

Naval Base Bremerton Pier 6 Pile Replacement – Marine Mammal Monitoring

Prepared for

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INTRODUCTION

The Biological Evaluation for N44255-10-D-5021/0006 ~ Replace Fendering System, Pier 6, PSNS & IMF, Bremerton, Washington Project requires that a Marine Mammal Monitoring Plan be followed during all pile driving activity. The plan requires a summary report that contains a brief summary of the marine mammal observations including dates, times, conditions, details of marine mammals observed in the vicinity of the project, animal behavior patterns, and details of any work stoppages resulting from marine mammal presence or weather conditions precluding adequate sighting. The marine mammal monitoring plan and contract language requires that the report contain all field data sheets and logs.

Northwest Environmental conducted marine mammal monitoring at Pier 6 at the Bremerton Naval Shipyard during all pile extraction and driving activities from November 2014 through February 2015. Marbled Murrelet Monitoring was also completed during the second monitoring phase of this reporting period during impact pile installation. The work was not continuous during these times. This report summarizes efforts, observations, and mitigation activities that were followed during installation of the pilings and includes an estimate of take.

The Marine Mammal Monitoring Plan 01 57 19.00 20 Enclosure Monitoring and Restrictions of Pile Driving Operations (Appendix A) was followed. This plan references the U.S. Fish and Wildlife marbled murrelet monitoring protocol. Appendix B provides the data summary from all the marine mammal observations conducted during the entire project. This data was taken from the Data Sheets provided in Appendix C, which includes the original scanned data sheets combined for marbled murrelets and marine mammal monitoring.

MONITORING SUMMARY

Site Conditions

Pile replacement activities took place at Pier 6 in the Bremerton Navy Shipyard. NAVBASE Kitsap Bremerton is located on the north side of Sinclair Inlet within the city of Bremerton in Kitsap County. The NAVBASE Kitsap Bremerton waterfront, including Pier 6, is restricted from public access. This area is designated as the Waterfront Restricted Area and is delineated by Port Security Barriers.

Monitoring Locations

During vibratory pile extraction, five monitors were present at four locations. During impact hammering, one monitor was present at Naval Base Kitsap-Bremerton, Pier 6. The vibratory pile extraction monitoring locations are as follows:

Naval Base Kitsap-Bremerton, Pier 6

During vibratory pile extraction, two monitors were present and during impact driving, one monitor was present at Pier 6. Pier 6 is approximately 370 meters long and oriented north to south. The shoreline along the north side of the pier is a seawall. To the south is Sinclair Inlet where approximately 85 meters from the end of the pier are the Port Security Barriers. The Port Security Barrier floats are a known haul out site for California sea lion. The security barrier starts along the edge of the pier to the east and continues to the south (230 meters) and extends west out of the observation zone. Two other piers flank pier 6, approximately 90 meters east and 115 meters west. Due to security restrictions, no photos of the site were taken.

East 9th Street Mini Park, Manette, Washington

During vibratory pile extraction, one monitor was present at the East 9th Street Mini Park. This site is located northeast of Pier 6 and just south of the Manette Bridge on Point Herron.

Annapolis Foot Ferry Dock, Port Orchard, Washington

During vibratory pile extraction, one monitor was present at the Annapolis Foot Ferry Dock. Located across Sinclair Inlet, and directly south of the East 9th Street Mini Park.

On Water Observations, Sinclair Inlet, Washington

During vibratory pile extraction, one monitor was present on the boat. The vessel departed from Port Orchard Marina and followed the route in the monitoring protocol.

Observation Protocol and Guidelines

All monitoring protocols were followed in accordance with the Marine Mammal Monitoring Plan. The respective Zone of Interaction (ZOI) was established utilizing fixed areas in the water, including the Port Security Barriers. A range finder was used to calibrate distance of landmarks from each observation point. Monitors would move around sites to improve visual coverage of the respective ZOI as needed.

Clarification of the protocol for **Monitoring to Estimate Take Levels for California Sea Lions and Harbor Seals** is provided here. Due to the Port Security Barrier as a known haul out site for only California sea lions, observations of individuals that would travel parallel (to and from float haul outs), within five meters of each side, would not be recorded during counts of the security barrier. Any individuals appearing more than five meters from or clearly traveling away or towards the security barrier were recorded during times when the construction activity would result in a take. It was assumed that at any time, any individuals counted in the haul out, could move to the water. Therefore, during Pre and Post counts these individuals were not counted. The individual animals on the security barrier were recorded at the beginning of construction activity and at the end of the work day, unless a significant break in work times occurred, in which case, the barrier was recorded again.

Monitoring Effort

All monitoring protocols were followed in accordance with the Marine Mammal Monitoring Plan. During two periods in 2014 and 2015, eight qualified biologists conducted 24 days of monitoring. The monitors completed a total of 149 hours and 09 minutes (Table 1). Monitoring took place November 4-7 and 11-14; December 12, 15, 16, and 22-24; January 9-10 and 12-14; and February 10-13 and 17 (Table 1).

For vibratory pile extraction, monitoring was conducted by the following qualified biologists: Glenn Johnson (GJ), Sue Ehler (SE), Heather Tabisola (HT), Caitlin O'Brien (CO), Molly McCormly (MM), and Ted Gatlin (TG). Caleb Cowles (CC) operated the small boat during this time. During impact hammering, Marine Mammal and Marbled Murrelet monitoring occurred during January and February 2015. All monitoring was conducted by the following qualified biologists: Glenn Johnson (GJ), Sue Ehler (SE), and Brad Thiele (BT).

Table 1 – Monitoring Effort

Monitoring Effort							
Date	Biologist	Start Time	End Time	Total Time	Visibility	Sun glare	Precipitation
11/04/14	GJ, SE, HT, KD, CO	12:00	16:25	4:25	excellent	variable	none
11/05/14	GJ, SE, HT, KD, CO	7:00	16:15	9:15	moderate	variable	variable
11/06/14	GJ, SE, HT, KD, MM	7:00	16:50	9:50	good	none	heavy
11/07/14	GJ, SE, HT, KD, MM	7:00	15:45	8:45	excellent	variable	none
11/11/14	GJ, SE, HT, KD, CO	7:00	14:15	7:15	excellent	strong	none
11/12/14	GJ, SE, HT, CO, MM	7:00	8:00	1:00	excellent	variable	none
11/13/14	GJ, SE, HT, CO, MM	7:00	17:00	10:00	excellent	variable	none
11/14/14	SE, HT, CO, MM, TG	7:00	12:15	5:15	excellent	variable	light
12/12/14	GJ	12:08	15:16	3:08	good	none	none
12/15/14	GJ	7:51	11:35	3:44	good	none	none
12/15/14	GJ	12:42	17:13	4:31	good	none	none
12/16/14	GJ	7:30	12:15	4:45	good	none	none
12/16/14	GJ	14:08	16:42	2:34	good	none	none
12/22/14	GJ	10:31	11:31	1:00	good	mild	none
12/22/14	GJ	13:47	16:57	3:10	good	none	rain
12/23/14	GJ	10:00	14:10	4:10	good	none	none
12/24/14	GJ	7:50	10:48	2:58	good	none	none
12/24/14	GJ	12:38	15:10	2:32	good	none	none
01/09/15	GJ	7:36	9:15	1:39	good	none	none
01/09/15	GJ	12:15	17:20	5:05	good	mild	none
01/10/15	GJ	9:00	10:00	1:00	good	none	none
01/10/15	GJ	12:40	14:52	2:12	good	none	none
01/12/15	SE	7:15	12:11	4:56	good	none	none
01/12/15	SE	13:00	16:48	3:48	excellent	none	none
01/13/15	SE	9:00	12:25	3:25	good	none	none
01/13/15	SE	13:00	17:00	4:00	excellent	none	none
01/14/15	SE	7:25	12:20	4:55	excellent	none	none
02/10/15	SE	10:00	11:30	1:30	excellent	none	none
02/10/15	SE	13:00	17:45	4:45	excellent	none	none
02/11/15	SE	7:05	12:45	5:40	good	none	none
02/11/15	BT	12:45	13:15	0:30	excellent	none	none
02/11/15	SE	13:15	16:30	3:15	excellent	none	none
02/12/15	SE	9:10	10:00	0:50	excellent	none	none
02/12/15	SE	10:50	12:15	1:25	excellent	none	none
02/12/15	SE	12:30	17:00	4:30	excellent	none	none
02/13/15	SE	9:40	12:32	2:52	excellent	none	none
02/13/15	SE	14:16	17:45	3:29	excellent	none	none
02/17/15	BT	7:29	8:35	1:06	good	none	none
Total Days:	24		Total Hours:	149:09			

SUMMARY OF OBSERVATIONS

Fall 2014

Summary

The first phase of marine mammal monitoring for this report occurred in November 2014 over a period of eight days, during vibratory pile extraction. There were 55 hours and 45 minutes of marine mammal observations by five monitors at a time (278:45 cumulative hours of all monitors). During this time, vibratory extraction totaled 5 hours 46 minutes. Marine mammal species observed included California sea lion, Harbor seal, and one unidentified pinniped. No mitigating actions were required.

Marine Mammal

Two species of marine mammal, the California sea lion and harbor seal, both pinnipeds, were observed during the vibratory pile extraction phase. No cetaceans were observed.

During the fall, 1084 individuals of pinnipeds were observed in 173 sightings (Table 2). Of the 1000 California sea lion observed (in 91 sightings), 917 individuals were hauled-out on the Port Security Barrier pontoons (Table 2). The information provided in Appendix B is summarized in Tables 2 & 3, and shows the project activity on any given day when monitoring was occurring.

Table 2 – Marine Mammal Behavior Summary

Observation Summary - Species and Behavior				
Behavior	California sea lion	Harbor seal	Unidentified Pinniped	Cumulative Behavior Count
Unknown	1			1
Foraging (F)	20	15		35
Hauled-out (H)	917			917
Milling (M)		6		6
Resting (R)	4	23		27
Travelling (T)	58	39	1	98
Grand Total	1000	83	1	1084

Of the 1000 California sea lions sighted in water, 55 individuals were observed during vibratory hammer activity (Table 3). Of the 55 California sea lions, the majority of takes were accounted for at the Pier position (40 individuals over the days documenting takes). On November 7, 7 takes were recorded from the Manette position and all were Traveling except for an individual foraging. Four takes were documented from the boat on November 13 and documented as Traveling.

Nine harbor seals were observed during vibratory hammer activity (Table 3). Of these 9 individuals; 1 was from the Pier and traveling, 2 were from Manette and Traveling, 5 were from Annapolis (3 Traveling, 1 resting and 1 foraging), and 1 from the Boat and Traveling.

Exposure of 64 individuals occurred during vibratory pile extraction resulting in a Level B acoustical harassment take on 55 California sea lions and nine harbor seals. The contractor utilized direct pulling when possible instead of vibratory extraction that minimized take from vibratory extraction. Take occurred when sightings happened during vibratory pile extraction (noted as PON in the source activity column in Table 3). Table 3 represents the number of individuals in the water during vibratory pile removal phase of the project.

Table 3 – Marine Mammal Observation Summary in Regards to Source Activity

Behavior*	California sea lion	Harbor seal	Unidentified pinniped	Cumulative Count
POFF	45	16		61
PON	55	9		64
POST	398	39		437
PRE	502	19	1	522
Total	1000	83	1	1084

*POFF – pile driver off, PON - pile driver on, PRE - pre watch, POST - post watch

The security barrier was commonly used as a haul-out for California sea lions, and counts ranged from 25 to 118 individuals in November 2014. The security barrier was within the 1,600 meter disturbance zone for vibratory pile removal. Because of the length of the barrier and the concentration of California sea lions hauled out on it, an additional estimated take was added to the above confirmed takes to account for mammals that could have entered the water unnoticed by the monitors.

The security barrier take on California sea lions was estimated by conducting a pre-work and post-work counts of the hauled out California sea lions on the barrier. The change in marine mammals that was observed on the barrier between the start and stop of work were counted as the take amount since these animals had entered the water at some point during pile removal work. This is considered to be a conservative approach as it may result in double counting of the same animal in the water.

Counts of the security barrier were coordinated between the pier and boat observers, designating who would conduct the count, which resulted in a total of 96 California sea lions that may have entered the water during vibratory pile extraction (Table 4).

Table 4 – Security Barrier Take Estimate Fall 2014

Date	Pre-Pile Driving	Post-Pile Driving	Estimated number of Takes
4-Nov	80	40	40
5-Nov	34	28	6
6-Nov	48	25	23
7-Nov	78	78	0
11-Nov	63	70	7
13-Nov	60	79	19
14-Nov	118	77	41
TOTAL			96

To estimate take the total of the animals observed within the 1,600-meter vibratory disturbance zone and the number of California sea lions that entered the water was tallied.

A total of 151 California sea lions and nine harbor seals were recorded to be in the water during vibratory pile removal within the 1,600-meter vibratory disturbance zone.

Marbled Murrelet Monitoring

Though not required during the vibratory extraction phase, 21 species of bird were observed. No marbled murrelets were observed during this survey. The species observed within Sinclair Inlet are listed in Table 5.

