution of marine vegetation near the project area.

Direct impacts to marine vegetation during the removal of temporary false work piles include direct removal through anchor drag and spuds. However, no additional barges or tugs would be required than what was considered in the Final EA. Any vegetative growth found on the false work piles would be removed when those piles are extracted from the water. However, because marine vegetation is distributed outside of the project area, the overall health and abundance of macroalgae and eelgrass would not be compromised. Therefore, the removal of temporary false work piles would have no significant direct or indirect impacts on marine vegetation.

2.7 Benthic Invertebrates

Indirect impacts to habitat and benthic organisms are likely to result from turbidity caused by removing the piles. Disturbed sediments would eventually redeposit upon the existing benthic community. Suspension and surface deposit feeders would be the most susceptible to burial. However, these impacts would be minor and temporary in nature. The removal of eight temporary false work piles would not have a significant impact on benthic invertebrates.

2.8 Fish

Because a vibratory hammer is the removal method for false work piles, the most likely impact to fish at the project area would be temporary behavioral disturbance. Any fish which are behaviorally disturbed may change their normal behavior patterns (i.e., swimming speed or direction, foraging habits, etc.) or be temporarily displaced from the area of construction. Any exposures would likely have only a minor effect and temporary impact on individuals and would not result in population level impacts.

Impacts to fish from changes in water quality are expected to be minor and temporary. Dissolved oxygen levels are not expected to drop to levels that would result in harm to fish species. Some degree of localized, short term increase in turbidity is expected to occur during removal of the piles. Fish species are expected to avoid areas with elevated suspended sediments or experience minor behavioral effects due to changes in turbidity.

2.9 Marine Mammals

Based on marine mammal monitoring conducted during the first year of EHW-1 construction and during the TPP, the data provided in the Final EA for the Steller sea lion and harbor porpoise has been revised in this Supplement. In addition, based on recent observations in Hood Canal, data has been provided for the humpback whale, which was not included in the Final EA. Tables 2-2, 2-3, and 2-4 provide updated data (italicized) on these species and their estimated densities within the Project Area.

Table 2-2. Steller Sea Lions Historically Sighted in Hood Canal in the Vicinity of NBK at Bangor

	Stock(s) Abundance	Season(s) of Occurrence	Relative Occurrence	Density (Individuals/ sq km) Within In-water Work Season
2011 EA	45,095-55,832	Fall to late spring (Nov – mid-April)	Rare to occasional use	0.00
2012 Supplement	*58,334–72,223*	*October – mid-April*	*Common*	*0.028*

The Final EA indicated that Steller sea lions enter the project area in November. During the first year of construction, Steller sea lions were observed as early as October. Therefore, the data has been updated to illustrate a common relative occurrence during the October to mid-April time period for for Steller sea lions in Hood Canal. As a result, the density of Steller sea lion has increased from 0 to 0.028 individuals per square kilometer.

Table 2-3. Harbor Porpoise Historically Sighted in Hood Canal in the Vicinity of NBK at Bangor

	Stock(s) Abundance	Season(s) of Occurrence	Relative Occurrence	Density (Individuals/ sq km) Within In-water Work Season
2011 EA	10,682	Year-round	Rare to occasional use	0.011
2012 Supplement	10,682	Year-round	*Occasionally present*	*0.250*

Based on monitoring reports, the density of harbor porpoises has increased from 0.011 to 0.25 individuals per square kilometer. The relative occurrence of the harbor porpoise has been updated from “rare to occasional use” to “occasionally present.”

Table 2-4. Humpback Whale Historically Sighted in Hood Canal in the Vicinity of NBK at Bangor

	Stock(s) Abundance	Season(s) of Occurrence	Relative Occurrence	Density (Individuals/ sq km) Within In-water Work Season
2011 EA	n/a	n/a	n/a	n/a
2012 Supplement	2,043[3] (Coefficient of Variation [CV]=0.10)	Year-round in Puget Sound	Extremely rare	0.003

While occurrences are extremely rare, one humpback whale was recently documented in Hood Canal over a period of several weeks; therefore, its density has been calculated to be 0.003 individuals per square kilometers.

2.9.1 ESA-listed Marine Mammals

2.9.1.1 Steller Sea Lion (*Eumetopias jubatus*)

Population Abundance

The eastern distinct population segment (DPS) of Steller sea lions includes the species distribution east of 144°W longitude (Loughlin 1997), including southeast Alaska, Canada, Washington, Oregon, and California (62 Federal Register [FR] 30772). The eastern stock was estimated by NMFS in the *Recovery Plan for the Steller Sea Lion* to number between 45,000 to 51,000 animals (NMFS 2008a). This stock has been increasing approximately 3% per year over the entire range since the late 1970s (NMFS 2008a; Pitcher et al. 2007). The most recent population estimate for the Eastern stock ranges from 58,334 to 72,223 (Allen and Angliss 2011).

The Eastern stock is stable or increasing throughout the northern portion of its range (Southeast Alaska and British Columbia) and stable or increasing slowly in the central portion of its range (Oregon through northern California) (Angliss and Outlaw 2008; Olesiuk 2008). Steller sea lion numbers in southern and central California have declined from historic numbers, but they have been relatively stable since 1980. Although the population size has increased overall, the status of this stock relative to its optimum sustainable population is unknown (Angliss and Outlaw 2008).

Steller sea lions occupy major winter haul-out sites on the coast of Vancouver Island in the Strait of Juan de Fuca and the Georgia Basin (Bigg 1985; Olesiuk 2008); the closest breeding rookery to the project area is at Carmanah Point near the western entrance to the Strait of Juan de Fuca. In Washington inland waters, up to 10 animals have been observed at Toliva Shoals in south Puget Sound (Jeffries et al. 2000), and up to six individuals have been observed on NBK Kitsap at Bangor (Bhuthimethee 2008, personal communication; Navy 2010).

Steller sea lions were first documented in Hood Canal in 2008 while hauled out along the Bangor waterfront (Bhuthimethee 2008, personal communication; Navy 2010); they are seasonally present. Beginning in April 2008, Navy personnel have recorded sightings of marine mammals at

known haul-outs along the Bangor waterfront. Steller sea lions have been sighted on the submarines docked at Delta Pier North and Delta Pier South (Navy 2010). These surveys have taken place frequently (average 14 per month) although without a formal protocol and only include known haul-outs. Steller sea lions were first observed on NBK at Bangor hauled out on a submarine at Delta Pier in November 2008. An independent observation reported four Steller sea lions at the same location on a different day in November 2008 (Bhuthimethee 2008, personal communication). On both occasions, California sea lions were also present, allowing the informants to confirm their identifications based on discrepancies in size and other physical characteristics. Boat-based opportunistic sightings along portions of the Bangor waterfront during the course of fish surveys during spring/summer of 2007 did not detect any Steller sea lions (Figure 7–24 in Agness and Tannenbaum 2009), nor did boat-based protocol marine wildlife surveys conducted during summer/fall 2008 and winter/spring 2009/2010 (Tannenbaum et al. 2009, 2011).

Data provided by Navy personnel since April 2008 have continued to document sightings of Steller sea lions at Delta Pier from November through April. Steller sea lions have only been observed hauled out on submarines docked at Delta Pier. Delta Pier and other piers on NBK at Bangor are not accessible to pinnipeds, with the exception of smaller California sea lions which are able to haul out on pontoons that support the floating security barrier. One to two animals are typically seen hauled-out with California sea lions; the maximum Steller sea lion group size seen at any given time was six individuals in November 2009. The time period from November through April coincides with the time when Steller sea lions are frequently observed in Puget Sound. Only adult and sub-adult males are likely to be present in the project area during this time; female Steller sea lions have not been observed in the project area. Since there are no known breeding rookeries in the vicinity of the project site, Steller sea lion pups are not expected to be present. By May, most Steller sea lions have left inland waters and returned to their rookeries to mate. Occasionally, sub-adult individuals (immature or pre-breeding animals) will remain in Puget Sound over the summer. However, on NBK at Bangor, Steller sea lions have historically only been observed from November through April and not during the summer months. Recent observational data from daily surveys available from the Test Pile Program noted the presence of Steller sea lions along NBK at Bangor in October 2011 for the first time. Steller sea lions arrived on October 8, 2011 and were seen during surveys every day of the remaining 12 days of the project. During the 2011 surveys, up to four individuals were sighted either hauled-out at the submarines docked at Delta Pier or swimming in the waters just adjacent to the base. These sightings were incorporated into the data in Table 2-5 used to estimate the density of Steller sea lions for the month of October.

Table 2-5. Steller Sea Lions (SSL) Observed on NBK at Bangor, April 2008 - October 2011

	Number of Surveys with SSL present	Number of Surveys	Frequency of SSL presence at survey sites[1]	Monthly Average of Maximum Number Observed	Density (animals/sq km)[2]
January	4	25	0.16	1.0	0.024
February	1	28	0.04	0.5	0.012
March	4	28	0.14	1.0	0.024
April	5	38	0.13	1.3	0.031
May	0	44	0.00	0.0	0
June	0	44	0.00	0.0	0
July	0	31	0.00	0.0	0
August	0	29	0.00	0.0	0
September	0	26	0.00	0.0	0
October	12	38	0.32	1.3	0.031
November	3	22	0.14	5.0	0.12
December	5	24	0.21	1.5	0.036
Totals	**34**	**377**	**Average: 0.095**	**Average Within In-Water Work Season: 1.16**	**Within In-Water Work Season: 0.028**

1. Frequency is the number of surveys with Steller sea lions present/number of surveys conducted.
2. For consistency, density estimates were derived from the Explosives Handling Wharf #2 (EHW-2) IHA application. The EHW-2 project is located adjacent to Explosives Handling Wharf #1 (EHW-1). The EHW-2 application was submitted to NMFS December 2011. Density was calculated as the monthly average of the maximum number of individuals present during Navy surveys at known haul-outs divided by the area defined by the 120 dB behavioral harassment isopleth for vibratory pile installation (41.4 sq km). The 41.4 sq km area used in the calculation is slightly larger than the 120 dB behavioral harassment isopleths (35.9 sq km) used in this application for vibratory extraction. However, because both projects would occur in the same location within Hood Canal, the Navy believes the densities should be consistent for both projects. Furthermore, differences in the size of the area used in the density calculation were minor (Steller sea lion densities estimated with the 35.9 sq km area are 0.032).

Based on observations in recent years on NBK at Bangor, Steller sea lions may be seasonally present in the project area (October through April) and overlap with the in-water construction period (mid-July through mid-February). Steller sea lions hauled-out on submarines at Delta Pier would be beyond the areas encompassed by the airborne noise behavioral harassment threshold. The Final EA calculated a distance of seven meters (23 feet) for steel pile removal and four meters (13 feet) for concrete pile removal (chipping hammer). Steller sea lions are unlikely to be affected by construction activities except potentially when vibratory pile extraction or pneumatic chipping is under way. Exposure to underwater noise from vibratory extraction or pneumatic chipping would likely involve sea lions that are moving through the area en route to Delta Pier or during the return trip to Puget Sound. Steller sea lions that are exposed to elevated underwater noise levels could exhibit behavioral changes such as increased swimming speed, increased surfacing time, or decreased foraging. Pile removal would occur only during daylight hours, and therefore would not affect nocturnal movements of Steller sea lions in the water. Most likely, Steller sea lions affected by elevated underwater or airborne noise would move away from the sound source and be temporarily displaced from the affected areas. Given the absence of any rookeries, only one haul-out area near the project site (i.e., submarines docked at Delta Pier), and infrequent attendance by a

small number of individuals at the EHW-1 site, potential disturbance exposures will have a negligible effect on individual Steller sea lions and would not result in population-level impacts.

The Navy determined a reasonable area Steller sea lions could be expected to utilize in the project area while swimming and foraging, based on available literature, in order to calculate in-water density for sound exposure modeling. Foraging trips of satellite-tracked adult western stock Steller sea lions in Alaska averaged 17 $\pm$ 5 km during summer, and 133 $\pm$ 60 km in winter (Merrick and Loughlin 1997). Eastern stock Steller sea lions were concentrated within 1 to 13 km (mean 7.0 km) of rookeries off the coast of California during summer and were observed 7 to 59 km offshore (mean 28.2 km) in autumn (Bonnell et al. 1983). Foraging ranges of young-of-the-year animals in Alaska averaged 30 km (Merrick and Laughlin 1997). Winter foraging ranges for adult male eastern stock Steller sea lions in Washington inland waters have not been reported, but can reasonably be expected to be as great as distances reported for females and juveniles. Given these distances, the Navy concluded that it was reasonable to expect that Steller sea lions could travel 30 to 130 km when foraging in inland waters.

