

**Final Observer Report**  
**For the**  
**Alaska Department of Transportation & Public Facilities**  
**Sand Point City Dock Replacement Project**  
**Sand Point, Alaska**  
**Nov 29, 2019**



**Submitted to:**  
**National Marine Fisheries Service**  
**Office of Protected Resources**  
**1305 East-West Highway Silver Spring, Maryland 20910-3226**

**Prepared by:**  
**High Tide Environmental, LLC**  
**180 E Hygrade Lane**  
**Wasilla, AK 99654**

## TABLE OF CONTENTS

SECTION	PAGE
1 Introduction.....	1
2 Project Area.....	1
3 Project Description.....	2
3.1 Construction Activities.....	2
4 Observation Methods.....	3
4.1 Observer Stations.....	4
4.2 Observer Efforts.....	4
4.3 Visibility Conditions.....	6
4.4 Sighting Records .....	9
5 Sighting Summary.....	9
5.1 Potential Noise Exposures.....	11
5.2 Mitigation Measures .....	12
6 Conclusions .....	12

## LIST OF TABLES

Table 1 – Level A Isoleths During Impact Driving.....	5
Table 2 – Level A Take Zones During Vibratory Pile Installation and Removal Activities .....	5
Table 3 – Level B Isoleths During Impact and Vibratory Driving .....	6
Table 4 – Summary of Visibility Conditions.....	7
Table 5 – Summary of Sightings.....	9
Table 6 – IHA Species not observed during monitoring.....	10
Table 7 – Potential exposures to Levels A and B Harassment.....	11

## LIST OF FIGURES

Figure 1 – Project location within Sand Point, AK.....	2
Figure 2 – Vibratory Pile Installation.....	3
Figure 3 – Observer monitoring locations.....	4
Figure 4 – Graph of protected species sightings by specified visibility condition.....	7
Figure 5 – Graph of protected species sightings by specified Beaufort sea state (BSS).....	8
Figure 6 – Graph of protected species sightings by of specified glare %.....	8
Figure 7 – Graph of sightings by month.....	10

## LIST OF APPENDICES

Appendix A. Potential Noise Exposures
Appendix B. Summary of Sightings
Appendix C. Daily Observation Records (Digital)

## Acronyms and Abbreviations

dB	decibels
DPS	distinct population segment
ESA	Endangered Species Act
IHA	Incidental Harassment Authorization
MMO	Marine Mammal Observer
4MP	Marine Mammal Monitoring and Mitigation Plan
MMPA	Marine Mammal Protection Act
NMFS	National Marine Fisheries Service
NOAA	National Oceanic and Atmospheric Administration

## 1 Introduction

The Alaska Department of Transportation and Public Facilities (DOT) conducted observations in support of the Sand Point City Dock Replacement Project in Sand Point, AK between July 2019 and September 2019. The observer program was executed by observers hired by Western Marine Construction that were approved by NMFS PR1. Marine Mammal Observers (MMOs) were trained by High Tide Environmental, LLC and monthly summary reports and this final report were also prepared by High Tide Environmental. In accordance with the project's Incidental Harassment Authorization (IHA) and accompanying Biological Opinion, this is the final report of all monitoring activities. Previously submitted monthly data has been compiled here and reviewed for accuracy and completeness. The primary goals of the monitoring program were:

- To monitor the Level A and Level B harassment zones, estimate the number of marine mammals potentially exposed in these, and document responses;
- To minimize impacts to the marine mammal species present in the project area by implementing mitigation measures including monitoring of the shutdown and monitoring zones, clearing the zones and shutdown procedures; and
- Collect data on the occurrence of marine mammal species in the project area and any impacts from the project.

## 2 Project Area

The Sand Point City Dock is in the City of Sand Point, Alaska, at 55°20'06.6" N, 160°30'05.9" W, on the northwest side of Popof Island, in the Gulf of Alaska. The Sand Point City Dock is a multi-function dock and active ferry terminal located in Humboldt Harbor, on the southwest side of the City of Sand Point. The existing City Dock is located on the causeway of Sand Point's "New Harbor" at the end of Boat Harbor Road. The replacement dock (i.e. this project) is located immediately adjacent (southwest) to the existing City Dock along the causeway, which also serves as the breakwater for the New Harbor (figure 1). A small boat harbor is located immediately northeast of the City Dock. There is a seafood processing facility located approximately 410 meters (0.25 mile) north of the proposed dock.