Table 5 - Observation Summary of Bird Species Observed

Observation Summary - Bird Species Observed	
Common Name	Genus species
American wigeon	<i>Anas americana</i>
Bald eagle	<i>Haliaeetus leucocephalus</i>
Barrow's goldeneye	<i>Bucephala islandica</i>
Belted Kingfisher	<i>Megaceryle alcyon</i>
Bonapart's gull	<i>Chroicocephalus philadelphia</i>
Bufflehead	<i>Bucephala albeola</i>
California gull	<i>Larus californicus</i>
Common murre	<i>Uria aalge</i>
Double crested cormorant	<i>Phalacrocorax auritus</i>
Glaucous-winged Gull	<i>Larus glaucescens</i>
Great blue heron	<i>Ardea herodias</i>
Harlequin duck	<i>Histrionicus histrionicus</i>
Hooded merganser	<i>Lophodytes cucullatus</i>
Horned grebe	<i>Podiceps auritus</i>
Mew gull	<i>Larus canus</i>
Pelagic cormorant	<i>Phalacrocorax pelagicus</i>
Pigeon guillemot	<i>Cephus columba</i>
Red necked grebe	<i>Podiceps grisegena</i>
Rhinoceros auklet	<i>Cerorhinca monocerata</i>
Surf scoter	<i>Melanitta perspicillata</i>
Western grebe	<i>Aechmophorus occidentalis</i>

Winter 2014 - 2015

Summary

The second phase of monitoring covered in this report occurred from December 2014 through February 2015. This phase included both marine mammal and marbled murrelet monitoring conducted for impact hammering of concrete piles. Marine mammal monitors located only on the pier conducted observations for 93 hours and 24 minutes. Marine mammal species observed included California sea lion and harbor seals. There were only California sea lions observed hauled out on the security barrier during the course of work. No mitigating actions were required.

Marine Mammal

During 19 days of observation, two species of marine mammal (pinniped) were observed with no mitigation delays. No cetaceans were seen. The California sea lion was the most commonly observed species. There were 51 sightings (Table 6) and 1258 individuals observed. The known haul-out site for California sea lion accounted for 46 sightings and 1247 individuals. Of the 11 non-security barrier sightings, there were six harbor seals and five California sea lions (Table 6).

Table 6 – Marine Mammal Observation Summary

Observation Summary - Species and Behavior

Behavior	California sea lion	Harbor seal	Cumulative Behavior Count
Foraging (F)	1	1	2
Hauled-out (H)	1247		1247
Travelling (T)	4	5	9
Total	1,252	6	1,258

Of the 57 sighting observations, one harbor seal was observed within the 10 meter shut down zone on January 9, 2015. This individual left the area before pile driving commenced and did not cause a mitigation delay.

For impact driving of concrete piles, a total of five California sea lions and six harbor seals were observed in the zone of Level B acoustical harassment of 117 meters. Only one harbor seal was observed in the zone during pile driving activity, with no California sea lions observed during this time in the water. Table 7 summarizes sightings during construction activity.

Table 7 – Marine Mammal Observation Summary in Regards to Source Activity

Source Activity*	California sea lion	Harbor seal	Cumulative Count
POFF	4	2	6
PON		1	1
POST		1	1
PRE	1	2	3
Total	5	6	11

* POFF – pile driver off, PON -pile driver on, PRE - pre watch, POST - post watch

The security barrier is commonly used as a haul-out for California sea lions and counts ranged from 63 individuals in December 2014 to seven individuals in mid February 2015. The impact pile work zone (117 meters) encompassed a portion of the security barrier on December 12, January 9, 12-14, and February 12, and during part of the day on December 15, January 12, and February 13, which required counts of the security barrier individuals hauled out.

With the smaller Level B acoustical harassment zone of 117 meters, it is less likely that California sea lions would be entering the water unnoticed during pile driving. Nonetheless it is considered a conservative approach to follow the same protocol for estimating a security barrier takes as explained above for vibratory pile work takes.

The take on California sea lions was estimated for in water harassment by conducting a pre-work and post-work count on the hauled out California sea lions on the security barrier. The change in marine mammals that were observed on the barrier between the start and stop of work was counted as a take since these animals had entered the water at some point during pile driving work. Again this is considered to be a conservative approach as it may result in double counting of the same animal in the water.

A total of 124 California sea lions were recorded to have been in the 117 meter Level B Acoustical Harassment zone during pile driving and one harbor seal was observed within the zone during impact pile driving.

Table 8 – Security Barrier Take Estimate Winter 2014-2015

Date	Pre-Pile Driving	Post-Pile Driving	Estimated Number of Takes
12-Dec	27	19	8
15-Dec	49	23	26
16-Dec	32	44	12
22-Dec	33	60	27
23-Dec	31	38	7
9-Jan	13	33	20
10-Jan	33	33	0
12-Jan	37	36	1
13-Jan	34	32	2
14-Jan	19	12	7
10-Feb	11	10	1
11-Feb	8	15	7
12-Feb	14	9	5
13-Feb	17	18	1
14-Feb	7	7	0
TOTAL			124

Marbled Murrelet Monitoring

No marbled murrelets were observed during this survey. The avian species observed, 17 overall, are listed in Table 9.

Table 9 - Observation Summary of Bird Species Observed

Observation Summary - Bird Species Observed

Common Name	Genus species
Bald eagle	<i>Haliaeetus leucocephalus</i>
Barrow's goldeneye	<i>Bucephala islandica</i>
Belted kingfisher	<i>Megaceryle alcyon</i>
Bufflehead	<i>Bucephala albeola</i>
Double crested cormorant	<i>Phalacrocorax auritus</i>
Glaucous gull	<i>Larus hyperboreus</i>
Glaucous-winged gull	<i>Larus glaucescens</i>
Great blue heron	<i>Ardea herodias</i>
gull spp.	<i>Larus spp.</i>
Horned grebe	<i>Podiceps auritus</i>
Pelagic cormorant	<i>Phalacrocorax pelagicus</i>
Pied-billed grebe	<i>Podilymbus podiceps</i>
Pigeon guillemot	<i>Cepphus columba</i>
Red breasted merganser	<i>Mergus serrator</i>
Red necked grebe	<i>Podiceps grisegena</i>
Surf scoter	<i>Melanitta perspicillata</i>
Western grebe	<i>Aechmophorus occidentalis</i>

Behaviors Observed

Behaviors observed and reported were typical of marine mammal behavior with no visible reactions to noise disturbance. The large number of California sea lions, particularly on the security barrier further demonstrates the use of this as a haul-out site.

Behaviors for all species included hauling-out, foraging, milling, and traveling. Behaviors were categorized as follows: if an individual was seen feeding on fish, observed multiple times in a localized area, or moving without a clear sense of direction in that localized region, the individual was recorded as foraging. If an animal was observed maintaining a general heading and pace, it was recorded as traveling. Animals that were noted moving in an area, but did not appear to be foraging or moving in a linear fashion, were recorded as milling. Individuals basking on the security barrier or in the water at the security barrier (still recorded as a take during activity) were recorded as hauled out.

Total Take

Take was monitored for the entire Level B ZOI during each activity of the pile replacement project. The vibratory removal was monitored by 5 Biologists at 4 sites, with a boat being used as one site, monitoring a 1,600 meter zone. The total take during this monitoring effort was 151 California sea lions and 9 Harbor seals takes. The impact hammering of the piles was monitored by a single Biologist located on the pier, monitoring a 117 meter zone. The total takes monitored during this activity totaled 124 California sea lions and 1 Harbor seal that were present in the ZOI.

With this data, the total number of takes for the entire Year 2 monitoring of piling replacement at Pier 6 was 275 California sea lions and 10 Harbor seals.

Appendix A –Monitoring Plan

01 57 19.00 20 Enclosure 13

Monitoring and Restrictions of Pile Driving Operations

1.0 Minimization Measures for Marine Mammals during Pile Driving

The following measures will be implemented during pile work to avoid animal exposure to injurious noise levels generated from pile work. Pile work is defined as all vibratory and impact pile installation and removal activities. The measures provided in this enclosure that only apply to either impact driving or vibratory driving/extraction but not both will be identified in bold.

1.1 Soft Start

The contractor will follow the below procedures for all pile work. The objective of a soft-start is to provide a warning and/or give animals in close proximity to pile work a chance to leave the area prior to a vibratory or impact driver operating at full capacity thereby, exposing fewer animals to loud underwater and airborne sounds.

- A soft start procedure will be used at the beginning of each day's in-water pile driving or any time pile driving has ceased for more than 30 minutes.
- For **impact pile driving**, the following soft-start procedures will be conducted:
 - o The contractor will provide an initial set of strikes from the impact hammer at reduced energy, followed by a 30-second waiting period, then two subsequent sets.
 - o If marine mammal monitoring data indicates that there is no change in behavior of pinnipeds during soft start procedures, then the soft start procedure would no longer be required.
- For **vibratory pile pulling**, the contractor will initiate noise from vibratory hammers for 15 seconds at reduced energy followed by a 30-second waiting period. The procedure will be repeated two additional times.
- If marine mammal monitoring data indicates that there is no change in behavior of pinnipeds during vibratory pile driving or soft start procedures, then the soft start procedure would no longer be required.

1.2 Visual Monitoring and Shutdown Procedures

The Navy will prepare a marine mammal monitoring plan to be approved by NOAA prior to commencement of pile work. The contractor will be responsible for executing and adhering to the procedures detailed in the plan. The Navy's plan will include the following requirements:

- Visual monitoring will be conducted by a qualified, trained marine mammal observers (hereafter "mammal observer"). A qualified mammal observer has prior training and experience conducting marine mammal monitoring or surveys, and who has the ability to identify marine mammal species and describe relevant behaviors that may occur in proximity to in-water construction activities.
- During **impact** pile work the contractor will have a mammal observer placed at the best vantage point practicable (from the construction barges, on shore, or pier side) to monitor

the zones defined below. The mammal observer will monitor for marine mammals and implement shutdown/delay procedures when applicable by calling for the shutdown to the hammer operator.

- During **vibratory pile work** only, the contractor will have four land-based biologists monitor the disturbance zone including two at the pier work site, one at the eastern extent of the monitoring zone in the Manette neighborhood of Bremerton, and one at the southern extent of the monitoring zone near the Annapolis ferry landing in Port Orchard. Additionally, one boat with a biologist will travel through the monitoring area (Exhibit 1) completing an entire loop approximately every 30 minutes.
- Monitoring will take place from 15 minutes prior to initiation through 30 minutes post-completion of pile work each day.
 - The shutdown zone will be 10 meters (33 feet) from the pile being worked to prevent injury from physical interaction of marine mammals with construction equipment.
 - The **vibratory** disturbance zone will be a 1,600 meter arc shown on Exhibit 1 from the **vibratory** pile work.
 - The **impact** disturbance zone will be a 117 meter arc shown on Exhibit 1 from the **impact** pile work.
- Prior to the start of pile work, the shutdown zone will be monitored for 15 minutes to ensure that the shutdown zone is clear of marine mammals. Pile work will only commence once the mammal observer has declared the shutdown zone clear of marine mammals.
- If a Steller sea lion, killer whale, or Humpback whale approaches or enters a disturbance zones during pile work, work will be halted and delayed until either the animal has voluntarily left and been visually confirmed beyond the disturbance zone or 15 minutes have passed without re-detection of the animal.
- If a California sea lion or harbor seal, is observed in the disturbance zones during pile work, but not approaching or entering the shutdown zone, a “take” will be recorded and the work will be allowed to proceed without cessation. Marine mammal behavior will be monitored and documented.
- If a marine mammal approaches or enters a shutdown zone during pile work, work will be halted and delayed until either the animal has voluntarily left and been visually confirmed beyond the shutdown zone or 15 minutes have passed without re-detection of the animal.
- During pile work if the shutdown and disturbance zones are obscured by fog or poor lighting conditions, pile work will not be initiated until the entire area is visible.
- Contractor’s boats will remain 100 yards from marine mammals in accordance with NMFS marine mammal viewing guidelines (available at) and 200 yards from Southern Resident killer whales in accordance with Federal and Washington State law (50 CFR 224.103; Revised Code of Washington 77.15.740).

- Prior to the start of pile driving, the Orca Network and/or Center for Whale Research will be contacted to find out the location of the nearest whale (Orca and Gray Whale) sightings.

1.3 Data Collection

The contractor's mammal observers shall record the following information on sighting forms during all mammal monitoring activities:

- Date and time that pile work begins and ends
- Construction activities occurring during each observation period
- Weather parameters (e.g. percent cover, visibility, wind speed)
- 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
- Takes of marine mammals
- Distance from pile activities to marine mammals and distance from the marine mammal to the observation point
- Locations of all marine mammal observations
- Other human activity in the area.

1.4 Reporting

Within 30 days of the completion of each in-water work window for which there has been active monitoring, the contractor shall submit a monitoring report to the Navy.

The report will include:

- A summary of the mammal observations including dates, times, conditions, shutdown details, details of marine mammals observed in the vicinity of the project, takes, location of takes, animal behavioral patterns, and details of any work stoppages as a result of animal presence or weather conditions precluding adequate sighting
- Copies of all field data sheets or logs

2.0 Allowable Work Window

All pile work and associated in-water work (work below the ordinary high water mark) will be conducted between June 15 and March 1.

Exhibit 1 Marine Mammal Monitoring Zones



117 meter impact disturbance zone to be monitored from pier/barge by qualified marine mammal observer during all impact pile work. Buffer zone shown is from SE corner of pier 6 which will project the impact disturbance zone farthest into Sinclair inlet.