The area encompassed by the underwater behavioral harassment thresholds (120 dB rms) for EHW-1 pile removal is approximately 36 sq km. Because this project will overlap with the EHW-2 project, for purposes of the analysis, the Navy is utilizing the larger of the two behavioral disturbance areas as defined by both projects. The affected area for EHW-2 was determined to be 41.4 sq km. The 35.9 sq km area for EHW-1 is entirely contained within the larger EHW-2 area used in the analysis. The Navy believes it is reasonable to expect that Steller sea lions would forage within this area, given their reported foraging distances. Moreover, it is assumed that any sea lions swimming within this area would potentially be subject to exposure to elevated pile extraction noise from the EHW-1 construction site. The density calculation for Steller sea lions uses the average of the monthly maximum number of individuals present during surveys (Table 3-5). The average of the monthly maximum number present during the in-water work window is 1.16 animal. The calculated density of Steller sea lions is 0.028 animal per sq km.

With regard to the range of this species in Hood Canal and the project area, Navy marine biologists assume that the opportunity to haul-out on submarines docked at Delta Pier is a primary attractant for Steller sea lions in Hood Canal. Their haul-out site, submarines docked at Delta Pier (approximately one km from the EHW-1), is within the underwater distance threshold for behavioral harassment due to vibratory pile extraction (10 km) based on calculations in the Final EA. The haul-out site is outside of the underwater disturbance threshold for pneumatic chipping (0.54 km) and airborne disturbance thresholds for both vibratory extraction and pneumatic chipping (7 meters and 4 meters, respectively, for sea lions). It is assumed animals swimming to and from the submarines may be exposed to disturbing noise levels primarily resulting from vibratory pile extraction because the submarines are within the zone above the 120 dB threshold.

Based on the exposure calculation[4] using the updated data, an average of one individual Steller sea lion per day may experience elevated noise levels that would qualify as harassment while present during the in-water work period for steel vibratory pile extraction. Based on the exposure calculation using the updated data, no Steller sea lions are expected to experience elevated noise levels that would qualify as

[4] The exposure calculation is described in detail in the Final EA (Section 3.9.2.2.1.1). The exposure estimate equals the species density estimate * noise threshold zone of influence (ZOI) impact area * total days of activity.

harassment while present during pneumatic chipping during concrete pile removal. The density analysis assumes an even distribution of animals; however, in reality, Steller sea lion distribution within the project area is patchy with their occurrence concentrated near Delta Pier in groups typically consisting of 1-4 individuals. As a result, it is more likely more than one exposure would occur in a day. Accordingly, the Navy has increased the number of requested takes to two exposures per day from vibratory hammer and one exposure per day for pneumatic chipping hammer, for a total of 62 exposures. Therefore, the total number of Steller sea lion exposures is estimated to be 62 due to behavioral harassment. Table 2-6 depicts the number of acoustic harassments that are estimated from pile extraction both underwater and in-air.

Table 2-6. Number of Potential Exposures of Steller Sea Lions within Various Acoustic Threshold Zones

Season	Density of Steller Sea Lions (sq km)	Activity	Underwater	Airborne
			Behavioral Harassment Threshold (120 dB_{RMS}[3])	Behavioral Harassment Threshold (100 dB_{RMS}[3])
Mid-July – Mid-February	0.028	Vibratory Steel Pile Extraction	30[1]	0
		Pneumatic Chipping	32[2]	0
Total			62	0

1. Density (0.028 sea lion/sq km) multiplied by the zone of influence (ZOI) for behavioral harassment (35.9 sq km) results in a daily abundance of one Steller sea lion in the ZOI (0.028 sea lion/sq km * 35.9 sq km = 1.0052 or 1 sea lion). One multiplied by 15 potential days of pile extraction equals 15 estimated exposures to behavioral harassment. The density calculation assumes an even distribution of Steller sea lions. However, in reality their distribution is patchy with their occurrence concentrated near Delta Pier in groups of one to four individuals. As a result, it is more likely that more than one exposure would occur in a day. To ensure the Navy has adequate coverage, the Navy increased the number of takes requested to two exposures per day for pile extraction, for a total of 30 exposures.
2. Density (0.028 sea lion/sq km) multiplied by the ZOI for behavioral harassment (0.6 sq km) results in a daily abundance of no (zero) Steller sea lions in the ZOI (0.028 sea lion/sq km = 0.0168 or 0). Zero multiplied by 32 potential days of pneumatic chipping equals no (zero) estimated exposures to behavioral harassment. The density calculation assumes an even distribution of Steller sea lions; however, in reality, their distribution is patchy with their occurrence concentrated near Delta Pier in groups of one to four individuals. As a result, it is more likely that more than zero exposures would occur in a day. To ensure the Navy has adequate coverage, the Navy increased the number of takes requested to one exposure per day for pneumatic chipping, for a total of 32 exposures.
3. dB RMS = decibels root mean square

Steller sea lions exposed to acoustic harassment could exhibit behavioral reactions. Disturbance from underwater noise impacts is not expected to be significant at the population level because it is estimated that only a small number of Steller sea lions may be affected by acoustic harassment.

2.9.1.2 Humpback Whale (Megaptera novaeangliae)

Status and Management

Humpback whales were listed as endangered under the Endangered Species Preservation Act of 1966 (35 FR 1222) due to commercial whaling. This protection was transferred to the ESA in 1973. For the Marine Mammal Protection Act (MMPA) stock assessment reports, the CA/OR/WA Stock is defined to include humpback whales that feed off the west coast of the continental United States (U.S.). Because the species is listed as endangered under the ESA, the CA/OR/WA stock is automatically listed as "depleted" and "strategic" under the MMPA. The recovery plan for humpback whales was finalized in November 1991 (NMFS 1991). Critical habitat has not been designated for this species in the Puget Sound region.

Distribution

Humpback whales were one of the most common large cetaceans in the inland waters of Washington in the early 1900s (Scheffer and Slipp 1948). Humpback whale sightings were infrequent in Puget Sound and the Georgia Basin through the late 1990s, and prior to 2003, the presence of only three individual humpback whales was confirmed (Falcone et al. 2005). However, in 2003 and 2004, thirteen individuals were sighted in the inland waters of Washington, mostly during the fall (Falcone et al. 2005). Records available for April 2001 to February 2012 include observations in the Strait of Juan de Fuca, the Gulf Islands and the vicinity of Victoria, British Columbia, Admiralty Inlet, the San Juan Islands, Hood Canal, and Puget Sound (Orca Network 2012).

In Hood Canal, humpback whale sightings occurred several times beginning on January 27, 2012 (Orca Network 2012). Review of the sighting information indicates the sightings are of one individual (Calambokidis personal communication 2012). The most recent sighting reported was on February 23, 2012. At the time of this analysis, it is unknown whether the individual has left the Hood Canal. Prior to these sightings, there have been no confirmed reports of humpback whales entering Hood Canal (Calambokidis personal communication 2012). No other reports of humpback whales in the Hood Canal were found in the Orca Network database, the scientific literature, or agency reports. The Hood Canal Bridge was completed in 1961 and may have contributed to the lack of historical sightings (Calambokidis personal communication 2010). Only a few records of humpback whales near Hood Canal (but north of the Hood Canal Bridge) are in the Orca Network database. Two were from the northern tip of Kitsap Peninsula (Foulwater Bluff/Point No Point) and a few others from Port Madison Bay in Puget Sound.

Behavior and Ecology

In the summer, most humpback whales are found in high latitude feeding grounds eating crustaceans, plankton, and small fish. During the summer months, they spend the majority of their time building up blubber to live off in the winter. Humpback whales can consume up to 1,360 kg of food per day (NMFS 2012). In the winter, they congregate in subtropical or tropical waters for mating. The CA/OR/WA stock winters in coastal Central America and Mexico, and the stock migrates to areas ranging from the coast of California to southern British Columbia in summer and fall (NMFS 2012).

Acoustics
Humpback whales, like all baleen whales, are considered low-frequency cetaceans (Southall et al. 2007). Functional hearing for low-frequency cetaceans is estimated to range from 7 Hz to 22 kHz (Southall et al. 2007).

Impacts
With the absence of any regular occurrence adjacent to the project site, with15 days estimated for vibratory extraction expected with short durations per day and with the marine mammal monitoring proposed, the likelihood of exposure is minimal.

The extent of noise from pneumatic chipping is not expected to extend beyond the floating security fence. Humpback whales would not be expected within the floating security barrier; therefore, no exposures would be expected due to pneumatic chipping.

Humpback whales are extremely rare in Hood Canal with only one confirmed record. Based on this data, the density for humpback whales in the Hood Canal is 0.003/km^2 (one individual divided by the area of the Hood Canal [291 km^2]). A seasonal use trend in Hood Canal was not possible to discern from one occurrence. However, humpback whales occur intermittently in all months in other Washington inland waters; therefore, it is assumed the humpback whales could occur year-round. Table 2-7 depicts the number of acoustic harassments and is estimated at zero from vibratory pile extraction and pneumatic chipping. With the absence of any regular occurrence adjacent to the project site and 15 days estimated for vibratory extraction expected with short durations per day and with the marine mammal monitoring proposed, the likelihood of exposure is negligible.

Table 2-7. Number of Potential Exposures of Humpback Whales within Various Acoustic Threshold Zones

Season	Density of Humpback Whales [1] (sq km)	Activity	Underwater
			Behavioral Harassment Threshold (120 dBRMS)
Mid-July – Mid-February	0.003	Vibratory Steel Pile Extraction	0[2]
		Pneumatic Chipping	0[3]
Total			0

1. Density was calculated as one (the maximum number of individuals present at a given time) (Calambokidis 2012) divided by the area of Hood Canal.
2. Density (0.003 humpback whales/sq km) multiplied by the ZOI for behavioral harassment (35.9 sq km) results in a daily abundance of no (zero) humpback whales in the ZOI (0.003 * 35.9 = 0.1077 or 0). Zero multiplied by 15 potential days of pile extraction equals no (zero) estimated exposures to behavioral harassment.
3. Density (0.003 humpback whales/sq km) multiplied by the ZOI for behavioral harassment (0.6 sq km) results in a daily abundance of no (zero) humpback whales in the ZOI (0.003 * 0.6 = 0.00018 or 0). Zero multiplied by 32 potential days of pneumatic chipping equals no (zero) estimated exposures to behavioral harassment. In addition, the ZOI for pneumatic chipping occurs within the floating security fence. Cetacean species are not documented or expected to occur within the floating security fence.

2.9.2 Non-ESA Listed Marine Mammals

Harbor porpoise (*Phocoena phocoena*) sightings have increased in Puget Sound and northern Hood Canal in recent years and are now considered to regularly occur year-round in these waters (Calambokidis 2010, personal communication). This may represent a return to historical conditions when harbor porpoises were considered one of the most common cetaceans in Puget Sound (Scheffer and Slipp 1948).Aerial surveys of the inland waters of Washington and southern British Columbia were conducted during August of 2002 and 2003 (J. Laake, unpublished data in Carretta et al. 2011). These aerial surveys included the Strait of Juan de Fuca, San Juan Islands, Gulf Islands, and Strait of Georgia, which includes waters inhabited by the Washington Inland Waters stock of harbor porpoise as well as harbor porpoises from British Columbia. An average of the 2002 and 2003 estimates of abundance in U.S. waters resulted in an uncorrected abundance of 3,123 (CV=0.10) harbor porpoises in Washington inland waters (J. Laake, unpublished data in Carretta et al. 2011). When corrected for availability and perception bias, using a correction factor of 3.42 (1/g (0); g (0) =0.292, CV=0.366) (Laake et al. 1997), the estimated abundance for the Washington Inland Waters stock of harbor porpoise is 10,682 (CV=0.38) animals (Carretta et al. 2011).

Harbor porpoises may be present anywhere in Hood Canal year-round. The Navy conducted nearshore marine mammal boat surveys of the Bangor waterfront area from July to September 2008 (Tannenbaum et al. 2009) and from November to May 2010 (Tannenbaum et al. 2011). During one of these surveys a harbor porpoise was sighted in May in the deeper waters within the waterfront restricted area (WRA) in the vicinity of the existing EHW. Overall, these nearshore surveys indicated a low occurrence of harbor porpoise within the waters adjacent to the base. However, recent marine mammal surveys conducted during the Test Pile Program indicate that the abundance of harbor porpoises within Hood Canal in the vicinity of NBK at Bangor is much more robust than anticipated from existing surveys and anecdotal evidence. During these surveys, while harbor porpoise presence in the immediate vicinity of the base (i.e., within 1 km) remained low, harbor porpoises were frequently sighted within several kilometers of the base, mostly to the north or south of the project area, but occasionally directly across from the proposed EHW-1 project site on the far side of Toandos Peninsula. Based on observations during trackline transect surveys conducted from September through October 2011, harbor porpoises have been seen commonly during surveys with the number of individuals sighted in the deeper water of Hood Canal ranging from no (zero) to eleven individuals, with an average of approximately six animals sighted per day (Navy, in prep.).