Figure 1. Project location within Sand Point, AK. This image shows the project under construction.

### 3 Project Description

The Project includes the installation of steel piles to support a concrete dock platform, fenders, a catwalk with dolphin, an electrical generator building, and electrical infrastructure. The Project also includes the deposition of fill and armor rock to create additional uplands adjacent to and below the new dock. No dredging is proposed as part of this Project, and the existing dock would not be removed.

#### 3.1 Construction Activities

The proposed action required placing fill material adjacent to the existing causeway to create support for the new dock. Dock construction included the installation of structural support piles (figure 2), a concrete dock platform, four fenders, a catwalk with dolphin, a generator building, and electrical infrastructure. No dredging was undertaken as part of this Project, and the existing dock was not removed. Minor modifications to the existing dock's dolphin occurred as part of the proposed action.





**Figure 2 – Vibratory pile installation**

#### **4 Observation Methods**

The Marine Mammal Observers (MMOs) operated in accordance with the Marine Mammal Monitoring and Mitigation Plan (4MP): Sand Point City Dock Replacement Project (April 2017). This 4MP was the basis for monitoring, but the distances for various zones were updated for the observers in the field based on the final distances authorized in the issued IHA (9 July 2018). The 4MP was simplified to a set of observer instructions and utilized level A and B distance updates based on final permits. A team of four observers were used to work the shifts over the three-month duration of the project with two observers always in the field during pre-construction monitoring, construction monitoring, and post-construction monitoring. Observers were trained on site in late July by High Tide Environmental. Field observations forms were preserved locally (paper copy) and backed up electronically locally and on devices stored off-site at High Tide Environmental. Marine mammal sightings and potential exposures were entered on a spreadsheet each month.

MMOs recorded mammal sightings, construction activities, environmental conditions, and made general notes on vessel traffic. The MMOs utilized stations that provided sufficient view of the project activities, varying their location based on weather, visibility, and project needs (figure 3). Various combinations of

two different areas were used by the two observers, with one of the two near the project site always in use so that the observer would be aware of the status of construction. Observers were equipped with two-way radios allowing for direct communication with the site manager and between the observers.

#### 4.1 Observer Stations

The primary observation stations were on the city dock and the site shown at the far right of figure 3. Pre and post-construction monitoring typically involved driving along the road system along the coastal portions of the road system in town to ensure animals were not present in any blind spots caused by vessels, infrastructure, or protrusions of land. Daily usage of the observation stations was based on construction activities, weather conditions, and optimization of view angles.



**Figure 3. Observer monitoring locations in red.**

#### 4.2 Observer Efforts

Approximately 384 hours of observer effort was expended during 23 days of pile driving between 28 July 2019 and 9 September 2019 for the two observers. Pile driving was sporadic; driving would take place for a few days followed by several days of construction activities above water. Two MMOs were in position to observe both the Level A and Level B Harassment zones during vibratory and impact pile driving. The shutdown and monitoring zones used for this project are summarized in Tables 1 through 3. A 100-meter shutdown zone was applied for vibratory pile driving as a precaution since the Level A zones were very small.

Final Observer Report  
For Sand Point City Dock Replacement Project

Activity	Piles installed per day	Isopleths (m)				
		LF (Humpback whales)*	MF	HF (Harbor porpoises)*	PW (Harbor seals)*	OW
Impact Installation 30"	4	1,430	60	1,700	770	60
	3	1,180	50	1,410	630	50
	2	900	40	1,070	490	40
	1	570	20	680	310	30
Impact Installation 24" Dolphin	2	640	30	760	340	30
	1	400	20	480	220	30
Impact Installation 24" Fender	4	450	20	540	250	20
	3	380	20	450	200	20
	2	290	10	340	160	20
	1	180	10	220	100	10

\*Level A take is authorized for these species. Isopleths for these hearing groups have been rounded up to the nearest 10 m.