1,600 meter vibratory disturbance zone to be patrolled by qualified marine mammal observer during all vibratory pile work. Observer's boat does not need to enter the Navy's secured waterfront area.

Appendix B – Data Summary

Date	Site	Observer	Activity	Sighting No.	Start Time	End Time	Species	Behavior	No. of Animals	Gender	No. adult, sub-adult, pup	Direction of Travel	Distance to Sighting (m)	Distance from activity (m)	Notes
11/4/14	B	SE	PRE	1.0	7:00	7:00	CL	H	75						Navy security fence count
11/4/14	A	HT	PRE	2.0	12:08	12:10	HS	T	1			W	50	1500	slow travel
11/4/14	A	HT	PRE	3.0	12:40	12:42	CL	T	1	F	Adult	NE	950	900	slow travel
11/4/14	P	KD	PRE	4.0	13:32	13:33	CL	H	80						Navy security fence count
11/4/14	A	HT	PRE	5.0	13:43	12:44	HS	T	1			E	20	1150	slow travel
11/4/14	A	HT	PRE	5.1*	13:50	13:52	HS	R	1				10	1180	
11/4/14	B	SE	PRE	6.0	15:05	15:06	UP	T	1			S	1000	900	Description: broad back, coloration non distinct. Behavior: porpoising, certain was pinniped.
11/4/14	A	HT	PRE	7.0	15:24	15:27	HS	R	1				110	1150	
11/4/14	M	CO	PRE	8.0	15:53	15:54	HS	R	1				800	1450	
11/4/14	M	CO	PRE	8.1*	16:06	16:07	HS	R	1				800	1450	
11/4/14	A	HT	PRE	9.0	16:09	16:11	HS	T	1			W	100	1150	slow travel
11/4/14	B	SE	PRE	10.0	16:16	16:17	CL	T	1	F	Adult	N	10	1600	slow travel
11/4/14	P	KD	POST	11.0	16:30	16:31	CL	H	40						Navy security fence count
11/5/14	P	KD	PRE	1.0	7:00	7:01	CL	H	24						Navy security fence count
11/5/14	A	HT	PRE	2.0	7:08	7:09	HS	T	1		Adult	W	80	1500	
11/5/14	P	KD	PON	3.0	7:36	7:37	CL	H	34						Navy security fence count
11/5/14	A	HT	POFF	4.0	7:52	7:53	HS	M	1		Adult		50	1600	
11/5/14	M	CO	PON	5.0	7:54	7:56	HS	T	1			N	200	1600	
11/5/14	P	KD	POFF	6.0	8:15	8:16	CL	H	28						Navy security fence count
11/5/14	P	KD	POFF	7.0	8:22	8:23	CL	T	1			SW	168	172	
11/5/14	A	HT	POFF	8.0	8:53	8:54	HS	M	1		Adult		1300	1350	
11/5/14	P	KD	POST	9.0	9:57	10:00	HS	R	1			NE	110	205	
11/5/14	M	CO	POST	10.0	9:59	10:00	HS	T	1			N	100	1700	
11/5/14	M	CO	POST	10.1*	10:04	10:15	HS	F	1				900	900	
11/5/14	A	HT	POST	11.0	10:08	10:15	HS	F	1		Adult		800	1400	
11/5/14	A	HT	POST	11.1*	10:15	10:22	HS	R	1		Adult		300	q400	
11/5/14	P	KD	POST	12.0	10:15	10:16	HS	T	1			SW			
11/5/14	A	HT	POST	13.0	10:37	12:00	HS	F	1		Adult		100	1300	
11/5/14	P	KD	POST	14.0	11:10	11:12	CL	T	1			SW	108		
11/5/14	A	HT	POST	15.0	11:16	11:17	HS	M	1		Adult		85	1400	
11/5/14	A	HT	POST	16.0	11:34	11:36	HS	M	1		Adult		220	1460	
11/5/14	A	HT	POST	17.0	12:00	12:05	HS	T	1		Adult	NE	1000	300	
11/5/14	M	CO	POST	18.0	12:13	12:25	HS	T	1			N	700	1100	
11/5/14	A	HT	POST	19.0	13:03	13:07	HS	M	1		Adult		250	1430	
11/5/14	A	HT	POST	20.0	14:12	14:13	CL	T	1		Adult	N	900	900	
11/5/14	M	CO	POST	22.0	14:18	14:20	HS	T	1			S	600	1200	
11/5/14	A	HT	POST	22.0	14:49	14:59	HS	M	1		Adult		400	1400	
11/5/14	M	CO	POST	23.0	15:00	15:15	CL	T	1	M	A	SW	700	1600	
11/5/14	A	HT	POST	24.0	15:26	15:28	HS	R	2		Adult		100	1500	

Date	Site	Observer	Activity	Sighting No.	Start Time	End Time	Species	Behavior	No. of Animals	Gender	No. adult, sub-adult, pup	Direction of Travel	Distance to Sighting (m)	Distance from activity (m)	Notes
11/5/14	P	KD	POST	25.0	16:00	16:00	CL	H	28						Navy security fence count
11/6/14	P	KD	PRE	1.0	7:00	7:01	CL	H	48						Navy security fence count
11/6/14	A	HT	PRE	2.0	7:48	7:50	HS	R	1		Adult		90	1500	
11/6/14	A	HT	PRE	2.1*	8:16	8:20	HS	R	1		Adult		90	1500	
11/6/14	A	HT	PRE	3.0	8:30	8:31	HS	R	1		Adult		40	1460	
11/6/14	A	HT	PRE	3.1*	8:47	8:50	HS	R	1		Adult		30	1450	
11/6/14	A	HT	PRE	3.2	8:58	8:59	HS	R	1		Adult		5	1400	
11/6/14	M	M	PRE	4.0	10:00	10:02	CL	F	1	F	Adult		800	1500	
11/6/14	A	HT	PRE	5.0	10:05	10:06	HS	R	1		Adult		100	1400	
11/6/14	A	HT	PRE	6.0	10:58	11:01	HS	R	1		Adult		200	1400	
11/6/14	A	HT	PRE	7.0	11:48	11:59	HS	F	1		Adult		10	1450	
11/6/14	A	HT	PRE	8.0	16:30	16:31	HS	R	1		Adult		5	1500	
11/6/14	P	KD	PRE	9.0	16:34	16:35	CL	H	25						Navy security fence count
11/7/14	P	HT	PRE	1.0	7:00	7:00	CL	H	78						Navy security fence count
11/7/14	P	HT	PRE	2.0	7:09	7:23	CL	T	1		Adult	W	40	45	slow travel, along fence
11/7/14	P	HT	PRE	3.0	7:10	7:23	CL	T	2		Adult	W	40	45	slow travel, along fence
11/7/14	P	HT	PRE	4.0	7:10	7:20	CL	R	1		Adult		50	55	
11/7/14	M	MM	PRE	5.0	7:13	7:14	HS	T	1		Adult	W	200	1700	
11/7/14	M	MM	PRE	6.0	7:27	7:34	HS	T	1		Adult	S	500	1600	
11/7/14	M	MM	POFF	7.0	7:50	7:55	CL	T	1	M	Adult	S	250	1600	
11/7/14	M	MM	POFF	8.0	8:03	8:11	CL	T	2	M	Adult	SW	200	1500	
11/7/14	P	HT	POFF	9.0	8:10	8:12	CL	T	1		Adult	E	200	205	slow travel, on back
11/7/14	M	MM	POFF	10.0	8:13	8:15	CL	T	1	M	Adult	SW	800	1500	
11/7/14	A	KD	POFF	11.0	8:17	8:18	CL	T	1			E	300		
11/7/14	M	MM	POST	12.0	8:18	8:25	CL	R	1	M	Adult	SW	500	1600	
11/7/14	M	MM	POST	13.0	8:23	8:29	CL	T	1	M	Adult	SW	500	1500	
11/7/14	M	MM	POST	14.0	8:25	8:36	CL	F	1		Adult	SW	500	1500	
11/7/14	M	MM	POST	15.0	8:34	8:35	CL	T	1	M	Adult	SW	800	1400	
11/7/14	M	MM	POST	16.0	8:35	8:44	CL	T	1	M	Adult	SW	900	1400	
11/7/14	P	HT	POST	17.0	8:38	8:39	CL	T	1	M	Adult	W	220	220	
11/7/14	M	MM	POFF	18.0	9:18	9:23	CL	T	1	M	Adult	SW	800	1500	
11/7/14	A	KD	POFF	19.0	9:22	9:23	HS	T	1			E	500		
11/7/14	M	MM	POFF	20.0	9:23	9:27	CL	T	1	M	Adult	S	900	1400	
11/7/14	M	MM	POFF	21.0	9:36	9:37	CL	T	1	M	Sub-adult	SW	100	1700	
11/7/14	M	MM	POFF	21.0	9:44	9:48	CL	T	1	M	Adult	SW	100	1600	
11/7/14	M	MM	POFF	24.0	9:52	9:59	CL	T	1	M	Adult	SW	900	1600	
11/7/14	M	MM	POFF	25.0	9:57	9:59	HS	T	1		Adult	W	700	800	
11/7/14	A	KD	POFF	26.0	9:58	9:59	HS	F	1			N	1500		
11/7/14	M	MM	POFF	27.0	10:00	10:02	CL	F	1	F	Adult	SW	800	1500	
11/7/14	P	HT	POFF	28.0	10:02	10:03	HS	T	1		Adult	N	300	310	
11/7/14	P	HT	POFF	29.0	10:04	10:07	CL	F	1	F	Sub-adult		250	260	

Date	Site	Observer	Activity	Sighting No.	Start Time	End Time	Species	Behavior	No. of Animals	Gender	No. adult, sub-adult, pup	Direction of Travel	Distance to Sighting (m)	Distance from activity (m)	Notes
11/7/14	M	MM	POFF	30.0	10:21	10:23	CL	T	1	M	Adult	SW	800	1500	
11/7/14	M	MM	POFF	31.0	10:25	10:26	HS	R	1		Adult	S	1000	1600	
11/7/14	P	HT	POFF	32.0	10:26	10:29	CL	T	1	M	Sub-adult	N	25	35	
11/7/14	M	MM	POFF	33.0	10:26	10:27	CL	T	1		Adult	SW	800	1700	
11/7/14	M	MM	POFF	34.0	10:37	10:40	CL	T	1	M	Adult	SW	1000	900	
11/7/14	P	HT	POFF	35.0	10:45	10:50	HS	T	1		Adult	N	320	330	
11/7/14	M	MM	POFF	36.0	10:47	10:50	HS	T	1		Adult	NW	100	1800	
11/7/14	A	KD	POFF	37.0	10:52	10:55	HS	F	1			W	1500		
11/7/14	A	KD	POFF	38.0	10:57	10:58	HS	T	1			W	75		
11/7/14	M	MM	POFF	39.0	11:08	11:11	CL	T	2	M	Adult	W	500	1500	
11/7/14	M	MM	POFF	40.0	11:15	11:20	CL	F	1	M	Adult	W	400	1500	
11/7/14	P	HT	POFF	41.0	11:16	11:17	CL	T	1		Adult		130	130	
11/7/14	P	HT	POFF	42.0	11:30	11:33	CL	T	2	M	Sub-adult		45	45	
11/7/14	M	MM	POFF	43.0	11:33	11:35	CL	T	1	M	Adult	SW	900	1400	
11/7/14	M	MM	POST	44.0	11:50	12:01	CL	T	1	M	Adult	SW	700	1600	
11/7/14	A	KD	POST	45.0	11:55	11:56	HS	T	1			E	1500		
11/7/14	P	HT	POST	46.0	12:00	12:00	CL	H	78						Navy security fence count, 7 male, 15 female, remaining unknown
11/7/14	A	KD	POST	47.0	12:00	12:06	HS	T	1			E	300		
11/7/14	M	MM	POST	48.0	12:05	12:10	HS	T	1		Adult	W	400	1600	
11/7/14	M	MM	POST	49.0	12:07	12:12	CL	T	1	M	Sub-adult	SW	400	1600	
11/7/14	P	HT	POST	50.0	13:00	13:00	CL	H	81						Navy security fence count, 10 male, 17 female, remaining unknown
11/7/14	P	HT	POST	51.0	13:34	13:35	CL	T	2				300	300	
11/7/14	A	MM	POST	52.0	13:40	13:42	CL	T	1	M	Sub-adult	SW	1400	200	
11/7/14	A	MM	POST	53.0	13:44	13:49	HS	T	1		Adult	NE	100	1400	
11/7/14	A	MM	POST	53.1*	13:53	13:54	HS	T	1		Adult	NE	300	1700	
11/7/14	A	MM	POST	54.0	14:07	14:09	CL	T	1	M	Adult	SW	1700	500	
11/7/14	A	MM	POST	55.1*	14:13	14:17	HS	R	1		Adult	W	25	1500	
11/7/14	P	HT	POST	56.0	14:19	14:20	CL	F	1	M	Adult		45	45	
11/7/14	A	MM	POST	55.2*	14:35	14:37	HS	F	1		Adult	SW	40	1500	
11/7/14	A	MM	POST	55.3*	15:08	15:09	HS	F	1		Adult	NE	25	1500	
11/7/14	A	MM	POST	55.4*	15:19	15:10	HS	F	1		Adult	NE	100	1500	
11/7/14	A	MM	POST	57.0	15:25	15:26	HS	F	1		Adult	SW	50	1500	
11/7/14	A	MM	POST	57.1*	15:26	15:27	HS	F	1		Adult	N	25	1600	
11/7/14	A	MM	POST	58.0	15:36	15:39	HS	F	1		Adult	SW	50	1500	
11/7/14	P	HT	POST	59.0	15:41	15:41	CL	H	96						Navy security fence count, higher than previous as could see to start of fence, barge moved, 10 male, 18 female, remaining unknown
11/7/14	A	MM	POST	59.1*	15:43	15:45	HS	T	1		Adult	NE	25	1500	