Potential exposures could occur if harbor porpoises move through the area on foraging trips when vibratory pile extraction would occur. Harbor porpoises that are taken could exhibit behavioral changes such as increased swimming speeds, increased surfacing time, or decreased foraging. Most likely, harbor porpoises may move away from the sound source and be temporarily displaced from the areas of pile driving. Since their occurrence immediately adjacent to the project site remains low, exposures would likely be at very low sound pressure levels. With approximately 15 days of vibratory extraction expected with short durations per day, the likelihood of exposure is small and, if exposure occurs, it would be brief as animals are traversing the area. Therefore, potential takes by disturbance will have a negligible short-term effect on individual harbor porpoises.

Additionally, because of the abundance of these animals in Hood Canal and other inland waters and the proportion of harbor porpoises that may experience effects relative to the entire stock, the

proposed action would not result in population-level impacts. The extent of noise from pneumatic chipping is not expected to extend beyond the floating security fence. Harbor porpoises would not be expected within the floating security fence; therefore, no takes are expected due to pneumatic chipping.

Harbor porpoises may be present in Hood Canal year-round and are assumed to use the entire area. The Navy conducted vessel-based line transect surveys in the Hood Canal during the Test Pile Program (Navy, in prep.). Over the course of the surveys, the total trackline length was 259.01 kilometers. Sightings of harbor porpoises during these surveys were used to generate a density for Hood Canal. Based on guidance from other line transect surveys conducted for harbor porpoises using similar monitoring parameters (i.e., boat speed, number of observers, etc.) (Barlow 1988; Calambokidis et al. 1993; Carretta et al. 2001), the Navy determined the effective strip width for the surveys to be one kilometer, or a perpendicular distance of 500 meters from the transect to the left or right of the vessel. The effective strip width was set at the distance at which the detection probability for harbor porpoises was equivalent to one, which assumes that all individuals on a transect are detected. Only sightings occurring within the effective strip width were used in the density calculation. By multiplying the trackline length of the surveys by the effective strip width, the total area surveyed during the surveys was 259.01 sq. km. Thirty-five individual harbor porpoises were sighted within this area, resulting in a density of 0.135 animals per sq.km. To account for availability bias [g (0)] or the animals which are unavailable to be detected because they are submerged, the Navy utilized a g (0) value of 0.54, derived from other similar line transect surveys (Barlow 1988; Calambokidis et al. 1993; Carretta et al. 2001). This resulted in a density of 0.250 harbor porpoises per sq. km. Table 2-8 depicts the number of acoustic harassments that are estimated from underwater pile removal.

Table 2-8. Number of Potential Exposures of Harbor Porpoise within Various Acoustic Threshold Zones

Season	Density of Harbor Porpoise [1] (sq km)	Activity	Underwater
			Behavioral Harassment Threshold (120 dBrms)
Mid-July – Mid-February	0.250	Vibratory Steel Pile Extraction	135[2]
		Pneumatic Chipping	0[3]
Total			135

1. Density was calculated as the number of individuals observed in 2011 Test Pile Program surveys covering 259.01 sq km, corrected for detectability g(0) (Navy, in prep.).
2. Density (0.250 harbor porpoise/sq km) multiplied by the ZOI for behavioral harassment (35.9 sq km) results in a daily abundance of nine harbor porpoise in the ZOI (0.250 harbor porpoise/sq km * 35,9 sq km = 8.975 or 9). Nine multiplied by 15 potential days of pile extraction equals 135 estimated exposures from behavioral harassment.
3. Density (0.250 harbor porpoise/sq km)multiplied by the ZOI for behavioral harassment (0.6 sq km) results in a daily abundance of no (zero) harbor porpoise in the ZOI (0.250 harbor porpoise/sq km * 0.6 sq km = 0.015 or 0). Zero multiplied by 32 potential days of pneumatic chipping equals no (zero) estimated exposures from behavioral harassment. Also, the ZOI for pneumatic chipping occurs within the floating security fence. Cetacean species are not documented or expected to occur within the floating security fence.

Based on the density analysis above, up to nine individual harbor porpoises may experience sound pressure levels on a given day that would qualify as harassment. The total number of exposures is calculated to be 135 due to behavioral harassment. Harbor porpoises that are exposed to acoustic harassment could exhibit behavioral changes. Disturbance from underwater noise impacts is not expected to be significant at the population level because it is estimated only a small number of harbor porpoises may be affected by acoustic harassment relative to the size of the entire stock.

2.9.3 Summary

Table 2-9 presents the total numbers of exposures anticipated for Steller sea lions and harbor porpoises within the Project Area. All exposure will be Level B disturbance takes from noise levels exceeding the 120 dB RMS underwater threshold for continuous noise from vibratory pile extraction or pneumatic chipping. No exposures are requested for the humpback whale.

Table 2-9. Summary of Potential Exposures during the EHW-1 Pile Replacement Project's Timeframe (July 16 through February 15)

Species	Underwater	Airborne	
	Vibratory Disturbance Threshold (120dB)	Vibratory Disturbance Threshold (100dB)	Vibratory Disturbance Threshold (90dB)
Humpback Whale	0	N/A	N/A
Steller Sea Lion	62	0	N/A
Harbor Porpoise	135	N/A	N/A
Total	**197**	**0**	**0**

Individual marine mammals would possibly be exposed to sound pressure levels during pile removal operations at NBK at Bangor resulting in behavioral disturbance. Any marine mammals behaviorally disturbed may change their normal behavior patterns (i.e., swimming speed, foraging habits, etc.) or be temporarily displaced from the area of construction. Any exposures would likely have only a minor effect and temporary impact on individuals and would not result in population level impacts. The sound generated from vibratory pile driving is non-pulsed (e.g., continuous), which is not known to cause injury to marine mammals. Impacts to marine mammals from changes in water quality as a result of pile removal operations would not be expected to occur. Other construction activities associated with installation of the pile caps, appurtenances, passive cathodic system, and new superstructure would occur over the water's surface, but are unlikely to generate airborne or underwater sounds that will affect marine mammal populations.

In accordance with the ESA, the Navy requested informal consultation with NMFS regarding the potential effect of the proposed action on Steller sea lions on August 11, 2010. The Navy

received concurrence that the proposed action was "not likely to adversely affect" Steller sea lions on September 2, 2010. NBK reinitiated consultation with the NMFS Regional office on March 21, 2012 for the Steller sea lion. The Navy determined that the proposed action is "likely to adversely affect" the Steller sea lion based on potential exposure to noise levels above 120 dB from vibratory pile extraction and pneumatic chipping and requested incidental take be authorized. A Biological Opinion was received May 24, 2012 (Appendix A).

In accordance with the ESA, the Navy requested informal consultations with NMFS regarding the potential affect of the proposed action on humpback whales on February 10, 2010. The Navy received correspondence from NMFS on February 17, 2010 stating that the project was thought to have "no effect" to humpback whales based on lack of occurrence in Hood Canal. Due to the recent sighting of the humpback whale in Hood Canal, NBK reinitiated consultation with the NMFS Regional office on March 21, 2012 for the humpback whale. The Navy requested concurrence with its determination that the proposed action is "not likely to adversely affect" the humpback whale based on discountable exposure to noise levels above 120 dB threshold from vibratory pile extraction and pneumatic chipping. Concurrence was received on May 24, 2012 (Appendix A).

Marine Mammal Protection Act

Acoustic exposure estimates from pile driving operations indicate the potential for Level B harassment as defined by MMPA. No marine mammals would be exposed at levels that would result in injury or mortality. Other construction activities not associated with pile removal would not result in effects that would qualify as Level A or B harassment under the MMPA. Indirect impacts to marine mammals from changes in water quality and prey availability as a result of the EHW-1 Pile Replacement Project are expected to be minimal and would be temporary in nature. Although there may be impacts to individual marine mammals, the impacts at the population, stock, or species level would be negligible. In accordance with the MMPA, the Navy has submitted a request for an Incidental Harassment Authorization (IHA) to NMFS Headquarters for the incidental taking of marine mammals by the proposed action. The Navy submitted the IHA application on February 29, 2012. NMFS Headquarters published a notice in the Federal Register for the proposed incidental harassment authorization on April 30, 2012 with comments due 30 days after publication of the notice. NMFS Headquarters received no comments. The proposed action will not proceed before receipt of the approved IHA, which is anticipated in July 2012.

National Environmental Policy Act

The analysis presented above indicates that construction activities associated with the second year of the Navy's proposed EHW-1 Pile Replacement Project at NBK at Bangor may have impacts to individual marine mammals, but any impacts observed at the population, stock, or species level would be negligible. Therefore, in accordance with NEPA, there would be no significant impact to marine mammal populations from the EHW-1 Pile Replacement Project.

2.10 Birds

Based on the modeling analysis in the Final EA, marbled murrelets would not be expected to be exposed to underwater sound pressure levels during non-impact driving activity that would cause injury or behavioral disturbance. Based on the exposure analysis in the Final EA, the Navy's commitment to monitoring and implementing the mitigation measures, the USFWS guidance thresholds, no marbled murrelets were expected to be exposed to airborne sound pressure levels during any phase of construction that would cause injury. Based on the use of a vibratory hammer for removal of the eight temporary false work piles and the short duration of activities, this action would not result in a significant impact. Removal of a false work pile would take approximately no more than 30 minutes (four hours total).

2.11 Cultural Resources

The Final EA concluded no submerged archaeological sites are expected to be found, since most historical activity was associated with resource harvesting, such as logging, which occurred primarily along the shoreline and upland areas. Therefore, the removal of temporary false work piles would have no effect on cultural resources. No changes would occur to tribal access and traditional resources on the NBK at Bangor facility as a result of the false work pile activities, including the designated shellfish harvesting locale and cedar bark gathering areas, both located outside of the project area.

2.12 Environmental Health and Safety

The removal of eight temporary false work piles would not result in the operation of additional barges or pile driving and removal equipment. The removal of temporary false work piles would not be expected to result in any impacts related to public environmental health and safety. Construction activities would not be likely to release hazardous materials to the environment. Noise associated with the vibratory hammer would be expected to attenuate to 60 dBA at 0.53 miles (860 m). Residences on the west side of Hood Canal are approximately four miles from the project area, resulting in lower levels of sound from the removal of temporary false work piles.

As a result, the nearest residence would be within the permissible noise levels per the Washington noise regulations (WAC 173-60-040). The base is a Class C noise receiving zone, so noise reaching offices and commands on base will not violate WAC 173-60-040. Workers would follow all OSHA regulations in regards to personal protection equipment (ear plugs, safety vests, steel-toe boots, etc.). Recreational activities such as boating, scuba diving, kayaking, and fishing on Hood Canal can occur adjacent to the base. As a result, recreational users in the vicinity could be exposed to noise levels exceeding permissible residential exposure levels, as they could be closer to the construction than land based receptors. The adverse noise impact would be experienced by greater numbers of recreational users during the summer months when recreational uses are likely to increase. However, the floating security barrier would prevent recreational users from getting close enough to the pile driver to be impacted by injurious noise levels.

A floating security barrier prevents recreational and commercial boater access to the waterfront area of the base. Boaters are allowed to pass by the security fencing but must be outside the restricted area. Since no public recreational uses occur within the project area, the removal of

temporary false work piles would have no direct impact to recreational uses or access in the surrounding community. Therefore, there would be no significant impacts to environmental health and safety from removal of temporary false work piles.

2.13 Socioeconomics

The socioeconomic impacts related to construction employment would be unchanged. The removal of temporary false work piles would be conducted by the same construction contractor. The EA concluded that no permanent or long lasting socioeconomic impacts would be associated with the EHW-1 Pile Replacement Project; therefore, the removal of eight temporary false work piles would not result in a significant impact to socioeconomics, Tribal resources, or environmental justice.

2.14 Coastal Zone Management

The construction activities associated with the removal of eight temporary false work piles is considered maintenance and would be covered under Nationwide Permit 3 (Final Regional Conditions and Water Quality Certification and Coastal Zone Management Consistency Decisions for the 2007 Nationwide Permits in Washington State).

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3 MITIGATION MEASURES

The Navy proposes to employ a number of mitigation measures, discussed below, in an effort to minimize the number of marine mammals potentially affected. These measures were implemented during the first year of construction when the eight temporary false work piles were installed.

3.1 Shutdown and Buffer Zones

During pile removal with a vibratory driver or chipping hammer, a shutdown zone shall include all areas where the underwater sound pressure levels (SPLs) are anticipated to equal the Level A (injury) harassment criteria for marine mammals (180 dB isopleths for cetaceans; 190 dB isopleths for pinnipeds). However, modeling does not predict a zone of influence for these activities because their anticipated SPLs are below the Level A criteria for injury. To be conservative, a 10 meter (33 feet) shutdown zone shall be established and monitored to prevent injury to marine mammal species from their physical interaction with construction equipment during in-water activities.