**Table 1 – Level A Isopleths During Impact Driving.**

Activity	Estimated Duration		Level A Harassment Zone (meters) (based on new Technical Guidance)				
	Hours per day	Days of effort	Cetaceans			Pinnipeds	
			LF	MF	HF	PW	OW
Vibratory Installation 30"	3	13	28.8	2.6	42.6	17.5	1.2
Vibratory Installation 24" Dolphin	2	2	6.8	0.6	10.1	4.2	0.3
Vibratory Installation 24" Fender	2	2	10.8	1	16	6.6	0.5
Vibratory Installation and/or removal <24" (18")	3	15	14.2	1.3	21	8.6	0.6
Vibratory Installation and/or removal < 24" (H-piles)	3	15	2.6	0.2	3.9	1.6	0.1

**Table 2 – Level A Take Zones During Vibratory Pile Installation and Removal Activities.**



Activity	Level B Harassment Zone (meters)
Vibratory Installation 30"	10,970
Vibratory Installation 24" Dolphin	5,420
Vibratory Installation 24" Fender	5,420
Vibratory Installation and/or removal < 24" (18" piles)	5,420
Vibratory Installation and/or removal < 24" (H-piles)	1,000
Impact Installation 30"	1,740
Impact Installation 24" Dolphin	1,590
Impact Installation 24" Fender	1,590

**Table 3 – Level B Isoleths During Impact and Vibratory Driving.**

Observations began and ended at least 30 minutes prior to and following construction activities. In practice, the MMO coverage was nearly continuous on days when construction activities occurred that required monitoring. The crew rotated shifts approximately every four hours.

### 4.3 Visibility Conditions

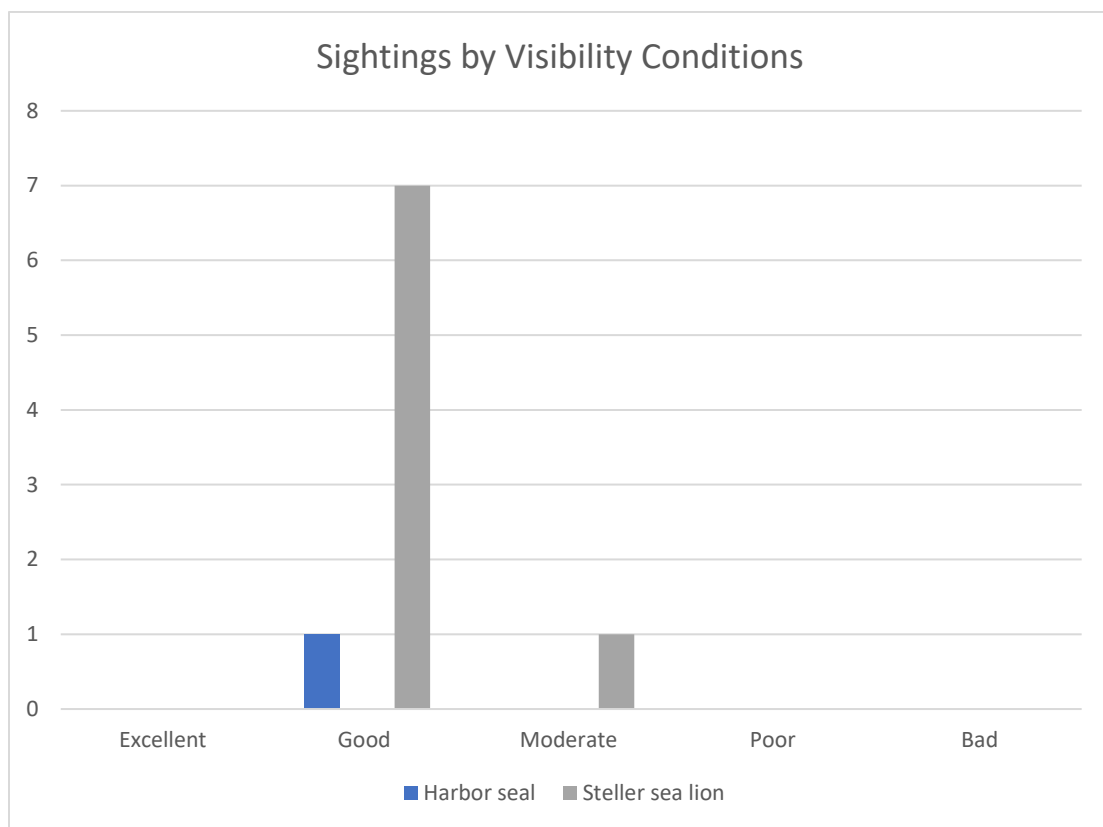
The weather and visibility for the duration of this relative short project was generally good to excellent. This was important since most of the pile driving was vibratory for 30" piles that had a level B monitoring distance of almost 11 kilometers. Winds were calm and the Beaufort sea scale was always level zero or one. Glare was not a limiting factor during the observation periods.