Date	Site	Observer	Activity	Sighting No.	Start Time	End Time	Species	Behavior	No. of Animals	Gender	No. adult, sub-adult, pup	Direction of Travel	Distance to Sighting (m)	Distance from activity (m)	Notes
11/11/14	P	HM	PRE	1.0	7:00	7:00	CL	H	63						Navy security fence count
11/11/14	B	SE	PRE	2.0	7:34	7:35	CL	F	1						
11/11/14	P	HM	PRE	3.0	7:34	7:38	CL	T	1	F	Adult	NE	40	40	
11/11/14	P	HM	POFF	4.0	8:08	8:09	CL	T	1	F		SE	10	32	
11/11/14	M	CO	POFF	5.0	8:32	8:34	HS	T	1			S	300	1300	
11/11/14	M	CO	POFF	6.0	8:33	8:36	HS	T	1			N	1000	600	
11/11/14	P	HM	PON	7.0	8:57	8:58	CL		1				10	10	Two individuals, near stern of workboat, spy hopped, and then dove, resurfaced, and swam away towards the fence. They surfaced after vibing has just completed . Saw together, just past fence at 9:48.
11/11/14	P	HM	POST	8.0	9:16	9:17	CL	F	1	M	Adult	NNE	65	105	
11/11/14	B	SE	POFF	9.0	9:21	9:21	HS	F	1						
11/11/14	M	CO	POST	10.0	9:27	9:28	HS	T	1			W	300	1300	
11/11/14	P	HM	POST	11.0	9:47	9:48	CL	F	1	F	Adult	S	30	50	began by foraging, then travelled towards fence.
11/11/14	P	HM	POST	12.0	9:51	9:52	CL	F	1	M	Adult	E	80	95	
11/11/14	P	HM	POST	13.0	10:40	10:55	CL	F	1	F	Adult		400	400	
11/11/14	A	KD	POST	14.0	10:56	10:57	CL	F	1						
11/11/14	A	KD	POST	15.0	11:35	11:36	CL	F	1						
11/11/14	B	SE	POST	16.0	11:43	11:44	CL	F	1						
11/11/14	A	KD	POST	17.0	12:56	12:57	HS	F	2						
11/13/14	P	HT	PRE	1.0	7:00	7:00	CL	H	60						Navy security fence count, 3 male, 5 female, remaining unknown
11/13/14	P	HT	PON	2.0	7:42	7:43	CL	T	1	F	Sub-adult	W	130	130	
11/13/14	P	HT	POFF	3.0	8:08	8:10	CL	T	1			W	135	135	
11/13/14	B	SE	PON	4.0	8:18	8:19	CL	T	1	M	Adult		200	500	
11/13/14	B	GJ	PON	5.0	8:18	8:19	CL	T	1	M	A		200	500	
11/13/14	P	HT	PON	6.0	8:28	8:29	CL	R	2	M	Sub-adult		250	250	
11/13/14	A	MM	PON	7.0	8:29	8:30	HS	T	1		Adult	S	100	1600	
11/13/14	A	MM	PON	8.0	8:29	8:30	HS	T	1		A	S	100	1600	
11/13/14	B	SE	PON	9.0	9:30	9:30	CL	T	1	M	Adult		10	1800	
11/13/14	B	GJ	PON	10.0	9:30	9:31	CL	T	1	M	Adult		10	800	
11/13/14	M	CO	POFF	11.0	13:17	13:18	HS	T	1		Adult	S	300	1400	
11/13/14	M	CO	POFF	12.0	13:17	13:18	HS	T	1		Adult	S	300	1400	
11/13/14	M	CO	POFF	13.0	15:16	15:18	HS	T	1		Adult	SW	800	900	
11/13/14	P	HT	POST	14.0	16:15	16:15	CL	H	79						Navy security fence count, remaining unknown
11/14/14	B	Caleb	PON	1.0	7:28	7:29	HS	T	1		Adult	N	100	500	
11/14/14	P	CO	PON	2.0	7:33	7:34	CL	T	1	M	Adult	S	700	800	
11/14/14	A	HT	PON	3.0	7:34	7:37	HS	R	1		Adult		150	1450	
11/14/14	P	CO	POFF	4.0	7:57	7:58	CL	T	1	M	Adult	S	700	800	

Date	Site	Observer	Activity	Sighting No.	Start Time	End Time	Species	Behavior	No. of Animals	Gender	No. adult, sub-adult, pup	Direction of Travel	Distance to Sighting (m)	Distance from activity (m)	Notes
11/14/14	A	HT	POST	5.0	8:05	8:06	HS	R	1		Adult		30	1400	
11/14/14	P	CO	POFF	6.0	8:08	8:09	CL	T	1	M	Adult	S	400	800	
11/14/14	A	HT	POST	5.1*	8:15	8:17	HS	R	1		Adult		30	1400	
11/14/14	M	MM	POST	7.0	8:37	8:39	CI	T	1	M	Adult	NW	300	800	
11/14/14	B	Caleb	POST	8.0	8:49	8:50	HS	R	1		Adult		100	200	
11/14/14	A	HT	POST	9.0	9:04	9:07	HS	T	1		Adult	W	200	1300	
11/14/14	A	HT	POST	10.0	9:14	9:16	HS	T	1		Adult	W	900	800	
11/14/14	P	CO	POST	11.0	9:37	9:40	HS	T	1			W	500	90	
11/14/14	M	MM	POST	12.0	10:23	10:28	CI	F	1			NE	500	700	
11/14/14	A	HT	POST	13.0	10:36	10:41	CI	F	1				200	1420	
11/14/14	P	CO	POST	14.0	10:43	10:43	CL	F	1				200	240	
11/14/14	P	CO	POST	15.0	10:53	10:55	CL	T	2	M	Adult	S	200	220	
11/14/14	A	HT	POST	16.0	11:12	11:13	HS	T	1		Adult	SW	350	1250	
11/14/14	A	HT	POST	17.0	11:46	11:51	CL	F	1				700	1300	
11/13/14	P	HT	POFF	15.0	16:22	16:22	HS	R	1				300	300	
11/13/14	B	SE	POST	16.0	16:37	16:38	CL	T	1				100	800	
11/13/14	B	GJ	POST	17.0	16:37	16:38	CL	T	1				100	800	
11/13/14	A	MM	POFF	18.0	16:39	16:45	HS	T	1		Adult	NW	300	1250	
11/13/14	A	MM	POFF	19.0	16:39	16:45	HS	T	1		A	NW	300	1250	
11/13/14	B	SE	POST	20.0	16:43	16:44	CL	F	1				100	800	
11/13/14	B	GJ	POST	21.0	16:43	16:44	CL	F	1				100	800	
11/13/14	P	HT	POST	21.0	16:50	16:54	CL	T	2	F		E	60	75	

* Sighting Numbers of X.1, 2, 3, etc. are re-sightings of an individual.

Record No.	Date	Site	Observer	Activity	Start Time	End Time	Total Sighting Time	Sighting No.	Species	Behavior	No. of Animals	Direction of Travel	Distance to Sighting (m)	Distance from activity (m)	In zone	Out zone	Mitigation Action	Notes
1	12/12/14	Bremerton Pier 6	GJ		12:30	12:30	0:00		CL	H	27						none	Navy security fence count
2	12/12/14	Bremerton Pier 6	GJ		15:10	15:10	0:00		CL	H	19						none	Navy security fence count
3	12/15/14	Bremerton Pier 6	GJ		7:51	7:51	0:00		CL	H	38						none	Navy security fence count
4	12/15/14	Bremerton Pier 6	GJ		11:30	11:30	0:00		CL	H	43						none	Navy security fence count
5	12/15/14	Bremerton Pier 6	GJ		12:45	12:45	0:00		CL	H	49						none	Navy security fence count
6	12/15/14	Bremerton Pier 6	GJ		16:50	16:50	0:00		CL	H	23						none	Navy security fence count
7	12/16/14	Bremerton Pier 6	GJ		7:45	7:45	0:00		CL	H	32						none	Navy security fence count
8	12/16/14	Bremerton Pier 6	GJ		11:45	11:45	0:00		CL	H	40						none	Navy security fence count
9	12/16/14	Bremerton Pier 6	GJ		14:15	14:15	0:00		CL	H	44						none	Navy security fence count
10	12/22/14	Bremerton Pier 6	GJ		10:31	10:31	0:00		CL	H	63						none	Navy security fence count
11	12/22/14	Bremerton Pier 6	GJ		13:47	13:47	0:00		CL	H	60						none	Navy security fence count
12	12/22/14	Bremerton Pier 6	GJ	DOFF	15:41	15:52	0:11	1.0	HS	T	1	E	65	65	1		none	
13	12/22/14	Bremerton Pier 6	GJ		16:35	16:35	0:00		CL	H	47						none	Navy security fence count
14	12/23/14	Bremerton Pier 6	GJ		10:01	10:01	0:00		CL	H	31						none	Navy security fence count
15	12/23/14	Bremerton Pier 6	GJ		12:00	12:00	0:00		CL	H	38						none	Navy security fence count
16	12/23/14	Bremerton Pier 6	GJ		14:10	14:10	0:00		CL	H	34						none	Navy security fence count
17	12/24/14	Bremerton Pier 6	GJ		7:50	7:50	0:00		CL	H	36						none	Navy security fence count
18	12/24/14	Bremerton Pier 6	GJ		12:52	12:52	0:00		CL	H	43						none	Navy security fence count
19	1/9/15	Bremerton Pier 6	GJ		7:36	7:36	0:00		CL	H	13						none	Navy security fence count
20	1/9/15	Bremerton Pier 6	GJ	PRE	8:25	8:32	0:07	1.0	HS	T	1	E	10	100	1		none	
21	1/9/15	Bremerton Pier 6	GJ		12:15	12:15	0:00		CL	H	33						none	Navy security fence count
22	1/9/15	Bremerton Pier 6	GJ	PON	13:00	13:11	0:11	1.0	HS	F	1	NNE	60	65	1		none	
23	1/10/15	Bremerton Pier 6	GJ		9:10	9:10	0:00		CL	H	33						none	Navy security fence count
24	1/10/15	Bremerton Pier 6	GJ		12:47	12:47	0:00		CL	H	33						none	Navy security fence count
25	1/10/15	Bremerton Pier 6	GJ	POFF	14:07	14:09	0:02	1.0	CL	T	1	S	45	45	1		none	
26	2/17/15	Bremerton Pier 6	BT		7:35	7:35	0:00		CL	H	7						none	Navy security fence count
27	2/17/15	Bremerton Pier 6	BT		8:05	8:05	0:00		CL	H	7						none	Navy security fence count
28	1/12/15	Bremerton Pier 6	SE		7:41	7:41	0:00		CL	H	37						none	Navy security fence count
29	1/12/15	Bremerton Pier 6	SE		12:06	12:06	0:00		CL	H	36						none	Navy security fence count
30	1/12/15	Bremerton Pier 6	SE		13:30	13:30	0:00		CL	H	36						none	Navy security fence count
31	1/12/15	Bremerton Pier 6	SE		16:40	16:40	0:00		CL	H	34						none	Navy security fence count
32	1/13/15	Bremerton Pier 6	SE	PRE	9:25	9:26	0:01	1.0	HS	T	1	W	80	80	1		none	
33	1/13/15	Bremerton Pier 6	SE		9:32	9:32	0:00		CL	H	30						none	Navy security fence count
34	1/13/15	Bremerton Pier 6	SE	POFF	11:27	11:28	0:01	1.0	HS	T	1	W	117	117	1		none	
35	1/13/15	Bremerton Pier 6	SE	POFF	11:44	11:45	0:01	1.0	CL	F	1	W	20	20	1		none	
36	1/13/15	Bremerton Pier 6	SE		12:17	12:17	0:00		CL	H	34						none	Navy security fence count
37	1/13/15	Bremerton Pier 6	SE		13:00	13:00	0:00		CL	H	32						none	Navy security fence count
38	1/13/15	Bremerton Pier 6	SE	POST	15:36	15:37	0:01	1.0	HS	T	1	W	117	117	1		none	
39	1/14/15	Bremerton Pier 6	SE	PRE	7:31	7:32	0:01	1.0	CL	T	1	M	75	75	1		none	
40	1/14/15	Bremerton Pier 6	SE		7:41	7:41	0:00		CL	H	19						none	Navy security fence count
41	1/14/15	Bremerton Pier 6	SE	POFF	8:54	8:55	0:01	1.0	CL	T	1	W	85	85	1		none	
42	1/14/15	Bremerton Pier 6	SE	POFF	10:17	10:18	0:01	1.0	CL	T	1	W	110	110	1		none	
43	1/14/15	Bremerton Pier 6	SE		11:53	11:53	0:00		CL	H	12						none	Navy security fence count
44	1/10/15	Bremerton Pier 6	SE		10:31	10:31	0:00		CL	H	12						none	Navy security fence count
45	1/10/15	Bremerton Pier 6	SE		13:00	13:00	0:00		CL	H	11						none	Navy security fence count
46	1/10/15	Bremerton Pier 6	SE		17:30	17:30	0:00		CL	H	10						none	Navy security fence count
47	2/11/15	Bremerton Pier 6	SE		8:08	8:08	0:00		CL	H	8						none	Navy security fence count
48	2/11/15	Bremerton Pier 6	SE		9:28	9:28	0:00		CL	H	8						none	Navy security fence count
49	2/11/15	Bremerton Pier 6	SE		14:50	14:50	0:00		CL	H	10						none	Navy security fence count
50	2/11/15	Bremerton Pier 6	SE		16:00	16:00	0:00		CL	H	15						none	Navy security fence count
51	2/12/15	Bremerton Pier 6	SE		9:31	9:31	0:00		CL	H	9						none	Navy security fence count