During pile removal with a vibratory driver or chipping hammer, the buffer zone shall include all areas where underwater or airborne SPLs are anticipated to equal or exceed the Level B (disturbance) harassment criteria for marine mammals (underwater: 120 dB RMS isopleths; airborne: 90 dB RMS isopleths for harbor seals or 100 dB RMS isopleths for pinnipeds other than harbor seals). However, because the ZOI for vibratory pile extraction is approximately 35.9 sq. km, the size of this area would make effective monitoring impractical. As a result the Navy proposes to monitor a buffer zone within the floating security fence equivalent to where pneumatic chipping noise levels are estimated to be at or above (120 dB re 1µPa) for pile removal activities.

The shutdown and buffer zones will be monitored throughout the time required to extract a pile with a vibratory driver or a pneumatic chipper. If a marine mammal enters the buffer zone, an exposure would be recorded and behaviors documented. However, that pile removal would be completed without cessation, unless the animal approaches or enters the shutdown zone, at which point all pile removal activities will be halted.

3.2 Timing Restrictions

To minimize the number of fish exposed to underwater noise and other disturbance, in-water work will only be conducted during the in-water work window (from July 16 through February 15) for Puget Sound Marine Area 13 as outlined in Washington Administrative Code (WAC)-220-110-271, when juvenile ESA-listed salmonids are least likely to be present. The initial months (July through September) of the timing window overlap with times when Steller sea lions are not expected to be present within the study area.

3.3 Soft Start

The use of a soft-start procedure is believed to provide additional protection to marine mammals by providing warning and/or giving marine mammals a chance to leave the area prior to the

hammer operating at full capacity. Soft-start techniques for vibratory pile extraction will be used, as follows[5]:

> *"The soft-start requires contractors to initiate noise from vibratory hammers for 15 seconds at reduced energy followed by a 30-second waiting period. This procedure should be repeated two additional times."*

3.4 Daylight Construction

Pile extraction using a vibratory driver or pneumatic chipping hammer and all other in-water construction activities will occur from July 16 through February 15 during daylight hours (sunrise to sunset[6]). Non in-water construction activities could occur between 7:00 AM and 10:00 PM during any time of the year.

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[5] The sequence of the soft-start procedures includes a minor deviation from those typically requested by NMFS, which utilize a longer waiting period (one minute vs. 30 seconds). The Navy requested to change the waiting period because observational data during the Test Pile Program and EHW-1 repairs indicated a one-minute wait period may be too long. Longer breaks between the sounds may be interpreted by the animals as a transient sound, and may not serve the intended purpose to provide an indication that louder sounds are about to begin. The Navy consulted with NMFS regarding using a shorter waiting period (i.e., 30 seconds) and NMFS found the Navy's reasoning to be valid and accepted the requested modification.

[6] Sunrise and sunset are to be determined based on the National Oceanic and Atmospheric Administration data, which can be found at http://www.srrb.noaa.gov/highlights/sunrise/sunrise.html.

4 MONITORING AND REPORTING MEASURES

Monitoring was conducted during the first year of construction in accordance with the Final EA and IHA. The monitoring measures were implemented during the installation of the false work piles. A Final Monitoring Report for the first year of construction was submitted to NMFS Headquarters on April 30, 2012.

4.1 Acoustic Measurements

The Navy will conduct acoustic monitoring for pneumatic chipping of concrete piles to determine the actual distances to the 120 dB re 1μPa RMS isopleths for behavioral harassment relative to background levels. The monitoring plan will address underwater and airborne sounds measurements from pneumatic chipping. Underwater sound levels were measured at the project site in 2011 in the absence of construction activities to determine background sound levels; therefore, they will not be recorded again during this work window. The background levels were recorded over the frequency range from 10 Hz to 20 kHz.

4.2 Visual Marine Mammal Observations

The Navy will monitor the shut down zone and buffer zone before, during, and after vibratory pile extraction or pneumatic chipping. Based on NMFS requirements, the Marine Mammal Monitoring Plan will include the following procedures for vibratory pile or pneumatic chipping pile extraction and other in-water construction activities not involving a vibratory driver or chipping hammer:

- Qualified and trained marine mammal observers (hereafter "observer") will conduct visual monitoring. An observer is a biologist with prior training and experience conducting marine mammal monitoring or surveys who has the ability to identify marine mammal species and describe relevant behaviors that may occur in proximity to in-water construction activities.
- Observers would be located at the best vantage points practicable (e.g., from a small boat, barge, or any other suitable location) in order to properly see the entire shut down zone and safety zone. This may require the use of a small boat to monitor certain areas while also monitoring from one or more land-based vantage points. At least one observer would be assigned to monitor the shutdown zone.
- During all observation periods, observers would use binoculars and the naked eye to search continuously for marine mammals.
- If the shut down zone is obscured by fog or poor lighting conditions, vibratory pile extraction or pneumatic chipping would not be initiated until the shut down zone is visible.
- The shut down and buffer zones around the pile will be monitored for the presence of marine mammals before, during, and after any vibratory pile extraction or pneumatic chipping.
- Pre-Activity Monitoring:
    - The shut down and buffer zones will be monitored for 15 minutes prior to initiating pneumatic chipping, the soft start for vibratory pile extraction, or other in-water construction activities not involving a vibratory driver or chipping hammer (i.e., dead pull, etc.). If a marine mammal(s) is present within the shut

down zone prior to start of these activities or during the soft start, the start of pile removal would be delayed until the animal(s) leave the shut down zone. Pile removal would resume only after the observer has determined, through visual observation or by waiting approximately 15 minutes, the animal(s) has moved outside the shut down zone.

- During Activity Monitoring:
    - The shutdown and buffer zones will also be monitored throughout the time required to remove a pile or complete other in-water construction activities. If a marine mammal is observed entering the buffer zone, an exposure would be recorded and behaviors documented. However, that pile removal or other in-water construction activities would be completed without cessation, unless the animal enters or approaches the shut down zone, at which point all pile removal activities will be halted. However, the shut down provision may be waived in situations where shut down would create an imminent concern for human safety. Pile removal or other in-water construction activities can only resume once the animal has left the shutdown zone of its own volition or has not been re-sighted for a period of 15 minutes.
- Post-Activity Monitoring:
    - Monitoring of the shutdown and buffer zones would continue for 30 minutes following the completion of pile removal.
- The individuals that implement the monitoring protocol will assess its effectiveness using an adaptive approach. Monitoring biologists will use their best professional judgment throughout implementation and will seek improvements to these methods when deemed appropriate. Any modifications to protocol will be coordinated between the Navy and NMFS.

4.3 Data Collection

NMFS requires that at a minimum, the following information be collected on the sighting forms:

- Date and time that pile removal begins or ends;
- Construction activities occurring during each observation period;
- Weather parameters identified in the acoustic monitoring (e.g., percent cover, visibility);
- Water conditions (e.g., sea state, tidal state [incoming, outgoing, slack, low, and high]);
- Species, numbers, and if possible sex and age class of marine mammals;
- Marine mammal behavior patterns observed, including bearing and direction of travel, and if possible, the correlation to sound pressure levels;
- Distance from pile removal activities to marine mammals and distance from the marine mammal to the observation point;
- Locations of all marine mammal observations; and
- Other human activity in the area.

Additionally, based on recent discussions with NMFS Headquarters, they request that the Navy record behavioral observations such that, if possible, the Navy can attempt to determine whether animals can be (or are) “taken” by more than one sound source in a day’s operations. For instance, the Navy has agreed to: “Note in behavioral observations, to the extent practicable, if

an animal has remained in the area during construction activities. Therefore, it may be possible to identify if the same animal or different individuals are being taken."

4.4 Reporting

A draft report will be submitted to NMFS within 90 workdays of the completion of acoustic measurements and marine mammal monitoring. The results will be summarized in graphical form and include summary statistics and time histories of sound values for each monitored pile. A final report would be prepared and submitted to NMFS within 30 days following receipt of comments on the draft report from NMFS. At a minimum, the report shall include:

- General data:
  - Date and time of activities
  - Water conditions (e.g., sea-state, tidal state)
  - Weather conditions (e.g., percent cover, visibility)

- Specific pile removal data for acoustically monitored piles:
  - Description of the pile removal activities being conducted
    - Size and type of piles
    - The machinery used for removal
  - The vibratory driver force or chipping hammer setting used to extract the piles

- Specific acoustic monitoring information:
  - A description of the monitoring equipment
  - The distance between hydrophone(s) and pile
  - The depth of the hydrophone(s)
  - The physical characteristics of the bottom substrate from which the piles were extracted (if possible)
  - The RMS range and mean for each acoustically monitored pile
  - The results of the underwater measurements, including the frequency spectrum and RMS SPLs for acoustically monitored piles

- Pre-activity observational survey-specific data:
  - Dates and time survey is initiated and terminated
  - Description of any observable marine mammal behavior in the immediate area during monitoring
  - If possible, the correlation to underwater sound levels occurring at the time of the observable behavior
  - Actions performed to minimize impacts to marine mammals

- During-activity observational survey-specific data:
  - Description of any observable marine mammal behavior within monitoring zones or in the immediate area surrounding monitoring zones
  - If possible, the correlation to underwater or airborne sound levels occurring at the time of this observable behavior
  - Actions performed to minimize impacts to marine mammals

    - Times when pile extraction is stopped due to presence of marine mammals within the shutdown zones and time when pile driving resumes

- Post-activity observational survey-specific data:
    - Results, which include the detections of marine mammals, species and numbers observed, sighting rates and distances, behavioral reactions within and outside of safety zones
    - A refined take estimate based on the number of marine mammals observed during the course of construction

5 CUMULATIVE IMPACTS

The Final EA concluded that implementation of the proposed action would not result in significant impacts to the environment. The EHW-1 Pile Replacement Project would utilize mitigation measures and monitoring to ensure marine mammals, fish, and birds are protected to the maximum extent possible. Implementation of the proposed action, in conjunction with other past, present, and reasonably foreseeable future actions, would not be expected to result in significant cumulative impacts to the environment. Based on analysis of the new information in the SEA, no significant impacts are expected; therefore, the cumulative impacts analysis provided in the Final EA are accurate.

The impacts discussed in Section 2 resulting from the false work activities are considered minor and short in duration. Therefore, the installation of the eight temporary false work piles during the first year of construction has not resulted in any cumulative impacts to resources. The extraction of the piles during the second year of construction would not result in any cumulative impacts to resources.

The primary cumulative impact, however minor, would occur to local air quality. Given the extremely low projected emissions for installation and removal of temporary false work piles, it is highly unlikely that it would result in any measureable cumulative air quality impacts when combined with any of the actions discussed in the Final EA.

False work activities have not and would not be expected to further impact sediment or water quality in the long-term. Best management practices and mitigation measures are in place to reduce any cumulative impacts.

No impact pile driving was required for the false work piles, which generates the greatest noise impact. This would have created both airborne and underwater noise. Noise generated by vibratory pile driving and removal is temporary, so would not contribute cumulatively to ambient noise levels in the area in the long term. Pile driving contributed to existing noise levels and was potentially the most noticeable sound at one point in time, both on land and in the water. Sound from these activities was temporary and extended over a limited distance during construction activities. Sound from other construction-related noises contribute incrementally to existing levels, but have not and would not be expected to be significant. Overall, noise related to construction would be temporary and not contribute to the permanent ambient noise level.

There would be no cumulative impacts to biological resources. False work activities has and would temporarily displace some marine benthic substrate and incrementally contribute to a loss of this feature caused by other projects and actions. Potential impacts to fish, invertebrates, and special status species would be from noise and turbidity during construction activities.

Cumulative impacts from disturbing contaminated sediments would not occur because the project would not cause an increase in contamination. Best management practices and mitigation measures are implemented to decrease or eliminate sedimentation impacts.

False work activities have not and would not cause a loss of culturally significant resources individually; therefore, would not contribute to existing impacts in the vicinity caused by other actions. The Navy would consult with the appropriate Tribes regarding future proposed actions.

There would not be significant impacts to traditional resources because Tribal access to U&A fishing grounds and stations would not be altered.

The Navy concludes that no significant cumulative impacts have occurred or would occur for any resource area as a result of installation and removal of temporary false work piles.

Resources that are irreversibly or irretrievably committed to a project are those that are used on a long-term or permanent basis. This includes the use of non-renewable resources such as metal and fuel, and other natural or cultural resources. These resources are irretrievable in that they would be used for this project when they could have been used for other purposes. Human labor is also considered an irretrievable resource. Another impact that falls under this category is the unavoidable destruction of natural resources that could limit the range of potential uses of that particular environment.

As discussed in the Final EA, implementation of the proposed action involves the consumption of fuel, oil, and lubricants for the vibratory hammer, pneumatic chipping hammer and the barges/tugboats. Human energy invested in the second year of construction would be irretrievably lost. Implementation of the proposed action would not result in significant irreversible or irretrievable commitment of resources.

NEPA requires an analysis of the relationship between a project's short-term impacts on the environment and the effects that these impacts may have on the maintenance and enhancement of the long-term productivity of the affected environment. Impacts that narrow the range of beneficial uses of the environment are of particular concern. This refers to the possibility that choosing one development option reduces future flexibility in pursuing other options, or that giving over a parcel of land or other resources to a certain use often eliminates the possibility of other uses being performed at that site.