The weather breakdown of the approximately 192 hours of observation during pile driving days is shown in Table 4. The 192 hours was actual construction hours; this equates to 384 observer hours since there were two observers. This table uses the visibility characteristics from the MMO data sheets and shows that most of the observation hours were carried out during good to moderate visibility conditions. Visibility, as noted on observer logs, is often a better metric for marine mammal sighting conditions than the weather conditions noted by observers. This is because sunny days can often be less than ideal due to the associated glare, even though one might think a sunny day would be ideal days for marine mammal observations. There were no sightings during excellent, poor, or bad conditions because they were not encountered during the course of the project

	Excellent	Good	Moderate	Poor	Bad
<b>Total Hours</b>	0	182	9	0	0
<b>% Total Hours</b>	0	95	5	0	0

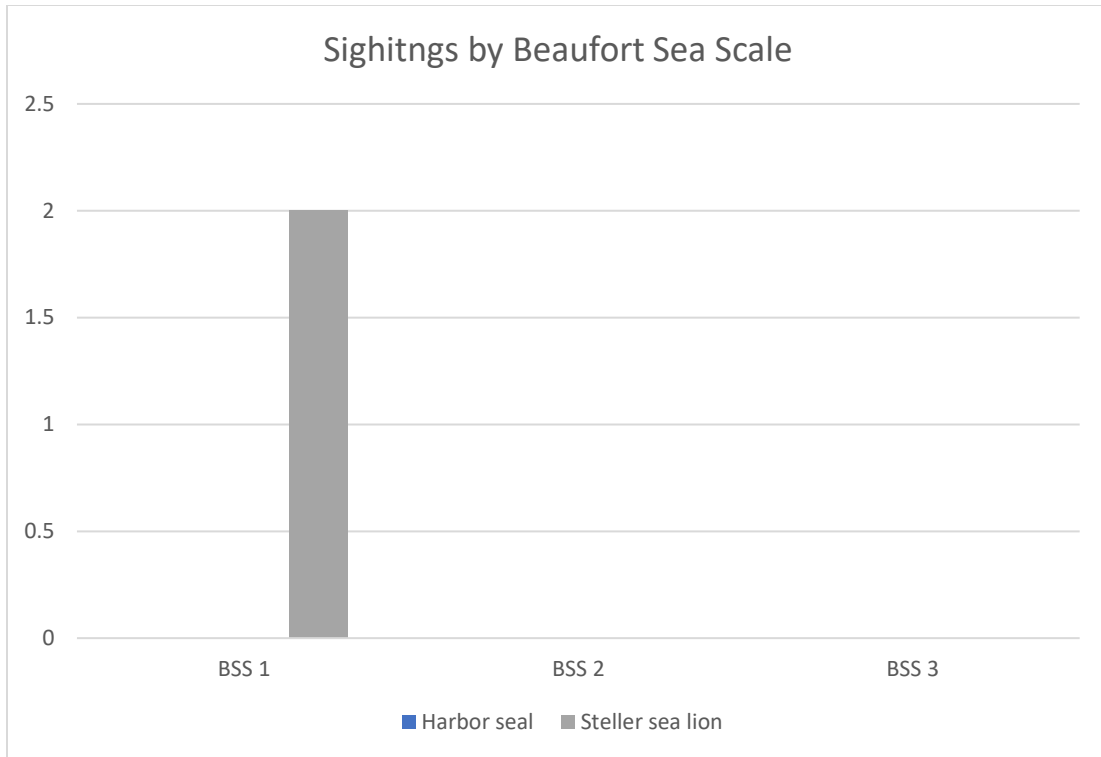
**Table 4 – Summary of Visibility Conditions**

Visibility condition is an estimate of visible distance made by the observers based on the following intervals: Excellent (>10 km), Good (3 – 10 km), Moderate (0.9 – 3 km), Poor (0.5 – 0.9 km), Bad (<0.5 km).