Record No.	Date	Site	Observer	Activity	Start Time	End Time	Total Sighting Time	Sighting No.	Species	Behavior	No. of Animals	Direction of Travel	Distance to Sighting (m)	Distance from activity (m)	In zone	Out zone	Mitigation Action	Notes
52	2/12/15	Bremerton Pier 6	SE		12:52	12:52	0:00		CL	H	12						none	Navy security fence count
53	2/12/15	Bremerton Pier 6	SE		16:27	16:27	0:00		CL	H	14						none	Navy security fence count
54	2/13/15	Bremerton Pier 6	SE		9:46	9:46	0:00		CL	H	17						none	Navy security fence count
55	2/13/15	Bremerton Pier 6	SE		12:22	12:22	0:00		CL	H	18						none	Navy security fence count
56	2/13/15	Bremerton Pier 6	SE		14:20	14:20	0:00		CL	H	17						none	Navy security fence count
57	2/13/15	Bremerton Pier 6	SE		17:17	17:17	0:00		CL	H	16						none	Navy security fence count
58	2/17/15	Bremerton Pier 6	BT		7:29	8:35	0:00		CL	H	7						none	Navy security fence count

Key to Abbreviations

Type	Code	Code Explained
Monitoring Location	P	Pier 6, Ktsap Naval Base, Bainbridge, WA
Monitoring Location	M	Manette Bridge, Bainbridge, WA
Monitoring Location	A	Annapolis Pier, Port Orchard, WA
Monitoring Location	B	Boat
Observer	GJ	Glen Johnson
Observer	SE	Sue Ehler
Observer	HT	Heather Tabisola
Observer	KD	Keith Doran
Observer	CO	Caitlin Obrien
Observer	MM	Molly McCormly
Observer	Ted	Ted Gaitlin
Observer	Caleb	Caleb Cowles
Activity	PON	Pile Driver On and/or Intermittent Pile Driving Time On
Activity	POFF	Pile Driver Off and/or Intermittent Pile Driving Time Off
Activity	PRE	Pre Watch
Activity	POST	Post Watch
Activity	M-SD	Mitigation Shutdown
Species Code	DP	Dall's porpoise
Species Code	GW	Grey whale
Species Code	HB	Humpback whale
Species Code	HP	Harbor porpoise
Species Code	HS	Harbor seal
Species Code	KW	Killer whale
Species Code	MW	Minke whale
Species Code	SL	Stellar sea lion
Species Code	CL	California sea lion
Species Code	SO	Sea otter
Species Code	UMM	Unidentified marine mammal
Species Code	UP	Unidentified pinniped
Visibility	B	Bad
Visibility	P	Poor
Visibility	M	Moderate
Visibility	G	Good
Visibility	E	Excellent
Behavior	T	Travelling
Behavior	F	Foraging
Behavior	R	Resting
Behavior	H	Haul out
Effort: Source Activity	VE	Vibratory Extraction
Effort: Source Activity	DP	Dead Pull

Appendix C – Data Sheets

Aircraft Carrier 11/5 10:00 PM

John C. Stennis

Marine Mammal Observation Form
Northwest Environmental Consulting

Glenn Johnson

Observer: Keith P. Dorn

Date: 11/4/14 → 11/5 Monitoring Location: Pier 6/Buena Vista #1 = 3 (Stairs)

Activity	Lighting (L.S. or P.S.)	Time of Beginning of Activity	End of Activity	Species	Behavior	Number of Animals	Number of Animals	No. adult, sub-adult, pup	Direction of Travel	Distance to Hauling	Distance from activity	Notes (prev. environmental conditions including cloud cover, visibility, barometric data, and time at start of shift and note significant changes record if animals are tagged or marked, react to construction activity, or other observations including other activities in area. Use multiple lines if needed)	
PRE	1.0	13:32	13:33	CS	H	80						Deck start, worked out on buoy	
POST	1.1	16:30	16:31	CS	H	40						End	
PRE	1.0	07:00	07:01	CS	H	24						100% cloud cover, light wind SW	
ION	1.1	07:36	07:57	CS	H	34						View start, individual change position and are resting on buoy.	
POST	1.2	8:15	9:16	CS	H	28						changing position / Police Boat Big whale.	
POST	1.3	8:22	9:23	CS	T	1			SW	168'	172'	Traveled S.W. out of site	
POST	Rest	2.0	9:57	10:00	HS	R	1	?	?	NE	110'	205'	
POST	Post	2.1	10:15	10:16	HS	T	1		SW				
POST	Post	1.2	11:10	11:11	CS	T	1		SW	108'			
POST	Post	1.0	16:00	16:00	CS	H	28			200'	150'	End - resting on buoy - hauled out	
PRE	1.0	07:00	07:01	CS	H	48				200'	150'	Start	
POST	1.0	16:30	16:30	CS	H	25				200'	150'	End	

Activities: P-ON Pile Drive On, PRE Pre Wash, POST Post Wash, M-SD Midgetton Shutdown - note time when banner starts and comes off pile, not intermediate working of pile.
Species List: EP Dall's Porpoise, GW Gray Whale, HB Humpback Whale, HP Harbor Porpoise, HS Harbor Seal, RW Killer Whale, MW Minke Whale, SL Steller Sea Lion, SO Sea Otter, LHM Unidentified Marine Mammal, EP Unidentified Pinniped.
Sighting: B Red (+0.5km), P Poor (0.5 - 1.5km), M Moderate (1.5 - 10km), G Good (10-25km), E Excellent (>10km)
Sighting: If the same animal is seen on multiple occasions use the 1, 1, etc. Each new animal should be done sequentially.
Behavior: T Transient, F Foraging, R Resting, H Hauled Out

Video Time = 07:36 ✓
- 08:05 Stop ✓

Bird Sighting
Pigeon Cormorant
Pigeon Gull

Verlend HRM

Marine Mammal Observation Form
Northwest Environmental Consulting

Observer: SE

Date: 11/5/14

Monitoring Location:

Bremerton

Pier 6

Page 1

Activity	Beginning (L.O. or L.S. for sighting)	End of Sighting or Activity	Species	Behavior	Number of Animals	Gender of Animal	No. adult, imm-adult, year	Direction of Travel	Distance to Sighting	Distance from Visibility	Notes (record environmental conditions including cloud cover, visibility, sea/air temp, and time at start of shift and note significant changes) record if animals are tagged or marked, read in construction activity, or other observations including other activities in area. Use multiple lines if needed.
	7:20	7:20	VC								
V	7:20	7:30									
V	7:40	7:40									
V	7:54	7:54									
V	7:55	7:55									
V	7:55	7:55									
V	8:05	8:05									
POST	9:09										Putting vice hammer on barge deck

change
✓

Activity: PON File Drive On; PRE File Read; POST File Write; M-ED Mitigation Shutdown - note time when shutdown starts and comes off job, and interruptible volume of job.
 Species Code: SP Dall's Porpoise; GR Gray Whale; BB Humpback Whale; BP Harbor Porpoise; BS Harbor Seal; KW Killer Whale; MW Minke Whale; SE Steller Sea Lion; SO Sea Otter.
 ERM Unidentified Marine Mammal; EP Unidentified Pinniped.
 Visibility: 0 Bad (<0.5km); P Poor (0.5 - 1.5km); M Moderate (1.5 - 10km); G Good (10-25km); E Excellent (>25km)
 Sightings: If the same animal is seen on multiple occasions use the T, etc. Each new animal should be done separately.

→ PON - duration?
POST - 30m total?

Marine Mammal Observation Form
Northwest Environmental Consulting

Observer: CATHY GRIEN Date: 11/5/14 Monitoring Location: MANITO Page 1 of 1

Activity	Lighting (L.O or L.L for night)	Time of sighting or activity	End of sighting or activity	Species	Behavior	Number of Animals	Gender of Animal	No. adult, sub-adult, pup	Direction of Travel	Distance to sighting	Distance from activity	Notes (Record environmental conditions including cloud cover, visibility, temperature, and time at start of shift and note significant changes); record if animals are tagged or marked, react to construction activity, or other observations including other activities in area. Use multiple lines if needed.
PRE	1.0	0754	0756	HS	T	1	-	-	N	200m	1600m	
HFE	1.0	0957	1001	HS	T	1	-	-	N	100m	1700m	
PRE	1.1	1004	1019	HS	F	1			-	900m	900m	
POST	1.0	1213	1225	HS	T	1	-	-	N	700m	1100m	
PRE	1.0	1418	1420	HS	T	1	-	-	S	700m	1100m 600m	1200m
PRE	1.0	1500	1545	DSL	T	1	M	A	SW	700	1600	

Activity: P ON Pile Drive On; PRE Pre Wash; POST Post Wash; M-SD Migration Shutdown; note time when banner starts and comes off pile, and intermittent striking of pile.
 Species Code: DP Dall's Porpoise; CW Gray Whale; BB Humpback Whale; BP Harbor Porpoise; BS Harbor Seal; NW Killer Whale; MW Minke Whale; SL Stellar Sea Lion; NO Sea Otter.
 CMM Unidentified Marine Mammal; UF Unidentified Pinniped.
 Visibility: B Best (<10km); F Poor (1.7 - 10km); M Moderate (1.3 - 10km); G Good (10-15km); E Excellent (>15km).
 Distances: if the same animal is seen on multiple occasions use the L.L., etc. Each new animal should be done sequentially.
 Behavior: T Transient; F Foraging; R Resting; B Boat Out.

0700-1200
1215-
R50

VISIBILITY
P/LA/B3 0700
G/B2/B3 0700
E/B2 0730
M/B3/M 1100
MIP 1130

Co Tide
45-48 H 40-44
90%
70%
85% ↑
90% ↑

High: 4.75/1545 12.34
Low: 4.79 @ 10:30am
surf scower
edge
D. Goldeneye
♀ Gull
Corm

Marine Mammal Observation Form
Northwest Environmental Consulting

Observer: HM Date: 06 NOV

Monitoring Location: A

Page 1 of

Activity	Lighting (L1 or L2 for night)	Time of sighting or activity	End of sighting or activity	Species	Behavior	Number of animals	Number of animal	No. adult, sub-adult, pup	Direction of travel	Distance to sighting	Distance from activity	Notes (record environmental conditions including cloud cover, visibility, weather date, and time of day; and note significant changes) record if animals are tagged or marked, react to construction activity, or other observations including other activities in area. Use multiple lines if want.
PRE	1.0	0748	0750	HS	T	1	?	A	Ø	90m	150m	NTN
PRE	1.1	0749	0750	HS	R	1	?	A	Ø	90m	150m	possible - some individual, could be same as of continued activity at surface. 100m birds
PRE	2.0	0830	0831	HS	R	1	-	A	Ø	40m	140m	
PRE	2.1	0847	0850	HS	R	1	?	A	Ø	30m	145m	prec receipt. Raising high. surf activity!!
PRE	2.2	0858	0859	HS	R	1	?	A	Ø	15m	140m	photo/video
PRE	3.0	1005	1006	HS	R	1	-	A	Ø	80m	140m	off boat
PRE	4.0	1058	1101	HS	R	1	-	A	Ø	200m	140m	unknown if same - too long of sightings
PRE	5.0	1418	1419	HS	R/F	1	-	A	Ø	10m	140m	agitation, surface or diving behavior, continued. 70m (see 0748/10) again the animal in case - 200m (see 0748/10)
PRE	6.0	1630	1631	HS	R	1	?	A	Ø	5m	150m	raising off surface!! R2/1 (see 0748/10)

Activity: F/N Pig Diver Or PRE Pig Whisk PORE Pig Whisk M-SD Merganser Shallows - note time when behavior starts and ends of pig, not intermediate ending of pig
Species Code: BP Owl's Porpoise GM Gray Whale HB Humpback Whale HP Harbor Porpoise HS Harbor Seal KW Killer Whale MW Minke Whale NL Harbor Seal Lion SO Sea Otter
L NM Unidentified Marine Mammal LP Unidentified Pinniped
Visibility: Ø Bad (0-100m) P Poor (100-1000m) M Moderate (1000-10000m) G Good (10000-100000m) E Excellent (>100000m)
Behavior: T Trailing F Flapping R Resting H Head Up
Behavior: T Trailing F Flapping R Resting H Head Up

PRE also used for any disruptive activity

NTN - no tag noted

- pig diving/removal, just using chains (no vibing)

Marine Mammal Observation Form
Northwest Environmental Consulting

Observer: Molly McManus Date: 11/6/14

Weathering Location: manette Page 1 of 1

See instructions on the back of this form for details.