Air quality, airborne and underwater noise, marine mammals, birds, fish and sediments would all expect to be impacted in the short-term. In the long-term, productivity of the area would not be affected. All impacted resources would be expected to recover from the effects of the EHW-1 Pile Replacement Project. The proposed action would not result in any impacts that would reduce environmental productivity or permanently narrow the range of beneficial uses of the environment.

Implementation of the second year of the proposed action would not result in significant impacts to the environment. The EHW-1 Pile Replacement Project has and will continue to utilize mitigation measures and monitoring to ensure marine mammals, fish and birds are protected to the maximum extent possible. Implementation of the second year of the proposed action, in conjunction with other past, present, and reasonably foreseeable future actions, would not be expected to result in significant cumulative impacts to the environment.

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In accordance with OPNAVINST 5090.1C, CH-1, this section lists the names and qualifications (expertise/experience, professional disciplines) of the persons who were primarily responsible for preparing the EA.

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APPENDIX A

ESA CONSULTATION

DEPARTMENT OF THE NAVY
NAVAL BASE KITSAP
120 SOUTH DEWEY ST
BREMERTON, WA 98314-5020

5090
Ser PRB4/ 00226
21 Mar 12

Lynne Barre
National Marine Fisheries Service
Northwest Region
7600 Sand Point Way NE
Seattle, WA, 98115

Dear Ms. Barre:

SUBJECT: REINITIATION OF SECTION 7 FOR THE NAVY'S EXPLOSIVE HANDLING WHARF #1 PILE REPLACEMENT PROJECT CONDUCTED ON NAVAL BASE KITSAP BANGOR (NMFS TRACKING NUMBERS 2010 2010/04111)

The U.S. Navy requests reinitiation of consultation on the Explosive Handling Wharf #1 Pile Replacement Project for the Steller sea lion (*Eumetopias jubatus*) and humpback whale (*Megaptera novaeangliae*) based on new information on species presence in the Action Area that may result in potential effects to species that were not analyzed in the original consultation. Project activities are part of a 2-year project that began in August 2011. Remaining in-water construction that may affect Steller sea lion or humpback whales will begin July 16, 2012. The Navy will continue through February 15, 2013. The project is located in the waters of Hood Canal on Naval Base Kitsap Bangor. This request is pursuant to 7(a)(2) of the Endangered Species of 1973, as amended (16 USC § 1531 et seq.).

The original informal consultation concluded that the project *may affect, but is not likely to adversely affect* Steller sea lions. During 2011 project activities, Steller sea lions arrived in the Action Area one month earlier than previously documented. Therefore, remaining project activities timed to avoid Steller sea lion occurrence will potentially overlap with their presence. After analysis of the potential effects of remaining project construction, the minimization measures proposed, and timing of Steller sea lion presence in the Action Area, the Navy concluded the project *may affect, and will likely adversely affect* Steller sea lions.

Informal consultation did not occur for humpback whales because there were no documented occurrences of the species in

SUBJECT: REINITIATION OF SECTION 7 FOR THE NAVY'S EXPLOSIVE HANDLING WHARF #1 PILE REPLACEMENT PROJECT CONDUCTED ON NAVAL BASE KITSAP BANGOR (NMFS TRACKING NUMBERS 2010 2010/04111)

Hood Canal. In January and February 2012, several sightings of an individual humpback whale occurred in Hood Canal. After analysis of the potential effects of remaining project construction, the minimization measures proposed, and potential presence of humpback whales in Hood Canal, the Navy concluded the project *may affect, but is not likely to adversely affect* humpback whales.

Enclosed is a supplement to the biological assessment. Incidental takings of marine mammals listed as threatened or endangered under the Endangered Species Act must be authorized under section 101(a)(5) of the Marine Mammal Protection Act of 1972, as amended. The U.S. Navy is concurrently applying for an Incidental Harassment Authorization for these species with the National Marine Fisheries Service Office of Protected Resources. A copy of this supplement is being provided to the Northwest Office of Protected Resources.

We appreciate your continued support helping the Navy meet its environmental responsibilities. If you have any questions about this project, or need additional clarification, please contact my staff point of contact Sharon Rainsberry at (360) 315-2812 or sharon.rainsberry@navy.mil. The Naval Base Kitsap Environmental Division Head point of contact is Mr. Greg Leicht at (360) 315-5411 or Gregory.leicht@navy.mil.

Sincerely,

P. M. DAWSON
Captain, U. S. Navy
Commanding Officer

Enclosure: 1. Supplement to the Biological Assessment for the Navy's Explosive Handling Wharf #1 Pile Replacement Project Conducted at Naval Base Kitsap at Bangor

Copy to w/ enclosure:
Matthew H. Longenbaugh, NMFS Northwest Region Office of Protected Resources

SUBJECT: REINITIATION OF SECTION 7 FOR THE NAVY'S EXPLOSIVE HANDLING WHARF #1 PILE REPLACEMENT PROJECT CONDUCTED ON NAVAL BASE KITSAP BANGOR (NMFS TRACKING NUMBERS 2010 2010/04111)

Copy to w/o enclosure:
NAVFAC NW (OP3EZ)

UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE
Northwest Region
7600 Sand Point Way NE
Seattle, Washington 98115

Refer to NMFS No:
2012/01249

May 24, 2012

Captain P.M. Dawson
Department of the Navy
Naval Base Kitsap
120 South Dewey Street
Bremerton, Washington 98314-5020

Re: Endangered Species Act Section 7 Formal Consultation for the Explosives Handling Wharf #1 Pile Replacement Project Conducted on Naval Base Kitsap at Bangor, Kitsap County, Washington (5th field HUC: 17110018, Hood Canal)

Dear Captain Dawson:

The enclosed document contains a biological opinion (opinion) prepared by the National Marine Fisheries Service (NMFS) pursuant to section 7(a)(2) of the Endangered Species Act (ESA) on the effects of the proposed pile replacement project for the Department of the Navy (Navy) at Naval Base Kitsap Bangor. In this opinion, NMFS concludes that the action, as proposed, is not likely to jeopardize the continued existence of the threatened Steller sea lion (*Eumetopias jubatus*). NMFS also concludes that the proposed action is not likely to adversely affect humpback whales (*Megaptera novaeangliae*). Critical habitat has not been designated or proposed for humpback whales and Steller sea lions do not have designated critical habitat in the action area.

The enclosed document also contains a prospective incidental take statement (ITS) for Steller sea lions, however the ITS will not go into effect until the incidental take of marine mammals is authorized under section 101(a)(5) of the Marine Mammals Protection Act and/or its 1994 Amendments, and the Terms and Conditions are appended to the ITS subsequent to the issuance of the Incidental Harassment Authorization under the MMPA.

If you have questions regarding this consultation, please contact Teresa Mongillo at the Sandpoint office at (206) 526-4749, or electronic mail at Teresa.Mongillo@noaa.gov.

Sincerely,

For William W. Stelle, Jr.
Regional Administrator

cc: Sharon Rainsberry, DON
Steve Todd, Suquamish Tribe
Roma Call, Port Gamble S'Klallam Tribe

Endangered Species Act (ESA) Section 7(a)(2) Biological Opinion and Section 7(a)(2) "Not Likely to Adversely Affect" Determination

Explosive Handling Wharf # 1Pile Replacement Project Conducted on Naval Base Kitsap at Bangor, Kitsap County, WA (HUC 17110018, Hood Canal)

NMFS Consultation Number: 2012/01249

Action Agency: U.S. Navy

Affected Species and Determinations:

ESA-Listed Species	Status	Is Action Likely to Adversely Affect Species or Critical Habitat?	Is Action Likely To Jeopardize the Species?	Is Action Likely To Destroy or Adversely Modify Critical Habitat?
Humpback whale (*Megaptera novaeangliae*)	Endangered	No	No	N/A
Steller sea lion (*Eumetopias jubatus*)	Threatened	Yes	No	No

Consultation Conducted By: National Marine Fisheries Service, Northwest Region

Issued By:

for William W. Stelle, Jr.
Regional Administrator

Date: May 24, 2012

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List of Acronyms

BA	Biological Assessment
DPS	Distinct Population Segment
DQA	Data Quality Act
EHW	Explosives Handling Wharf
ESA	Endangered Species Act
IHA	Incidental Harassment Authorization
ITS	Incidental Take Statement
MMPA	Marine Mammal Protection Act
NBK	Naval Base Kitsap
NMFS	National Marine Fisheries Service
RMS	Root Mean Square
RPA	Reasonable Prudent Alternative
RPM	Reasonable Prudent Measure
SPL	Sound Pressure Level
WRA	Waterfront Restricted Area

1. INTRODUCTION

This Introduction section provides information relevant to the other sections of this document and is incorporated by reference into Sections 2 and 3 below.

1.1 Background

The biological opinion (opinion) and incidental take statement (ITS) portions of this document were prepared by the National Marine Fisheries Service (NMFS) in accordance with section 7(b) of the Endangered Species Act (ESA) of 1973, as amended (16 U.S.C. 1531, et seq.), and implementing regulations at 50 CFR 402.

The opinion is in compliance with section 515 of the Treasury and General Government Appropriations Act of 2001 (Public Law 106-5444) ("Data Quality Act") and underwent pre-dissemination review.

1.2 Consultation History

On August 11, 2010, the Navy requested informal consultation with the National Marine Fisheries Service (NMFS) regarding the proposed Explosives Handling Wharf #1 (EHW-1) pile replacement project. The Navy concluded that the proposed project may affect, but was not likely to adversely affect the threatened Steller sea lion (*Eumetopias jubatus*). On September 2, 2010, NMFS concurred that the proposed project's potential effects were discountable and insignificant (refer to: NMFS No. 2010/04111). Based on new information regarding Steller sea lions and the eastern North Pacific stock of humpback whales (*Megaptera novaeangliae*) occurrence in the Hood Canal, on March 21, 2012, the Navy requested a written concurrence that the effects of the proposed project is likely to adversely affect Steller sea lions and not likely to adversely affect humpback whales. This biological opinion is based on the new information provided in the March 2012 supplement to the biological assessment (BA), the original information in the August 2010 biological evaluation, and an application for an Incidental Harassment Authorization (IHA) under Section 101(a)(5)(D) of the Marine Mammal Protection Act (MMPA) for this activity. Formal consultation was initiated on March 27, 2012. The eastern Steller sea lion Distinct Population Segment (DPS) was listed as threatened in 1990 (55 FR 49204) and the humpback whale was listed as endangered on December 2, 1970 (35 FR 18319).

The supplemental BA presented findings by the Navy that the proposed project is likely to adversely affect threatened Steller sea lions, and not likely to adversely affect endangered humpback whales. Critical habitat has not been designated or proposed for humpback whales, and Steller sea lions do not have critical habitat in the action area. Therefore, effects to critical habitat will not be discussed further. NMFS' previous concurrence letter is still valid for fishes, in which NMFS concurred that the proposed action is not likely to adversely affect the Puget Sound/Georgia Basin Distinct Population Segments (DPSs) of yelloweye rockfish (*Sebastes ruberrimus*), canary rockfish (*S. pinniger*), and bocaccio (*S. paucispinis*), Puget Sound (PS)

Chinook salmon (*Oncorhynchus tshawytscha*), PS steelhead (*O.mykiss*), and Hood Canal (HC) summer-run chum salmon (*O. keta*) (NMFS No. 2010/00463). A complete record of this consultation is on file at the Protected Resources office in Seattle, Washington.

1.3 Proposed Actions

"Action" means all activities or programs of any kind authorized, funded, or carried out, in whole or in part, by Federal agencies. Interrelated actions are those that are part of a larger action and depend on the larger action for their justification. Interdependent actions are those that have no independent utility apart from the action under consideration. No interrelated or interdependent actions are associated with the EHW-1 project.

This biological opinion addresses two separate but related activities: (1) the Navy's proposed action for repair and maintenance to the EHW-1, and (2) NMFS issuance of an IHA under Section 101(a)(5)(D) of the MMPA for this activity. Each action is introduced below.

Navy's Repair and Maintenance to the EHW-1

Naval Base Kitsap (NBK) at Bangor, Washington, provides berthing and support services to Navy OHIO Class ballistic missile submarines, hereafter referred to as TRIDENT submarines. The Navy's proposed action is the second part of a 2-year project that began in August 2011 designed to restore the structural integrity of the EHW-1 facility. The wharf was built for ordnance handling operations in support of the Trident Submarine squadron home ported at NBK at Bangor. The EHW-1 structural integrity is compromised due to deterioration of the wharf's piling sub-structure. The Navy is proposing to complete the necessary repairs and maintenance to the EHW-1 during the second year of construction from July 16, 2012 to July 15, 2013. The in-water activities that will occur during the second year of construction would occur from July 16, 2012 through February 15, 2013. The wharf is a U-shaped concrete structure and consists of two 100-foot access trestles and a 700-foot long main pier deck.