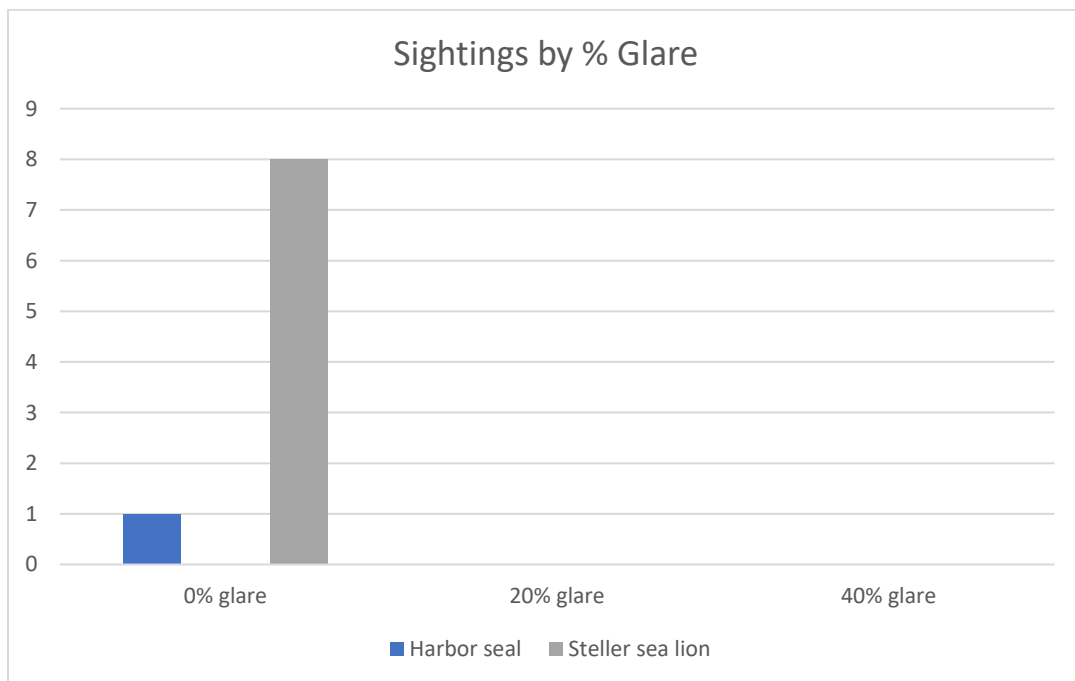
**Figure 4 – Graph of protected species sightings by specified visibility condition**

Beaufort sea state (BSS) is an established scale designed to describe wind and wave conditions at sea, described further in the 4MP. Sightings relative to BSS are shown in figure 5.



**Figure 5 – Graph of protected species sightings by specified Beaufort sea state (BSS)**

Glare can impact the ability of an observer to view portions of the project area. Glare was not a factor during observations for this project (figure 6).



**Figure 6 – Graph of protected species sightings by hour of specified % glare**

## 4.4 Sighting Records

Observers recorded all sightings of marine mammals while on site, regardless of whether construction operations were occurring. Sighting records included sighting record number, observer name and location, date and time of first and last observation, location of first observation, group size (if appropriate, this was estimated by minimum, maximum, and best guess counts), direction of travel, animal behavior, construction at the time of sighting, mitigation used for that animal, visibility and weather conditions at the time of first sighting, and notes regarding the animal’s activities and other significant events. If multiple construction or mitigation types occurred during the animal’s presence, the most significant was recorded. Exposures to pile-driving noise were noted for animals that entered the Level B monitoring zones.