Activity	Lighting (1.0 or 1.1 for daylight)	Time of Sighting or Activity	End of Sighting or Activity	Species	Behavior	Number of Animals	Gender of Animal	No. adult, sub-adult, pupa	Direction of Travel	Distance to Sighting	Distance from Vessel	Notes (Record environmental conditions including cloud cover, visibility, sea/air state, and time at start of shift and note significant changes) Record if animals are tagged or marked, reason for construction activity, or other observations including other activities in area. Use multiple lines if needed.
PRE	1.0	1000	1002	CSL	F	1	F	A	SW	800m	1500m	
<u>11/7/14</u>												
PRE	1.0	0713	0714	HS	T	1	-	A	W	300m	1700m	pg 1 of
POW	1.0	0427	0435	CSL	BT	1	-	A	S	500m	1000m	
POW	1.0	0450	0453	CSL	T	1	M	A	S	250m	1600m	gradually moved closer to site activity
POW	1.0	0803	0811	CSL	T	2	M	A	SW	200m	1500m	" "
POW	1.0	0813	0815	CSL	T	1	M	A	SW	800m	1500m	" "
POW	1.0	0818	0825	CSL	R	1	M	A	SW	850m	1600m	started T
POW	1.0	0823	0829	CSL	T	1	M	A	SW	850m	1500m	
POW	1.0	0825	0827	CSL	F	1	-	A	SW	800m	1000m	
POST	1.1	0834	0835	CSL	T	1	M	A	SW	800m	1400m	same as foregoing above
POST	1.0	0836	0844	CSL	T	1	M	A	SW	900m	1400m	
PRE	1.0	0918	0923	CSL	T	1	M	A	SW	800m	1500m	
POW	1.0	0923	0927	CSL	T	1	M	A	S	800m	1400m	

Activities: POW Pile Drive On, PRE Pile Wash, POW Pile Wash, M-SH Mitigation Shutdown - note time when hammer starts and stops off pile, see instrument setting of pile

Species Code: DP Dall's Porpoise, GW Gray Whale, HB Humpback Whale, HP Harbor Porpoise, HS Harbor Seal, NW Killer Whale, MW Minke Whale, SE Sperm Whale, SS Sea Lion, SI Sea Otter

1 UNK Unidentified Marine Mammal, 1P Unidentified Pinniped

Visibility: N None (< 1 km), P Poor (1.5 - 1.9 km), M Moderate (2.0 - 2.9 km), G Good (3.0 - 3.9 km), E Excellent (> 4 km)

Distances: If the same animal is seen on multiple occasions use the 1.1, etc. Each new animal should be done separately.

Behavior: T Transient, F Foraging, R Resting, H Head Out

at 9:27 picking up hammer

- Jelly (E3)
 - Pigeon guillemot
 - prunage

Marine Mammal Observation Form
 Northwest Environmental Consulting

Observer: HM Date: Monitoring Location: Page 1b of

Activity	Lighting I.L. or S.L. for (month)	Time of sighting or activity	End of sighting or activity	Species	Behavior	Number of animals	Gender of animal	No. adult, sub-adult, pup	Direction of travel	Distance to sighting	Distance from activity	Notes (Record environmental conditions including cloud cover, visibility, sea/ice state, and time of start of shift and note significant changes) record if animals are tagged or marked, note all construction activity, or other observations including other activities in area. Use multiple lines if needed.
PON		1000	1004	/								1000, 1004, 1003 - local
PON		1002	1002	HS	T	1	A		N	300m	300m	traveling quickly, quick breath @ surface
PON		1004	1007	CL	F	1	SA	F		250m	200m	milling/foraging - several splashes then not traveling ^{making out - 10m away}
PON		1006	1008	/								1006 - 1008
PON		1010	1012	/								100 - 1012
PON		1014	1019	/								1014, 1016, 1016 - 1019
90	POST	1026	1029	CL	T	1	M SA		N	25m	35m	came to check area out and then ^{away}
PON		1048	1049	/								1048 - 1049
90	POST	1045	1050	HS	T	1	A		N	300m	350m	trav. @ surface until boat came along
PON		1051	1055	/								1051 - 1053, 1054 - 1055
PON		1100	1101	/								1100 - 1101
PON		1104	1105	/								1104, 1105
PON		1107	1110									1107 - 1110
PON		1112	1114									1112 - 1114

LOFF
 LOFF

making out - 10m away
 making out - 10m away

Activity: PON Pile Driver On, PWE Pile Wash, PCSE Pile Wash, M-50 Mitigation Shutdown - note time when hammer starts and comes off pile, not necessarily working of pile
 Species Code: DP Del's Porpoise, CW Orca, WH Humpback Whale, HP Harbor Porpoise, GS Harbor Seal, NW Killer Whale, NW Humpback Whale, SL Steller Sea Lion, SO Sea Otter
 ILM Underfilled Marine Mammal, EP Underfilled Porpoise
 Yearling: B (0-10km), P (10-15km), M (15-20km), C (20-25km), E (25-30km), S (30-40km)
 Sighting: if the same animal is seen on multiple occasions use the I.L. etc. Each new animal should be done separately
 Behavior: T Traveling, F Foraging, R Resting, H Head Out
 CL - col sea lion

Marine Mammal Observation Form
Northwest Environmental Consulting

Observer: Molly Date: 11/7/14 Monitoring Location: port ochotski Page 1 of

Activity	Lighting (L.O or S.L for night)	Time of Sighting or Activity	End of Sighting or Activity	Species	Behavior	Number of Animals	Number of Animal	No. adult, sub-adult, pup	Direction of Travel	Distance to sighting	Distance from activity	Notes (Record environmental conditions including cloud cover, visibility, sea/air temp, and time of start of shift and note significant changes) record if animals are tagged or marked, react to construction activity or other observations including other activities in area. Use multiple rows if needed.	
PFE	PON	1.0	1340	1342	CLS	T	1	M	SA	SW	140m	200m	
PFE	PON	1.0	1344	1348	HS	T	1	-	A	NE	100m	140m	
PFE	PON	1.1	1353	1354	HS	T	1	-	A	NE	300m	170m	
PFE	PON	1.0	1407	1409	CLS	T	1	M	A	SW	170m	30m	
PFE	PON	1.0	1413	0000	HS	R	1	-	A	W	25m	150m	1417 end of sighting
PFE	1.1	1435	1437	HS	F	1	-	A	SW	40m	150m		
PFE	1.1	1500	1509	HS	F	1	-	A	NE	25m	150m		
PFE	1.1	1514	1520	HS	F	1	-	A	NE	150m	160m		
PFE	1.0	1525	1526	HS	F	1	-	A	SW	20m	130m		
PFE	1.1	1526	1527	HS	F	1	-	A	N	25m	160m	same as #1406 before	
PFE	1.0	1536	1537	HS	F?	1	-	A	SW	50m	150m	heavily pumping anchor	
PFE	1.1	1543	1545	HS	T	1	-	A	NE	25m	150m		

Activity: PON Pile Driver On, PFE Pile Wash, PONT Pile Wash, M-ND Manganese Shutdown - note time when banner starts and comes off pile, not intermittent striking of pile
Species Code: EP Dall's Porpoise, GW Gray Whale, HB Humpback Whale, HP Harbor Porpoise, HS Harbor Seal, NW Killer Whale, NW Minke Whale, SE Steller Sea Lion, SO Sea Otter, UM Unidentified Marine Mammal, UP Unidentified Pinniped
Behavior: B Feed (0-3) P Fluke (0-1) Nave M Migrate (1, 1 - 10km) G Good (10-25km) E Eucalene (1-25km)
Sighting: If the same animal is seen on multiple occasions use the 1, 1, etc. Each new animal should be done separately
Behavior: T Traversed F Flunging R Resting B Fluke Out

Marine Mammal Observation Form
Northwest Environmental Consulting

Observer: Molly Mcdermley Date: 11/7/10 Monitoring Location: Marlette Page 2 of 2

Use separate sheets for multiple sightings.

Activity	Beginning (L.O. or T.L. No. Complete)	Time of Beginning of Activity	End of Sighting of Activity	Species	Behavior	Number of Animals	Gender of Animal	No. adult, sub-adult, pup	Direction of Travel	Distance to Sighting	Distance from Project	Notes (Record environmental conditions including cloud cover, visibility, surf/swell state, and time at start of shift and note significant changes); record if animals are tagged or marked, need to construction activity, or other observations including other activities in area. Use multiple lines if needed.
PON	L.O	0936	0937	CCL	T	1	M	SA	SW	100m	1700m	
PON	L.O	0944	0948	CSL	T	1	M	A	SW	400m	1600m	
PON	L.O	0952	0959	CSL	F	1	M	A	SW	800m	1600m	
PCN	L.O	0957	0958	HS	T	1	-	A	W	700m	800m	
PON	L.O	1021	1023	CLS	T	1	M	A	SW	800m	1500m	
POST	L.O	1025	1026	HS	R	1	-	A	S	1000m	1600m	
POST	L.O	1026	1027	CS	T	1	-	A	SW	1000m	1700m	
POST	L.O	1032	1040	CLS	T	1	M	A	SW	1000m	900m	
PON	L.O	1047	1050	HS	T	1	-	A	NW	1800m	1800m	
PON	L.O	1108	1111	CLS	T	2	M	A	W	500m	1500m	
PON	L.O	1115	1120	CLS	F	1	M	A	W	400m	1500m	
PON	L.O	1133	1135	CS	F	1	M	A	SW	900m	1400m	
POST	L.O	1150	1201	CS	T	1	M	A	SW	200m	1600m	
POST	L.O	1205	1210	HS	T	1	-	A	S	400m	1600m	

Activity: P ON Pile Driver On; PRE Pile Wash; POST Pile Wash; M-SD Mitigation Shutdown - note time when mitigation starts and stops off pile, and intermediate stopping of pile.
Species Code: DP Del's Porpoise; GR Gray Whale; HW Humpback Whale; HP Harbor Porpoise; HS Harbor Seal; KW Killer Whale; MW Minke Whale; SE Steller Sea Lion; SO Sea Otter; UNM Unidentified Marine Mammal; UP Unidentified Porpoise.
Y (Abundance): N Neg (<0.5km); P Poor (0.5 - 1.0km); M Moderate (1.0 - 10km); G Good (10-20km); E Excellent (>10km)
Sex: If the sex of animal is seen on multiple occasions use the L, I, etc. Each sex animal should be done separately.
Behavior: T Transient; F Foraging; R Resting; N Head Out

begin 0700 -

WX BCL, 99% ch; E vs, 4 Tides (9 out)

Marine Mammal Observation Form
Northwest Environmental Consulting

Observer: HM/SO Date: 07 Monitoring Location: P Page: A = 2A

Activity	Lighting (1.0 or 1.1 for night)	Time of Sighting or Activity	End of Sighting or Activity	Species	Behavior	Number of Animals	Gender of Animal	No. adult, sub-adult, pup	Direction of Travel	Distance to Sighting	Distance from Activity	Notes (Record environmental conditions including cloud cover, visibility, surf/swell state, and tide at start of shift and note significant changes; record if animals are tagged or marked, refer to observation activity, or other observations including other activities in area. Use multiple lines if needed.)
* 10P	0700 -	0704 (checked)										* Ann Count (78) haul out
pc	0709	0709	0713	CL	T	①	F	A	W	40m	45m	moving along at surface along fence
pc	0710	0710	0713	CL	RT	②	A	A	W	45m	45m	Aspirated 3 F/AI in the taking force
pc	0710	0710	0710	CL	R		A	A	W	50m	55m	just on other side of fence
PON	0713	0713		-	-							soft surf (whumpers)
PON	0724	0724		-	-							brief vib. stop [0719, 0720-0721, 0722, 0723-0724, 0742, 0743, 0744]
PON	0720	0720		-	-							0720, 0749, 0750, 0753
PON	0708	0709										0708-0709
off 9.0 RST	0710	0712	0712	CL	T	1	A	E	W	50m	55m	mostly hanging on fence, heading E
PON	0712	0713										0712-0713 (RST: 0713-0743 cont)
PON	0716	0716										0716 (10-55)
PON	0719	0725										0719-0720, 0721, 0723, 0724, 0725 cont
PON	0727	0727										0727-0728

if there is any possibility

0742, 0743, 0744

off

Activity: P ON Pile Drive On; PRE Pile Wash; PONT Pile Wash; M-SD Integrate Showdown - note time when batteries start and come off pile, see intermittent working of pile
 Species Code: DP Dall's Porpoise; CW Gray Whale; HB Humpback Whale; HF Harbor Porpoise; HS Harbor Seal; HW Killer Whale; MW Minke Whale; NL Steller Sea Lion; NO Sea Otter
 E-MN Unidentified Marine Mammal; LP Unidentified Pinniped
 Visibility: 0 (0-0.5km) P Poor (0.5-1.0km) M Moderate (1.1-10km) G Good (10-15km) E Excellent (>15km)
 Sighting: If the same animal is seen on multiple occasions use the 1, 1, etc. Each new animal should be done separately.
 Behavior: T Trapped; F Feeding; R Resting; H Hauled Out

ON: 78
OFF: 286-6 at any time

4/0
100

1185 - 1212
1300 - 1345

1120 (w/ 1185) 1125 (w/ 1185) present
(w/ kept inside hammer)