NBK is located in the upper portion of Hood Canal and the waterfront occupies approximately 4.3 miles of the approximately 67-mile long eastern shoreline of Hood Canal. The width of Hood Canal is approximately 1.5 miles at NBK. The location of the proposed repair on the EHW-1 is highlighted in yellow in figure 1.

Figure 1. Proposed project area (Figure 2-1 from Supplemental BA)

The remaining construction activities include the removal of the fragmentation barrier, walkway and 126 steel and concrete piles (Table 1). Steel piles will be extracted using a vibratory hammer, direct pull, or they will be cut at the mudline. The total duration for vibratory pile extraction is estimated to be 15 days. Vibratory extraction times will likely range from 12 seconds to 5 minutes per pile. The zone of influence for vibratory pile extraction is all water within sight to land (approximately 8.4 miles to the north of the project site, and 4.2 miles to the south). Concrete piles will be cut at the mudline and removed using a pneumatic chipping hammer or another similar device. The total duration for the removal of concrete piles using a pneumatic chipping hammer is estimated to be 32 days. The zone of influence for pneumatic

chipping is estimated to be a radius of approximately 1,778 feet. The Navy proposes to implement a marine mammal monitoring and mitigation program during in-water construction activities, as described below as part of the NMFS action to issue an IHA. Proposed construction activities also include the installation of sled mounted cathodic protection systems, a new pre-stressed superstructure, and related appurtenances, and the construction of cast-in-place concrete pile caps (Table 1). A wire saw and crane will likely be used to remove the concrete fragmentation barrier and walkway. Concrete pieces will be hauled to a barge for upland disposal.

Table 1. Remaining Construction Activities (Table 2-1 of the Supplemental BA).

Removal of one 24-inch diameter steel fender piles at the main wharf and associated fender system components (to be cut off at mudline).
Removal of twenty-one 12-inch diameter steel fender piles.
Removal of ninety-six 24-inch diameter hollow pre-cast concrete piles to the mud line.
Removal of eight 16-inch diameter steel falsework piles.
Removal of the EHW-1 fragmentation barrier and walkway.
Construction of up to 6 cast-in-place concrete pile caps (if not complete as scheduled for early 2012).
Installation of a pre-stressed concrete superstructure for the walkway.
Installation of four sled mounted passive cathodic protection systems.
Installation/re-installation of related appurtenances.

NMFS proposed issuance of an Incidental Harassment Authorization

NMFS is proposing to issue an IHA under Section 101(a)(5)(D) of the MMPA for the above identified Navy project (77 FR 25408). In order to issue the IHA, NMFS proposes to set forth the permissible methods of taking pursuant to the activity, and other means of affecting the least practicable adverse impact on such species or stock and its habitat. NMFS must also set forth requirements pertaining to the monitoring and reporting of such taking 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. The proposed mitigation and monitoring measures are described below:

(1) Temporal Restrictions – All pile removal activities would occur in the designated in-water work window of July 16 through February 15, as also described under the Navy action above.
(2) Establishment of a Shutdown Zone – During pile removal activities, the Navy would establish a marine mammal shutdown zone of 33 ft from the vibratory pile driver or chipping hammer to avoid exposure to sounds at or above the 190 dB rms acoustic injury criteria. The shutdown zone would be monitored during all pile removal to ensure that no marine mammals enter the 33 ft radius. During in-water construction activities not involving a vibratory driver or chipping hammer, in order to prevent injury from physical interaction with construction equipment, a shutdown zone of 33 feet from the

construction activities will be monitored to ensure marine mammals are not present within this zone. The purpose of this area is to prevent Level A harassment (injury) of any marine mammal species.

(3) Pile Driving Shut Down and Delay Procedures – If an observer sees a marine mammal within or approaching the shutdown zone prior to start of pile removal activities, the observer would notify the on-site construction manager (or other authorized individual), who would then be required to delay pile removal until the marine mammal has moved out of the shutdown zone or if the animal has not been resighted within 15 minutes. If a marine mammal is sighted within or on a path toward the shutdown zone during pile driving, the pile driving would cease until that animal has cleared and is on a path away from the shutdown zone or 15 minutes has lapsed since the last sighting.

(4) Soft-start Procedures – A "soft-start" technique would be used at the beginning of each vibratory pile removal to allow any marine mammal that may be in the immediate area to leave before the pile hammer reaches full energy. The soft-start procedure requires contractors to initiate noise from the vibratory hammer for 15 seconds at reduced energy followed by a 30-second waiting period. The procedure would be repeated two additional times before full energy may be achieved.

(5) Acoustic Monitoring – The Navy would conduct acoustic monitoring of pneumatic chipping of concrete piles to determine the actual distances to the 120dB re 1 μPa rms isopleths for behavioral harassment relative to background levels. Airborne acoustic monitoring would be conducted during pile removal through chipping to identify the actual distance to the 90dB re 20 μPa rms and 100dB re 20 μPa rms airborne isopleths. At a minimum, the methodology would include: monitoring on a minimum of five concrete piles; the stationary hydrophone systems will be placed in accordance with NMFS' guidance for collection of source levels; the hydrophones and microphones will be calibrated prior to the start of the action and will be checked each day of monitoring activity; and environmental data will be collected (such as wind speed and direction, wave height, water depth, precipitation, and type of location of in-water construction).

(6) Monitoring of Taking – The Navy must designate at least one biologically-trained individual to monitor the shutdown zone for marine mammals 15 minutes before, during, and 30 minutes after all pile removal activities and call for shut down if any marine mammal is observed within or approaching the designated shutdown zone. If a boat is used as a monitoring platform, at least one additional marine mammal observer would conduct behavioral monitoring to estimate take and evaluate the behavioral impacts pile removal has on marine mammals out to the buffer zone (a radius of approximately 1,778 feet distance). A minimum of three monitors will be present if only land-based (or wharf-based) monitoring locations are used. The buffer zone is equivalent to where pneumatic chipping noise levels are estimated to be at or above the behavioral or harassment criteria for marine mammals. Marine mammal observers would be provided with the equipment necessary to effectively monitor for marine mammals (for example, high-quality binoculars, spotting scopes, compass, and range-finder) in order to determine if animals have entered into the shutdown zone or buffer zone and to record species, behaviors, and responses to pile removal.

(7) Reporting of Taking – A draft acoustic monitoring report and a marine mammal monitoring report would be submitted to NMFS within 90 calendar days of the completion of the acoustic measurements and completion of construction activity,

respectively. Final reports would be prepared and submitted to NMFS within 30 days following receipt of comments on the draft report from NMFS. The reports would include, at a minimum, water and weather conditions, description of the pile removal activity, description of the monitoring equipment (including the distance between the hydrophone and pile and the depth of the hydrophone), results of the acoustic measurements (including the frequency spectrum, peak and rms SPLs for each monitored pile), data from marine mammal sightings (such as species, group size, and behavior), any observed reactions to construction, distance to operating pile hammer, construction activities occurring at the time of sighting, and a refined take estimate based on the number of marine mammals observed in the shutdown and disturbance zones.

1.4 Action Area

"Action area" means all areas to be affected directly or indirectly by the Federal action and not merely the immediate area involved in the action (50 CFR 402.02). The action area is located in the upper portion of Hood Canal, Washington. The action area was determined to be the furthest geographic extent of all project activities. The geographic boundary of the action area for the proposed project includes the waters bound by direct line of sight to land in all directions from the project site because this is the area in which in-water noise will be elevated above the disturbance threshold for marine mammals.

2. ENDANGERED SPECIES ACT: BIOLOGICAL OPINION AND INCIDENTAL TAKE STATEMENT

The ESA establishes a national program for conserving threatened and endangered species of fish, wildlife, plants, and the habitat on which they depend. Section 7(a)(2) of the ESA requires Federal agencies to consult with the United States Fish and Wildlife Service, NMFS, or both, to ensure that their actions are not likely to jeopardize the continued existence of endangered or threatened species or adversely modify or destroy their designated critical habitat. Section 7(b)(3) requires that at the conclusion of consultation, the Service provide an opinion stating how the agencies' actions will affect listed species or their critical habitat. If incidental take is expected, Section 7(b)(4) requires the provision of an incidental take statement (ITS) specifying the impact of any incidental taking, and including reasonable and prudent measures to minimize such impacts.

2.1 Introduction to the Biological Opinion

Section 7(a)(2) of the ESA requires Federal agencies, in consultation with NMFS, to insure that their actions are not likely to jeopardize the continued existence of endangered or threatened species, or adversely modify or destroy their designated critical habitat. The jeopardy analysis considers both survival and recovery of the species.

"To jeopardize the continued existence of a listed species" means to engage in an action that

would be expected, directly or indirectly, to reduce appreciably the likelihood of both the survival and recovery of a listed species in the wild by reducing the reproduction, numbers, or distribution of that species (50 CFR 402.02).

We will use the following approach to determine whether the proposed actions described in Section 1.3 are likely to jeopardize listed species:

- *Identify the rangewide status of the species likely to be adversely affected by the proposed action.* This section describes the current status of the listed species relative to the conditions needed for recovery. Species status is discussed in Section 2.2.
- *Describe the environmental baseline for the proposed action.* The environmental baseline includes the past and present impacts of Federal, state, or private actions and other human activities *in the action area*. It includes the anticipated impacts of proposed Federal projects that have already undergone formal or early section 7 consultation and the impacts of state or private actions that are contemporaneous with the consultation in process. The environmental baseline is discussed in Section 2.3 of this opinion.
- *Analyze the effects of the proposed actions.* In this step, NMFS considers how the proposed action would affect the species' reproduction, numbers, and distribution. The effects of the action are described in Section 2.4 of this opinion.
- *Describe any cumulative effects.* Cumulative effects, as defined in NMFS' implementing regulations (50 CFR 402.02), are the effects of future state or private activities, not involving Federal activities, that are reasonably certain to occur within the action area. Future Federal actions that are unrelated to the proposed action are not considered because they require separate section 7 consultation. Cumulative effects are considered in Section 2.5 of this opinion.
- *Integrate and synthesize the above factors to assess the risk that the proposed action poses to species and critical habitat.* In this step, NMFS adds the effects of the action (Section 2.4) to the environmental baseline (Section 2.3) and the cumulative effects (Section 2.5) to assess whether the action could reasonably be expected to: (1) appreciably reduce the likelihood of both survival and recovery of the species in the wild by reducing its numbers, reproduction, or distribution; or (2) reduce the value of designated or proposed critical habitat for the conservation of the species. These assessments are made in full consideration of the status of the species (Section 2.2). Integration and synthesis occurs in Section 2.6 of this opinion.
- *Reach jeopardy conclusion.* The conclusion regarding jeopardy is presented in Section 2.7. This conclusion flows from the logic and rationale presented in the Integration and Synthesis section (2.6).
- *If necessary, define a reasonable and prudent alternative to the proposed action.* If, in completing the last step in the analysis, NMFS determines that the action under consultation is likely to jeopardize the continued existence of listed species or destroy or adversely modify designated critical habitat, NMFS must identify a reasonable and prudent alternative (RPA) to the action in Section 2.8. The RPA must not be likely to jeopardize the continued existence of ESA-listed species nor adversely modify their designated critical habitat and it must meet other regulatory requirements.

2.2 Rangewide Status of the Species

This opinion examines the status of the eastern DPS of Steller sea lions. The status is the level of risk that the listed species faces, based on parameters considered in documents such as recovery plans, status reviews, and listing decisions. The species status section helps to inform the description of the species' current "reproduction, numbers, or distribution" as described in 50 CFR 402.02.

Steller sea lions were listed as threatened under the ESA on November 26, 1990 (55 FR 49204) across their entire range. Continued declines in the western portion of the population led to listing the western stock as endangered on May 5, 1997 (62 FR 24345), however the eastern stock remained listed as threatened. Under the Marine Mammal Protection Act, all Steller sea lions are classified as strategic stocks and are considered depleted. NMFS issued the final revised recovery plan for Steller sea lions in March 2008 (NMFS 2008). The final Steller sea lion recovery plan identifies the need to initiate a status review for the eastern DPS of Steller sea lions and consider removing it from the Federal List of Endangered Wildlife and Plants (NMFS 2008). On April 18, 2012, NMFS issued a proposed rule to remove the eastern DPS of Steller sea lions from the List of Endangered and Threatened Wildlife (77 FR 23209). This section summarizes information taken largely from the recovery plan (NMFS 2008) and most recent stock assessment report (Allen and Angliss 2011).

Steller sea lions are a long-lived species, and reproduction is somewhat delayed (until age 10 years; NMFS 2008). Breeding occurs at rookeries where males compete for females by defending territories. Females bear at most a single pup each year from late May through early July, with peak numbers of births during the second or third week of June.

Steller sea lions are generalist predators, able to respond to changes in prey abundance. Their primary prey includes a variety of fishes and cephalopods. Some prey species are eaten seasonally when locally available or abundant, and other species are available and eaten year-round (NMFS 2008). Pacific hake appears to be the primary prey item across the range of eastern Steller sea lion (NMFS 2008). Other prey items include Pacific cod, walleye Pollock, salmon, and herring, among other species.

Distribution

The eastern DPS of Steller sea lions is a single population that ranges from southeast Alaska to southern California, including inland waters of Washington State and British Columbia. Occurrence in inland waters of Washington is limited to primarily male and sub-adult Steller sea lions in fall, winter, and spring months. Mature animals breed on rookeries in southeast Alaska, British Columbia, Oregon, and California (i.e., there are no rookeries in Washington). Haulout sites, used for predator avoidance, thermal regulation, social activity, parasite reduction and rest, are located throughout their range (NMFS 2008).

Steller sea lions are not known to migrate. Rather, they disperse from rookeries after the breeding season (late May – early July), with adult males and juveniles ranging further than adult females (Allen and Angliss 2011). Exchange of breeding animals appears low between rookeries (Allen and Angliss 2011). The breeding distribution of the eastern DPS has shifted north, with range contraction in southern California and new rookeries established in southeast Alaska (Pitcher et al. 2007).

Abundance and Productivity

The total population estimate is a range between 58,334 and 72,223 animals, based on extrapolation from pup counts. The estimated minimum abundance of non-pup and pup counts from all rookeries is 52,847 animals (Allen and Angliss 2011), not corrected for animals that were at sea. The population has increased at a rate of 3.1% per year from the 1970s until 2002 (Pitcher et al. 2007). The greatest increases have occurred in southeast Alaska and British Columbia (together accounting for 82% of pup production), but performance has remained poor in California at the southern extent of their range (Allen and Angliss 2011). In Southeast Alaska, British Columbia and Oregon, the number of Steller sea lions has more than doubled since the 1970s. Historical abundance is not well known, because prior to 1970, count data were only intermittently available and therefore are not comparable with more recent data sets (NMFS 2008).

Limiting Factors

Given the long-term positive population growth, no threats to the continued recovery of the eastern DPS were identified in the final revised recovery plan (NMFS 2008). There are, however, factors that affect or have the potential to affect population dynamics of the eastern DPS. Those factors are predation (from killer whales and sharks), harvests, fishing bycatch and other human impacts, entanglement in debris, parasitism and disease, toxic substances, global climate change, reduced prey biomass and quality, and disturbance (NMFS 2008).

Climate change

As temperatures warm and global ice coverage decreases due to climate change, sea levels will rise. Rising sea levels are likely to directly affect pinniped haulout sites (Learmonth et al. 2006). Sites on some islands with low relief may be submerged. The net effect of a rise in sea level on overall terrestrial sea lion habitat amount or availability is uncertain, but at the projected rate it is unlikely to have a significant effect for many years (NMFS 2008). Warmer temperatures could also shift the distribution of sea lions northward (NMFS 2008). The direct effects of temperature increases on sea lion metabolic rates, foraging efficiencies, and disease transmission are unknown.

Changes in water temperature and ocean currents due to climate change can also influence survival and distribution of marine mammal prey (Learmonth et al. 2006, NMFS 2008).

Changes in prey availability can affect marine mammal community structure, distribution, abundance and migration patterns, and susceptibility to disease and contaminants (Learmonth et al 2006). The impact on recruitment dynamics of fish of importance to sea lions is unpredictable. Warmer waters could favor productivity of certain species of forage fish (e.g., pollock and herring), while the distribution and recruitment of other fish could be negatively affected (NMFS 2008). In general, pinnipeds likely have the ability to adapt to environmentally driven changes in prey resources.

2.3 Environmental Baseline

The "environmental baseline" includes the past and present impacts of all Federal, state, or private actions and other human activities in the action area, the anticipated impacts of all proposed Federal projects in the action area that have already undergone formal or early section 7 consultation, and the impact of state or private actions which are contemporaneous with the consultation in process (50 CFR 402.02).

Steller sea lions of the eastern DPS occur in Washington waters throughout the year; however, there are no breeding rookeries in Washington. Steller sea lion occurrence in inland waters of Washington is limited to primarily males and sub-adults in fall, winter, and spring months. Steller sea lions are adept at hauling out on a variety of surfaces, including jetties, navigation buoys, offshore rocks, and islands. There are several documented haulout locations used by Steller sea lions in coastal and inland waters of Washington (Jeffries et al. 2000, http://www.nwr.noaa.gov/Marine-Mammals/upload/MM-Steller-locations-WA.pdf). The closest regular haul out to the action area in Hood Canal is on the submarines docked at Delta Pier North and Delta Pier South, which is greater than 2,000 feet (or approximately 0.74 km) from the project site. Steller sea lions in Hood Canal are likely foraging in both nearshore and deeper waters.

Since 2008, the Navy has documented fewer than 10 Steller sea lions intermittently hauled out on submarines docked at Delta Pier from November through April. Recent data in 2011 noted earlier presence of Steller sea lions along the NBK at Bangor in October, with up to four individuals sighted either hauled out at the submarines docked at Delta Pier or swimming in waters adjacent to the base. The time period of all sightings (from October to April) coincides with the distribution of Steller sea lions within the inland waters of Washington. Steller sea lions are likely to be present during only part of the in-water work window of the proposed action (from October through February). Steller sea lions have not been observed in the project area between May and September and we therefore do not expect them to be present for the remaining portion of the in-water work window (July through September).

Steller sea lions in Hood Canal may be exposed to elevated sound levels from other projects in the action area. NMFS previously consulted on the effects from this proposed project for ESA-listed salmonids and rockfish (NMFS 2010b) and for Steller sea lions (NMFS 2010c). In addition, the Navy proposed a test pile project which included installing and removing test and reaction piles, conducting tests on select piles, and measuring in-water sound propagation during

pile installation and removal (NMFS 2011a). The test pile project occurred concurrently with the first year of the EHW-1 repair project. These projects included pile driving work windows when Steller sea lion occupancy of the project area were extremely unlikely to occur, or if they were present, pile driving activities would cease in order to avoid exposure to noise. Therefore, NMFS concluded that potential for effects from the test pile project and first year of the EHW-1 project were discountable because it is extremely unlikely that a Steller sea lion would be exposed to the proposed construction activities. The Navy has also proposed to construct and operate a second Explosive Handling Wharf (EHW-2) adjacent to the current EHW-1 (NMFS 2011b). The EHW-2 is proposed to begin during the same work window as the proposed project. NMFS concluded that the effects from the EHW-2 project may affect, and are likely to adversely affect Steller sea lions because it is likely that animals will be exposed to sound exposure levels above the disturbance threshold for marine mammals. In the proposed incidental harassment authorization for the construction of the EHW-2, the total proposed authorized number of incidental takes of Steller sea lions is 195, or approximately less than 2 percent of the population (76 FR 79410).

2.4 Effects of the Actions on the Species

"Effects of the action" means the direct and indirect effects of an action on the species or critical habitat, together with the effects of other activities that are interrelated or interdependent with that action, that will be added to the environmental baseline (50 CFR 402.02). Indirect effects are those that are caused by the proposed action and are later in time, but still are reasonably certain to occur.

The proposed actions are at most expected to have a discountable or insignificant effect on the quantity and quality of salmonid prey (as described in NMFS 2010/00463, and NMFS 2010/04111) otherwise available to Steller sea lions where they would intercept the affected species. The only proposed construction activity that NMFS anticipates will likely adversely affect Steller sea lions is pile driving, as described in detail below.

To evaluate the effects of the actions, we describe the area that will be exposed to elevated sound levels, estimate the number of animals likely to be exposed, and describe the potential response to exposure.

Area of Exposure
Steller sea lions of the eastern DPS may be present during part of the proposed in-water work window (from October through February). The Navy has not observed Steller sea lions from July through September of the in-water work window. Vibratory pile extraction is expected to take 15 days and the total duration for the removal of concrete piles using a pneumatic chipping hammer is estimated to take 32 days. Extraction times are anticipated to be less than 5 minutes per pile.

The removal of steel and concrete piles will elevate airborne and underwater sound in the action area. NMFS is currently developing comprehensive guidance on sound levels likely to cause injury and behavioral disruption for marine mammals in the context of the Marine Mammal Protection Act and ESA, among other statutes. Until formal guidance is available, NMFS uses

the following thresholds of root mean square (rms) sound pressure levels (SPLs) from broadband sounds for pinnipeds: behavioral disturbance at 160 dB (re: 1μPa) for impulse sound and at 120 dB (re: 1μPa) for continuous sound; and injury at 190 dB (re: 1μPa)(70 FR 1871). In the air, SPLs greater than 100 dB (re: 20μPa) may affect behavior.

Based on these conservative thresholds, the Navy anticipates that their proposed pile removal activities would produce SPLs that are likely to disturb Steller sea lions. The Navy estimates the pile removal will likely result in airborne noise exceeding the in-air disturbance threshold out to a distance of 23 feet during vibratory steel pile extraction and 14 feet during pneumatic chipping during concrete pile removal. The closest Steller sea lion haul out location to the project site is Delta Pier which is greater than 2,000 feet (or approximately 0.74 km). Thus, in-air noise from the proposed pile driving is not anticipated to disrupt normal haulout behavior.

The Navy anticipates that the in-water SPLs from pile removal will be below the criteria for injury. However, to ensure injury from the physical interaction with construction equipment does not occur, the Navy will implement a shutdown zone of 33 feet (10 meters) during in-water activities. In-water construction activities will not initiate or will suspend if a Steller sea lion is detected approaching or entering the 33-foot shutdown zone. The shutdown zone monitoring makes any potential injury of Steller sea lions extremely unlikely, and therefore discountable. The Navy will also slowly ramp up the initiation for vibratory pile extraction, in accordance with the "soft-start" procedures included in NMFS' proposed IHA action. These soft-start procedures may provide added protection to Steller sea lions. For example, in the unlikely event that a Steller sea lion is within the shutdown zone, but not visually detected, the ramp-up of sound levels allows the Steller sea lion an opportunity to depart the immediate area prior to the hammer operating at full capacity.

Although the shutdown zone monitoring and shutdown procedures will avoid injury of Steller sea lions, beyond this zone behavioral disruption may occur out to the 120dB isopleth. The Navy anticipates that noise from vibratory extraction will not attenuate to the 120dB disturbance threshold before encountering land in all directions, a distance of approximately 13 miles. Only a portion of this entire area, however, will be monitored. The Navy proposes to conduct behavioral monitoring to estimate take and evaluate the behavioral impacts pile extraction has on marine mammals within a buffer zone equivalent to where pneumatic chipping noise levels are estimated to be at or above the 120 dB isopleths, or 1,778 feet. The buffer zone will be monitored during pile extraction activities. If a Steller sea lion enters the buffer zone, an exposure would be recorded and behaviors would be noted. Because the visual marine mammal buffer zones for the proposed project and EHW-2 overlap, monitors may be coordinated to concurrently monitor the buffer zone within the WRA for both projects.

Number of animals potentially exposed

The number of Steller sea lions observed hauled out along the Bangor waterfront within the in-water work window ranges between 0 and 6 individuals daily. One to two animals are typically seen hauled out on submarines; the maximum Steller sea lion group size was six individuals in November 2009. These opportunistic sightings likely represent an approximate occurrence of Steller sea lions within the action area because some individuals could have been in the water and therefore not observed. A correction factor has not been developed for Steller sea lions in

this area to account for animals that are in the water; therefore the observations are the best available information to assess exposure. During pneumatic chipping it is likely that a very small number of Steller sea lions (~1/day), will be exposed to noise above the disturbance threshold because the estimated zone of influence for pneumatic chipping only encompasses a very small part of the area where Steller sea lions have been observed. According to the most recent observational information, NMFS estimates up to 4 sea lions could be exposed to sound above the 120 dB threshold from vibratory pile extraction per day (77 FR 25408). Using these estimates of abundance in the action area and the number of days of activity, NMFS proposes to authorize the incidental take, by Level B harassment only, of 92 Steller sea lion exposures. It is unknown whether the exposed animals would be the same or different individuals over the project duration, but it is likely that some individuals would be exposed repeatedly.

Response
Exposure to sound above the 120 dB threshold can result in changes in an animal's typical behavior and/or avoidance of the affected area. As a result of sound exposure, Steller sea lions may spend less time foraging in the immediate vicinity of the project site. In the event that animals were displaced from foraging areas in the action area, there are alternative foraging areas available to the affected individuals. Repetitive, short-term displacement is likely to cause repetitive, short-term disruptions in their normal behavioral patterns in nearshore and deeper waters of Hood Canal. In addition, Steller sea lions may increase their haulout time to avoid in-water sound exposure. Since pile driving would likely only occur for a few hours a day, over a short period of time, it is unlikely to result in permanent displacement.