Marine Mammal Observation Form
Northwest Environmental Consulting

Observer: HM Date: 07 NOV Monitoring Location: Pier Page 2a of

Activity	Signaling (L or R or weight)	Time of Sighting or activity	End of Sighting or activity	Species	Behavior	Number of Animals	Gender of Animal	No. adult, sub-adult, pup	Direction of Travel	Distance to sighting	Distance from activity	Notes (report environmental conditions including cloud cover, visibility, surfnet state, and time at start of shift and note significant changes) record if animals are tagged or marked, read in, construction activity, or other observations including other activities in area. Use multiple lines if needed.
	TON	1116	1120	/								1116, 1117, 1119-1120
180	TON	1116	1117	CL	T	1	#	A		130m	4:50m	surfnet high, line feeding, then moved to fence (R)
	TON	1122	1125	/								1122-1125
	TON	1128	1131	/								1128-1131
1180	TON	1130	1133	CL	T	2	M	SA	✓	10m	50m	end of pier 1183 heard to fence area 1185 heard at pier - last monitoring etc.
	TON	1135	1139	/								1135-1136, 1137-1139
	TON	1141	1142	/								1141-1142 (30 min - 1212)
120	POST	1200	-	CL	H	76	M	SA	/	/	/	76 hauled out, 2 in H ₂ O w/ SA
150	PRE	1300	-	CL	H	79	M	SA	/	/	/	79 hauled out, 2 in H ₂ O w/ SA
190	PRE	1331	1335	CL	T	2	M	A	S	300m	30m	
180	PRE	1419	1420	CL	F	1	M	A	/	45m	45m	
180	PRE	1541	-	CL	H	96	M	SA	/	/	/	51209 glare + 0 20-22-74 = 96

120-180

Activity: TON Tug Driver On, PRE Pre Watch, POST Post Watch, SA-SD Migration Shutdown - note time when hammer starts and comes off pile, not intermittent striking of pile.
Species Code: BP Dall's Porpoise, CW Gray Whale, HB Humpback Whale, HP Harbor Porpoise, HS Harbor Seal, LW Killer Whale, MW Minke Whale, SL Steller Sea Lion, SO Sea Otter.
© NEM Unidentified Marine Mammal, EP Unidentified Phocid
Abundance: N (0-1), R (1-2), P (2.5-1.5), M (1.5-10), G (10-25), E (25-100), F (100-500), H (500-1000), V (1000-5000), I (5000-10000), O (10000-50000), U (50000-100000), X (100000-500000), Y (500000-1000000), Z (1000000-5000000), AA (5000000-10000000), AB (10000000-50000000), AC (50000000-100000000), AD (100000000-500000000), AE (500000000-1000000000), AF (1000000000-5000000000), AG (5000000000-10000000000), AH (10000000000-50000000000), AI (50000000000-100000000000), AJ (100000000000-500000000000), AK (500000000000-1000000000000), AL (1000000000000-5000000000000), AM (5000000000000-10000000000000), AN (10000000000000-50000000000000), AO (50000000000000-100000000000000), AP (100000000000000-500000000000000), AQ (500000000000000-1000000000000000), AR (1000000000000000-5000000000000000), AS (5000000000000000-10000000000000000), AT (10000000000000000-50000000000000000), AU (50000000000000000-100000000000000000), AV (100000000000000000-500000000000000000), AW (500000000000000000-1000000000000000000), AX (1000000000000000000-5000000000000000000), AY (5000000000000000000-10000000000000000000), AZ (10000000000000000000-50000000000000000000), BA (50000000000000000000-100000000000000000000), BB (100000000000000000000-500000000000000000000), BC (500000000000000000000-1000000000000000000000), BD (1000000000000000000000-5000000000000000000000), BE (5000000000000000000000-10000000000000000000000), BF (10000000000000000000000-50000000000000000000000), BG (50000000000000000000000-100000000000000000000000), BH (100000000000000000000000-500000000000000000000000), BI (500000000000000000000000-1000000000000000000000000), BJ (1000000000000000000000000-5000000000000000000000000), BK (5000000000000000000000000-10000000000000000000000000), BL (10000000000000000000000000-50000000000000000000000000), BM (50000000000000000000000000-100000000000000000000000000), BN (100000000000000000000000000-500000000000000000000000000), BO (500000000000000000000000000-1000000000000000000000000000), BP (1000000000000000000000000000-5000000000000000000000000000), BQ (5000000000000000000000000000-10000000000000000000000000000), BR (10000000000000000000000000000-500000000000000000000000000000), BS (50000000000000000000000000000-1000000000000000000000000000000), BT (100000000000000000000000000000-5000000000000000000000000000000), BU (500000000000000000000000000000-10000000000000000000000000000000), BV (1000000000000000000000000000000-50000000000000000000000000000000), BV (1000000000000000000000000000000-50000000000000000000000000000000), BW (5000000000000000000000000000000-100000000000000000000000000000000), BX (10000000000000000000000000000000-500000000000000000000000000000000), BY (50000000000000000000000000000000-1000000000000000000000000000000000), BZ (100000000000000000000000000000000-5000000000000000000000000000000000), CA (500000000000000000000000000000000-10000000000000000000000000000000000), CB (1000000000000000000000000000000000-50000000000000000000000000000000000), CC (5000000000000000000000000000000000-100000000000000000000000000000000000), CD (10000000000000000000000000000000000-500000000000000000000000000000000000), CE (50000000000000000000000000000000000-1000000000000000000000000000000000000), CF (100000000000000000000000000000000000-5000000000000000000000000000000000000), CG (500000000000000000000000000000000000-10000000000000000000000000000000000000), CH (1000000000000000000000000000000000000-50000000000000000000000000000000000000), CI (5000000000000000000000000000000000000-100000000000000000000000000000000000000), CJ (10000000000000000000000000000000000000-500000000000000000000000000000000000000), CK (50000000000000000000000000000000000000-1000000000000000000000000000000000000000), CL (100000000000000000000000000000000000000-5000000000000000000000000000000000000000), CM (500000000000000000000000000000000000000-100), CN (1000000000000000000000000000000000000000-500), CO (5000000000000000000000000000000000000000-1000), CP (100-5000), CQ (500-100), CR (1000-500), CS (5000-1000), CT (100-5000), CU (500-100), CV (1000-500), CW (5000-1000), CX (100-5000), CY (500-100), CZ (1000-5000),

START → 7:00

Marine Mammal Observation Form
Northwest Environmental Consulting

Observer: Keith Down

Date: 11/2

Monitoring Location: Annapolis/Cottus Pt

Page 1 of 2

Activity	Lighting 11.5 or 1.1 for height	Time of Sighting or activity	End of Sighting or activity	Species	Behavior	Number of Animals	Gender of Animal	No. adult, sub-adult, juvs	Direction of Travel	Distance to sighting	Distance from activity	Notes (report environmental conditions including cloud cover, visibility, sea/air temp, and time at start of shift and note significant changes) record if animals are tagged or marked, note all construction activity, or other observations including other activities in area. Use multiple lines if needed.
I-off PCH	1.0	8:17	8:20	CS	T	1	?	?	E	300'		
PCH	2.0	7:22	7:28	HS	T	1	?	?	E	500'		
I-off PCH	3.0	9:58	9:59	HS	F	1	?	?	N	1.0m		feeding very voraciously
PCH	4.0	10:32	10:55	HS	F	1	?	?	W	1.50m		Hardly breathes looks like / soon down Tance Bay *
PCH	5.0	10:57	10:58	HS	T	1			W	75'	1.50m	very fast
PCH	6.0	11:55	11:56	HS	T	1			E	1.50m		
PCH	7.0	12:06	12:06	HS	T	1			E	300'	12.0m	

Activity: P-ON Fly Over On; PCH Fly Watch; PCH Fly Watch; M-50 Mitigation Shutdown - note time when banner starts and comes off job, not intermittent ending of job.
Species Code: DP Dad's Puppie; CM Gray Whale; BB Humpback Whale; BP Harbor Porpoise; BS Humpback Seal; KW Killer Whale; NW Minke Whale; SL Saddle Fin; NI Sea Otter.
CMM Unidentified Marine Mammal; UF Unidentified Pinniped.
Visibility: B Bad (< 1/2 mile); F Fair (1/2 - 1.25 miles); M Moderate (1.5 - 10 miles); G Good (> 10 miles); E Excellent (> 10 miles).
Sightings: If the same animal is seen on multiple occasions use the 1.1, etc. Each new animal should be done separately.
Behavior: T Transient; F Foraging; R Resting; H Head Out.

A = Annapolis
 M = Manette
 B = Boat
 P = Pier 6

11/11
 started 7:00 → 2:15

Marine Mammal Observation Form
 Northwest Environmental Consulting

clear + sunny

Observer: KPD 2400 Date: 11/11/14 Monitoring location: Pointe (M) (M) Page 1 of 1

Loc.	Activity	Lighting (L or L2 for night)	Time of sighting or activity	End of sighting or activity	Species	Behavior	Number of animals	Number of calves	No. adult, sub-adult, pup	Direction of travel	Distance to sighting	Distance from activity	Notes (ground environmental conditions including wind speed, visibility, wavelet state, and time at start of shift and note significant changes) Record if animals are tagged or marked, feed to construction activity or other observation including other activities in area. Use multiple lines if needed.
A	PRE		7:00		None								No more sightings / clear + windy
B	CL	1	07:14		CL	F	1	?	?	?	400'	300'	300m east of CE pier barge outside of fence.
B			7:16										interaction vibrating
B	Post	2	9:21	9:11	HS	F	1	?	?	?	3'	400'	start sighting -
A	Post	3	10:36	10:37	CL	F	1	?	?	E	600'	1100'	Feeding on fish
A	Post	4	11:35	11:36	CL	F	1	?	?	E	500'	1700'	Feeding / gulls are mobbing etc
A	Post	5	12:56	12:57	HS	F	2	?	?	?	100'	1500'	Popper sp. west of pier
B	Post		11:03		CL	F	1				200'	1900'	

I, OFF
 Post
 Post
 Post
 Post

Activity: F ON Fish Drive On FNE Fish Watch POST Post Watch M-BB Mitigation Standdown - note time when banner starts and covers off pile, see instructions on back of job.
 Species Code: DP Dolphin Porpoise GW Gray Whale MB Humpback Whale NP Harbor Porpoise BS Harbor Seal NW Killer Whale MP Minke Whale BL Buller Sea Lion BO Sea Otter
 CMM Unidentified Marine Mammal CP Unidentified Pinniped
 Visibility: B Bad (<0.5km) F Fair (0.5 - 1.0km) M Moderate (1.1 - 10km) G Good (>10km) E Excellent (>10km)
 Sightings: If the same animal is seen on multiple occasions use the 1, 2, etc. Each new animal should be done separately.

CL = California
 Sealion

Marine Mammal Observation Form
Northwest Environmental Consulting

Observer: Molly McGinnis Date: 11/13/14 Monitoring Location: Port Orchard Page 1 of 1

LOC
B
A
M
M
A
B
B
B

Activity	Lighting (L.A. or L.F. for night)	Time of sighting or activity	End of sighting or activity	Species	Behavior	Number of animals	Number of animal	Sex, adult, sub-adult, pup	Direction of Travel	Distance to sighting	Distance from activity	Notes (record environmental conditions including cloud cover, visibility, location, date, and time at start of shift and note significant changes) Record if animals are tagged or marked, habit or construction activity, or other observations including other activities in area. Use multiple lines if needed.
FORN	1.0	0818	0819	CLS	T	1	M	A		200	500	SW
FORN	2.0	0828	0830	HS	T	1	-	A	S	100M	1100	SW
POFF	4.0	1312	1318	HS	T	1	-	A	S	300	1400	SW
POFF	5.0	1516	1518	HS	T	1	-	A	SW	800	900	SW
POFF	6.0	1629	1645	HS	T	1	-	A	NW	300	1200	SW
POST	7.0	1637	1638	CLS	T	1	-	-	E	100	800	SW
POST	8.0	1643	1644	CSL	F	1	-	-	-	100	800	SW
FORN	3.0	0930	0951	CSL	T	1	M	A	-	10M	800	SW

Activity: FORN Fish Drive On, FFE Fish Watch, POST Post Watch, MND Migration (Downing) - note time when banner starts and comes off site, use appropriate ending of site.
Species Code: BP Dall's Porpoise, CM Gray Whale, HS Humpback Whale, SP Harbor Porpoise, MS Harbor Seal, NW Killer Whale, NW Monk Seal, SL Steller Sea Lion, SO Sea Otter, USM Unidentified Marine Mammal, UP Unidentified Pinniped.
Visibility: B Bad (<0.5km), P Poor (0.5 - 1.0km), M Moderate (1.1 - 10km), G Good (10-25km), E Excellent (>25km)
Nightlight: If the same animal is seen on multiple occasions use the L.F. no. Each new animal should be done separately.

WTTCP 0700-11:30
1215-

WX = 1/2 overcast 78°C PM

Marine Mammal Observation Form
Northwest Environmental Consulting

Observer: HT/G

Date: BNOV

Monitoring Location: Pierle

Page 14 of 17

Activity	Sighting (1.5 or 1.1 for weight)	Time of Sighting or activity	End of Sighting or activity	Species	Behavior	Number of Animals	Gender of Animal	No. adult, sub-adult, pup	Direction of Travel	Distance to sighting	Distance from activity	Notes (include environmental conditions including cloud cover, visibility, weather, state, and time at least of shift and note significant changes) record 7 animals are tagged or marked, record construction activity, or other observations including other activities in area. Use multiple rows if needed.
	COUNT	0700	0700	CL	H	60		X	X	X	X	20+5+0+8(5) 1/2 ← about bridge → (Dist. from or distance to bridge)
	VIBE	0740	0740	/	/	/	/	/	/	/	/	Water level 1.5m at pier end of 0740, 1.2m at 0745, 0748, 0750, 0752, 0754, 0756, 0758, 0759, 0760, 0761, 0762, 0763, 0764, 0765, 0766, 0767, 0768, 0769, 0770, 0771, 0772, 0773, 0774, 0775, 0776, 0777, 0778, 0779, 0780, 0781, 0782, 0783, 0784, 0785, 0786, 0787, 0788, 0789, 0790, 0791, 0792, 0793, 0794, 0795, 0796, 0797, 0798, 0799, 0800, 0801, 0802, 0803, 0804, 0805, 0806, 0807, 0808, 0809, 0810, 0811, 0812, 0813, 0814, 0815, 0816, 0817, 0818, 0819, 0820, 0821, 0822, 0823, 0824, 0825, 0826, 0827, 0828, 0829, 0830, 0831, 0832, 0833, 0834, 0835, 0836, 0837, 0838, 0839, 0840, 0841, 0842, 0843, 0844, 0845, 0846, 0847, 0848, 0849, 0850, 0851, 0852, 0853, 0854, 0855, 0856, 0857, 0858, 0859, 0860, 0861, 0862, 0863, 0864, 0865, 0866, 0867, 0868, 0869, 0870, 0871, 0872, 0873, 0874, 0875, 0876, 0877, 0878, 0879, 0880, 0881, 0882, 0883, 0884, 0885, 0886, 0887, 0888, 0889, 0890, 0891, 0892, 0893, 0894, 0895, 0896, 0897, 0898, 0899, 0900, 0901, 0902, 0903, 0904, 0905, 0906, 0907, 0908, 0909, 0910, 0911, 0912, 0913, 0914, 0915, 0916, 0917, 0918, 0919, 0920, 0921, 0922, 0923, 0924, 0925, 0926, 0927, 0928, 0929, 0930, 0931, 0932, 0933, 0934, 0935, 0936, 0937, 0938, 0939, 0940, 0941, 0942, 0943, 0944, 0945, 0946, 0947, 0948, 0949, 0950, 0951, 0952, 0953, 0954, 0955, 0956, 0957, 0958, 0959, 0960, 0961, 0962, 0963, 0964, 0965, 0966, 0967, 0968, 0969, 0970, 0971, 0972, 0973, 0974, 0975, 0976, 0977, 0978, 0979, 0980, 0981, 0982, 0983, 0984, 0985, 0986, 0987, 0988, 0989, 0990, 0991, 0992, 0993, 0994, 0995, 0996, 0997, 0998, 0999, 1000, 1001, 1002, 1003, 1004, 1005, 1006, 1007, 1008, 1009, 1010, 1011, 1012, 1013, 1014, 1015, 1016, 1017, 1018, 1019, 1020, 1021, 1022, 1023, 1024, 1025, 1026, 1027, 1028, 1029, 1030, 1031, 1032, 1033, 1034, 1035, 1036, 1037, 1038, 1039, 1040, 1041, 1042, 1043, 1044, 1045, 1046, 1047, 1048, 1049, 1050, 1051, 1052, 1053, 1054, 1055, 1056, 1057, 1058, 1059, 1060, 1061, 1062, 1063, 1064, 1065, 1066, 1067, 1068, 1069, 1070, 1071, 1072, 1073, 1074, 1075, 1076, 1077, 1078, 1079, 1080, 1081, 1082, 1083, 1084, 1085, 1086, 1087, 1088, 1089, 1090, 1091, 1092, 1093, 1094, 1095, 1096, 1097, 1098, 1099, 1100, 1101, 1102, 1103, 1104, 1105, 1106, 1107, 1108, 1109, 1110, 1111, 1112, 1113, 1114, 1115, 1116, 1117, 1118, 1119, 1120, 1121, 1122, 1123, 1124, 1125, 1126, 1127, 1128, 1129, 1130, 1131, 1132, 1133, 1134, 1135, 1136, 1137, 1138, 1139, 1140, 1141, 1142, 1143, 1144, 1145, 1146, 1147, 1148, 1149, 1150, 1151, 1152, 1153, 1154, 1155, 1156, 1157, 1158, 1159, 1160, 1161, 1162, 1163, 1164, 1165, 1166, 1167, 1168, 1169, 1170, 1171, 1172, 1173, 1174, 1175, 1176, 1177, 1178, 1179, 1180, 1181, 1182, 1183, 1184, 1185, 1186, 1187, 1188, 1189, 1190, 1191, 1192, 1193, 1194, 1195, 1196, 1197, 1198, 1199, 1200, 1201, 1202, 1203, 1204, 1205, 1206, 1207, 1208, 1209, 1210, 1211, 1212, 1213, 1214, 1215, 1216, 1217, 1218, 1219, 1220, 1221, 1222, 1223, 1224, 1225, 1226, 1227, 1228, 1229, 1230, 1231, 1232, 1233, 1234, 1235, 1236, 1237, 1238, 1239, 1240, 1241, 1242, 1243, 1244, 1245, 1246, 1247, 1248, 1249, 1250, 1251, 1252, 1253, 1254, 1255, 1256, 1257, 1258, 1259, 1260, 1261, 1262, 1263, 1264, 1265, 1266, 1267, 1268, 1269, 1270, 1271, 1272, 1273, 1274, 1275, 1276, 1277, 1278, 1279, 1280, 1281, 1282, 1283, 1284, 1285, 1286, 1287, 1288, 1289, 1290, 1291, 1292, 1293, 1294, 1295, 1296, 1297, 1298, 1299, 1300, 1301, 1302, 1303, 1304, 1305, 1306, 1307, 1308, 1309, 1310, 1311, 1312, 1313, 1314, 1315, 1316, 1317, 1318, 1319, 1320, 1321, 1322, 1323, 1324, 1325, 1326, 1327, 1328, 1329, 1330, 1331, 1332, 1333, 1334, 1335, 1336, 1337, 1338, 1339, 1340, 1341, 1342, 1343, 1344, 1345, 1346, 1347, 1348, 1349, 1350, 1351, 1352, 1353, 1354, 1355, 1356, 1357, 1358, 1359, 1360, 1361, 1362, 1363, 1364, 1365, 1366, 1367, 1368, 1369, 1370, 1371, 1372, 1373, 1374, 1375, 1376, 1377, 1378, 1379, 1380, 1381, 1382, 1383, 1384, 1385, 1386, 1387, 1388, 1389, 1390, 1391, 1392, 1393, 1394, 1395, 1396, 1397, 1398, 1399, 1400, 1401, 1402, 1403, 1404, 1405, 1406, 1407, 1408, 1409, 1410, 1411, 1412, 1413, 1414, 1415, 1416, 1417, 1418, 1419, 1420, 1421, 1422, 1423, 1424, 1425, 1426, 1427, 1428, 1429, 1430, 1431, 1432, 1433, 1434, 1435, 1436, 1437, 1438, 1439, 1440, 1441, 1442, 1443, 1444, 1445, 1446, 1447, 1448, 1449, 1450, 1451, 1452, 1453, 1454, 1455, 1456, 1457, 1458, 1459, 1460, 1461, 1462, 1463, 1464, 1465, 1466, 1467, 1468, 1469, 1470, 1471, 1472, 1473, 1474, 1475, 1476, 1477, 1478, 1479, 1480, 1481, 1482, 1483, 1484, 1485, 1486, 1487, 1488, 1489, 1490, 1491, 1492, 1493, 1494, 1495, 1496, 1497, 1498, 1499, 1500, 1501, 1502, 1503, 1504, 1505, 1506, 1507, 1508, 1509, 1510, 1511, 1512, 1513, 1514, 1515, 1516, 1517, 1518, 1519, 1520, 1521, 1522, 1523, 1524, 1525, 1526, 1527, 1528, 1529, 1530, 1531, 1532, 1533, 1534, 1535, 1536, 1537, 1538, 1539, 1540, 1541, 1542, 1543, 1544, 1545, 1546, 1547, 1548, 1549, 1550, 1551, 1552, 1553, 1554, 1555, 1556, 1557, 1558, 1559, 1560, 1561, 1562, 1563, 1564, 1565, 1566, 1567, 1568, 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7:15 57/61 CSL Count
118 Total
12:00 87 CSL

Marine Mammal Observation Form
Northwest Environmental Consulting

Observer: Sue Ehler

Date: 11/14/14

Monitoring Location: Pier 1

Pier 1
Pier

Page 1

Activity	Lighting (1.4 or 1.1 for night)	Time of sighting or activity	End of sighting or activity	Species	Behavior	Number of Animals	Gender of animal	No. adult, sub-adult, pup	Direction of travel	Distance to sighting	Distance from activity	Notes (record environmental conditions including wind speed, visibility, beaching status, and time at start of shift and time significant changes occur if animals are tagged or marked. Note to construction activity or other observations including other activities in area. Use multiple lines if needed.)
		7:20										Start 15 min Sweep
		7:32	9:49									Start 50ft/9:32-9:33; 7:49; 7:45; 7:47-7:48
V		7:37	9:40	BS	T	1	-	-	W	50m	250m	looked curious out barge
		9:57										shorts Break over
		10:25		CSL	F	1	-	-		200m	240m	Dead pulling pilings - outside of pier

Transferred to Cutlog
Transferred to Cutlog
Transferred to Cutlog

Activity: P ON Pile Driver On; PDS Pile Work; PDS Pile Work; 14-18 Minimum Winddown - some time when bottom starts and comes off pile, but immediately within of pile.
Species Code: SP Dall's Porpoise; CW Gray Whale; NW Humpback Whale; SP Harbor Porpoise; BS Harbor Seal; NW Killer Whale; MW Minke Whale; BL Steller Sea Lion; SO Sea Otter.
ETM Unidentified Marine Mammal; CP Unidentified Pinniped.
Visibility: B Bad (<0.5km); P Poor (0.5 - 1 km); M Moderate (1.5 - 10km); G Good (>10 km); E Excellent (>15km).
Lighting: If the value entered is not an acronym occurrence use the 1.1, etc. Each row entered should be done separately.

8/10/14/14

Marine Mammal Observation Form
Northwest Environmental Consulting

Observer: HT

Date: 14 NOV

Monitoring Location: A

Page 1a of

USE THESE COLUMNS TO RECORD OBSERVATIONS

Activity	Lighting (1.0 or 1.1 for night)	Time of Sighting or activity	End of Sighting or activity	Species	Behavior	Number of Animals	Gender of Animal	No. adult, sub-adult, juv.	Direction of Travel	Distance to Sighting	Distance From Activity	Notes (record environmental conditions including cloud cover, visibility, sea/air state, and time of day and note significant changes) record if animals are tagged or marked, report on construction activity, or other observations including other activities in area. Use multiple lines if needed.	
PCN	2.0	7:54	7:57	HS	R	1	U	A	Ø	150	1450	Seen during viewing from beach of coffee shop line, near storm water drain.	A
PCN	1.0	7:28	7:29	HS	T	1	U	A	NS	100	500		B
POST	3.0	8:05	8:06	HS	R	1	U	A	Ø	30	1400		A
POST	3.1	8:15	8:17	HS	R	1	U	A	Ø	30	1400	Roaring, hanging out just right of the pier	A
POST	4.0	8:37	8:39	CL	T	1	A	M	NW	300	800	Closest feeding right now.	M
POST	5.0	8:49	8:50	HS	R	1	U	A	Ø	100	200		B
POST	6.0	9:04	9:07	HS	T	1	U	A	W	200	1300	travelling mid channel in gully	A
POST	7.0	9:14	9:16	HS	T	1	U	A	W	400	800	postive sight, but cannot be sure	A
POST	8.0	10:23	10:28	CL	F	1	U	A	NE	500	700	feeding thinned around to much for bearings	M
POST	9.0	10:36	10:41	CL	F	1	U	U	Ø	200	14200	feeding among gulls to S side of pier among ducks (gulls, scoters)	A
POST	10.0	11:12	11:13	HS	T	1	U	A	SW	350	1250	mid channel	A
POST	11.0	11:46	11:51	CL	F	1	U	U	Ø	700	1300	feeding w/ gulls & normal speck UH B+L. Saw 1st Egbert	A

ACTIVITY: PCN Pig Cider On, PKE Pig Wash, POST Post Wash, M-AD Mitigation-Monitoring - note time when hammer starts and comes off pile, for intermittent striking of pile
 SPECIES CODE: BP Beluga Sturgeon, CM Gray Whale, HB Humpback Whale, HP Harbor Porpoise, HS Harbor Seal, LW Litter Whale, MW Minke Whale, SE Steller Sea Lion, SO Sea Otter,
 I-MM Unidentified Marine Mammal, I-P Unidentified Porpoise

STATUS: Ø Not (10-15m), P Poor (1.1 - 1.5m), M Moderate (1.7 - 10m), G Good (10-15m), E Excellent (>15m)

MARKING: If the same animal is seen on multiple occasions use the I, L, etc. Each new animal should be done separately

BEHAVIOR: T Travelling, F Feeding, R Resting, H Head Out