2.5 Cumulative Effects

"Cumulative effects" are those effects of future state or private activities, not involving Federal activities, that are reasonably certain to occur within the action area of the Federal action subject to consultation (50 CFR 402.02). Future Federal actions that are unrelated to the proposed actions are not considered in this section because they require separate consultation pursuant to section 7 of the Act.

For the purposes of this opinion, there are no cumulative effects expected to occur within the action areas for the proposed actions. Federally controlled actions dominate current and future impacts in the action area and potential future Federal actions would be considered for possible section 7(a)(2) consultation under the ESA.

2.6 Integration and Synthesis

The Integration and Synthesis section is the final step of NMFS' assessment of the risk posed to species and critical habitat as a result of implementing the proposed actions. In this section, we add the effects of the actions (Section 2.4) to the environmental baseline (Section 2.3) and the cumulative effects (Section 2.5) to formulate the agency's biological opinion as to whether the proposed actions are likely to result in appreciable reductions in the likelihood of both survival and recovery of the species in the wild by reducing its numbers, reproduction, or distribution.

These assessments are made in full consideration of the status of the species (Section 2.2).

The abundance of eastern DPS Steller sea lions has increased over the past 30 years by approximately 3 percent per year. Steller sea lions are generalist predators, and able to respond to changes in prey abundance. There are no substantial threats to the species, and the final recovery plan identifies the need to initiate a status review and consider removing the eastern DPS from the Federal List of Endangered Wildlife and Plants (NMFS 2008). NMFS recently issued a proposed rule to remove the eastern DPS of Steller sea lions from the List of Endangered and Threatened Wildlife (77 FR 23209).

The Delta Pier at NBK Bangor is used as an occasional haulout for part of the year (from October to April) by Steller sea lions. The Navy finds it likely that Steller sea lions would be exposed to and disturbed by sound generated by pile removal activities. Given the time of year that pile removal would occur (July through February), the proposed project may result in as many as 92 exposures of Steller sea lions to sound levels above disturbance thresholds. There is potential for individuals to be exposed repeatedly over the project duration.

As a result of sound exposure, Steller sea lions may spend less time foraging in the nearshore and deeper waters of Hood Canal both immediately proximate the project site and in the greater action area. Repetitive, short-term displacement is likely to cause repetitive, short-term disruptions in their normal behavioral patterns in Hood Canal. However, there are alternative foraging areas available to the affected individuals. The likely behavioral responses, even considering potential for repeat exposures of individuals, are not anticipated to reduce the reproductive success or increase the risk of injury or mortality for any affected Steller sea lion.

The Navy's proposed pile removal activities carry less risk of impact to Steller sea lions than did other construction activities analyzed for at the NBK Bangor (e.g. the Test Pile project, and the construction of the EHW-2). Potential takes by disturbance would likely have a negligible short-term effect on individuals and not result in population-level impacts (77 FR 25434). The estimated level of take represents less than one percent of the eastern Steller sea lion DPS.

2.7 Conclusion

After reviewing the current status of the listed species, the environmental baseline within the action area, the effects of the proposed actions, and cumulative effects, it is NMFS' biological opinion that the proposed actions are not likely to jeopardize the continued existence of the eastern DPS Steller sea lion. No critical habitat has been designated in the action area for this species; therefore, none will be affected.

2.8. Incidental Take Statement

Section 9 of the ESA and Federal regulation pursuant to section 4(d) of the ESA prohibit the take of endangered and threatened species, respectively, without a special exemption. Take is defined as to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture or collect, or to attempt to

engage in any such conduct. Harm is further defined by regulation to include significant habitat modification or degradation that results in death or injury to listed species by significantly impairing essential behavioral patterns, including breeding, feeding, or sheltering. Incidental take is defined as take that is incidental to, and not the purpose of, the carrying out of an otherwise lawful activity. For purposes of this consultation, we interpret "harass" to mean an intentional or negligent action that has the potential to injure an animal or disrupt its normal behaviors to a point where such behaviors are abandoned or significantly altered.[1] Section 7(b)(4) and Section 7(o)(2) provide that taking that is incidental to an otherwise lawful agency action is not considered to be prohibited taking under the ESA, if that action is performed in compliance with the terms and conditions of this incidental take statement.

This opinion includes a prospective incidental take statement (ITS) for Steller sea lions, however this take statement will not go into effect until the provisions of MMPA 101(a)(5) are met, and the Terms and Conditions are appended to this ITS subsequent to the issuance of the Incidental Harassment Authorization under the MMPA, as described below.

A marine mammal species or population stock that is listed as threatened or endangered under the ESA is, by definition, also considered depleted under the MMPA. The ESA allows taking of threatened and endangered marine mammals only if authorized by section 101(a)(5) of the MMPA. Before incidental take of listed marine mammals may be exempted from the taking prohibition of ESA section 9(a), incidental taking must be authorized under section 101(a)(5)(D) of the MMPA. The incidental taking will be authorized under section 101(a)(5)(D) of the MMPA if NMFS finds that the taking will have a negligible impact on the species or stocks(s), and will not have an unmitigable adverse impact on the availability of the species or stocks(s) for subsistence uses where relevant.

2.8.1 Amount or Extent of Take

Available information indicates that incidental acoustic harassment of small numbers of Steller sea lions may occur during the Navy's activities at the NBK Bangor waterfront. According to the most recent observation information we estimated that four individual Steller sea lions could be present on submarines docked at Delta Pier or in waters adjacent to these haulouts and be exposed to sound levels resulting in Level B harassment per day during vibratory pile extraction. In addition, NMFS predicts that at least 1 individual could be exposed to sound levels resulting in Level B harassment per day during pneumatic chipping. Therefore, based on the abundance estimates and number of days of these activities, NMFS proposes to authorize 92 Steller sea lion takes during the Navy's proposed project. The estimated level of take represents less than one percent of the eastern Steller sea lion DPS.

[1] NMFS has not adopted a regulatory definition of harassment under the ESA. The World English Dictionary defines harass as "to trouble, torment, or confuse by continual persistent attacks, questions, etc." The U.S. Fish and Wildlife Service defines "harass" in its regulations as

> an intentional or negligent act or omission which creates the likelihood of injury to wildlife by annoying it to such an extent as to significantly disrupt normal behavioral patterns which include, but are not limited to, breeding, feeding, or sheltering (50 CFR 17.3).

The interpretation we adopt in this consultation is consistent with our understanding of the dictionary definition of harass and is consistent with the U.S. Fish and Wildlife interpretation of the term.

2.8.2 Effect of the Take

NMFS does not expect sea lions to be injured from hearing impairment or killed by the Navy's construction activities. Exposure to sound sources associated with this work have the potential to harass Steller sea lions, although behavioral disturbance of a small number of individuals is expected to be temporary and not affect the reproduction, survival, or recovery of this species. In the accompanying biological opinion, NMFS determined that the level of anticipated incidental take of the eastern DPS Steller sea lion in the proposed actions are not likely to result in jeopardy to the species.

2.8.3 Reasonable and Prudent Measures

"Reasonable and prudent measures" are nondiscretionary measures to minimize the amount or extent of incidental take (50 CFR 402.02). The Navy or any applicant has a continuing duty to monitor the impacts of incidental take and must report the progress of the action and its impact on the species as specified in this incidental take statement (50 CFR 402.14).

NMFS believes the following reasonable and prudent measures are necessary and appropriate to minimize impacts of incidental take of eastern DPS Steller sea lions:

1. Ensure completion of a monitoring and reporting program to confirm that the take exemption for the proposed actions are not exceeded, and that the terms and conditions in the ITS are effective in minimizing incidental take.
2. All activities must comply with the Incidental Harassment Authorization issued under section 101(a)(5)(D) and 50 CFR 216.107.

2.8.4 Terms and Conditions

The terms and conditions are non-discretionary, and the Navy or any applicant must comply with them in order to implement the reasonable and prudent measures (50 CFR 402.14). The Terms and Conditions will be appended to this ITS following the final authorization of take under the MMPA.

2.9. Conservation Recommendations

Section 7(a)(1) of the ESA directs Federal agencies to use their authorities to further the purposes of the ESA by carrying out conservation programs for the benefit of the threatened and endangered species. Specifically, conservation recommendations are suggestions regarding discretionary measures to minimize or avoid adverse effects of a proposed action on listed species or critical habitat or regarding the development of information (50 CFR 402.02).

The following conservation recommendation are intended to assist the Navy in avoiding or minimizing the effects to the eastern DPS Steller sea lion from these actions and in fulfilling the Navy's legal obligation to conserve listed species and the ecosystems on which they depend:

(1) NMFS recommends that the Navy perform pile driving activities during the portion of the approved in-water work window when Steller sea lions are least likely to be present (between July 16 and September 30).

2.10 Reinitiation of Consultation

As provided in 50 CFR 402.16, reinitiation of formal consultation is required where discretionary Federal agency involvement or control over the action has been retained (or is authorized by law) and if: (1) the amount or extent of incidental take is exceeded, (2) new information reveals effects of the agency action on listed species or designated critical habitat in a manner or to an extent not considered in this opinion, (3) the agency action is subsequently modified in a manner that causes an effect on the listed species or critical habitat not considered in this opinion, or 4) a new species is listed or critical habitat designated that may be affected by the action.

2.11 "Not Likely to Adversely Affect" Determination

Humpback whales of the eastern North Pacific stock feed off the U.S. west coast, with winter migratory destinations in coastal waters of Mexico and Central America. Although in recent years humpback whales have been sighted in the inside waters of Washington on a few occasions, including in Puget Sound (primarily during autumn with few sightings during spring), occurrence in Hood Canal is uncommon. As described in the in March 2012 supplement to the BA, humpback whale sightings occurred several times in Hood Canal between January 27, 2012 and February 23,2012. The best available data indicate these sightings were of one individual whale. Prior to this individual humpback whale sighting, there were no available documented records of humpback whales in Hood Canal. Humpback whales more commonly occur in coastal waters.

As described above, the Navy estimates that vibratory pile removal activities will likely result in behavioral disturbance in all waters within line of sight to land (an extent of 13 miles), and that pneumatic chipping activities will likely result in behavioral disturbance in waters 1,778 feet from the project site. Because the underwater disturbance threshold for pneumatic chipping is expected to be within the Port Security Barrier, humpback whales are not expected to be exposed to noise levels exceeding the disturbance threshold. Given the short-term nature of vibratory pile extraction and vessel assist activities (a maximum of 15 days) that would cause disturbance in the project vicinity, and the unlikely occurrence of humpback whales in the project vicinity, NMFS concludes that potential effects from the proposed actions are discountable because it is extremely unlikely that humpback whales would be exposed to the proposed construction activities in Hood Canal.

Based on this analysis, NMFS concludes that all effects of the proposed actions are NLAA humpback whales.

3. DATA QUALITY ACT DOCUMENTATION AND PRE-DISSEMINATION REVIEW

The DQA (44 U.S.C. 3504(d) (1) et seq.) specifies three components contributing to the quality of a document. They are utility, integrity, and objectivity. This section of the opinion addresses these DQA components, documents compliance with the DQA, and certifies that this opinion has undergone pre-dissemination review.

3.1 Utility

Utility principally refers to ensuring that the information contained in this consultation is helpful, serviceable, and beneficial to the intended user. The intended user is the Navy. Individual copies were provided to the Navy. This consultation will be posted on the NMFS Northwest Region website. The format and naming adheres to conventional standards for style.

3.2 Integrity

This consultation was completed on a computer system managed by NMFS in accordance with relevant information technology security policies and standards set out in Appendix III, 'Security of Automated Information Resources,' Office of Management and Budget Circular A-130; the Computer Security Act; and the Government Information Security Reform Act.

3.3 Objectivity

Information Product Category: Natural Resource Plan.

Standards: This consultation and supporting documents are clear, concise, complete, and unbiased; and were developed using commonly accepted scientific research methods. They adhere to published standards including the NMFS ESA Consultation Handbook, ESA Regulations, 50 CFR 402.01, et seq.

Best Available Information: This consultation and supporting documents use the best available information, as referenced in the References section. The analyses in this opinion consultation contain more background on information sources and quality.

Referencing: All supporting materials, information, data and analyses are properly referenced, consistent with standard scientific referencing style.

Review Process: This consultation was drafted by NMFS staff with training in ESA implementation, and reviewed in accordance with Northwest Region ESA quality control and assurance processes.

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APPENDIX B

PUBLIC COMMENTS

From: [redacted]
Sent: Thursday, May 03, 2012 7:07
To: Yuenger, Leslie A CIV NAVFAC NW, PAO
Subject: Bangor pile replacement

I am writing in support of the U.S. Navy's Bangor pile replacement project. The environmental impact of this project is negligible, and certainly is less than the potential environmental impact of not upgrading and maintaining the facilities at Bangor. The U.S. Navy is an essential security and economic asset in this region. This project is necessary to continue the Navy's outstanding record of safety and service at Bangor.

Lukas Bogues

[redacted]