Separate entries were made for start and stop times of ‘SS’ (soft start procedures), ‘V’ (vibratory driving) ‘I’ (impact driving). Notes were made in the comment field when pile driving activities took place in uplands.

Individuals or groups were tracked for as long as they could be uniquely identified. If an animal or group was not continually tracked, a new sighting number was used when it was next observed.

Appendix C contains all the observer records in digital form. These have been reviewed for completeness and correctness of transcription.

## 5 Sighting Summary

A total of 9 marine mammal sightings were recorded between 28 July 2019 and 9 September. This count includes 8 Steller sea lion sightings (9 individuals), and 1 harbor seal sighting. There were no re-sightings recorded. Figure 12 shows sighting rates for each species by month.

Species	Population / Stock	ESA Status	Occurrence In/Near Project Area	Number of Sightings	Number of Individuals*
Steller sea lion ( <i>Eumetopias jubatus</i> )	Western distinct population segment	Endangered	Common	8	9
Harbor seal ( <i>Phoca vitulina richardii</i> )	Cook Inlet/Shelikof Strait	N/A	Occasional	1	1
<b>Total</b>				<b>9</b>	<b>10</b>

\* Count of individuals is based on "Group Max" field (the observers' estimate of the maximum number of individuals in a group).

**Table 5 – Summary of sightings**

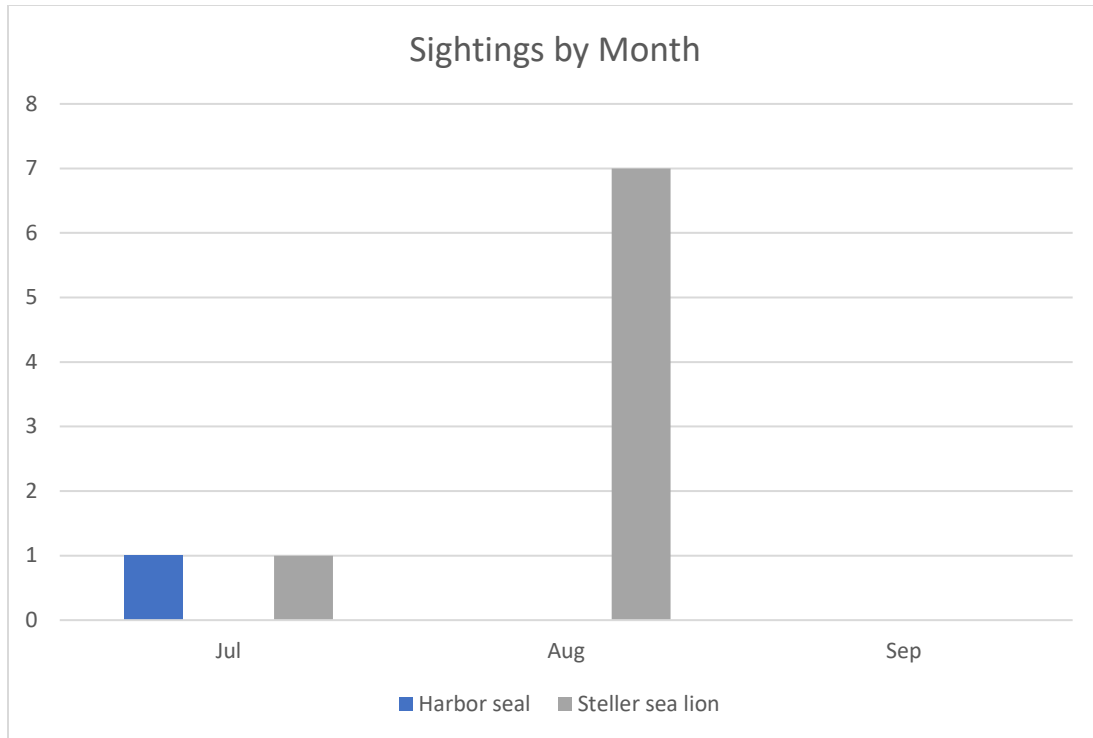


Figure 7 – Graph of sightings by month

Steller sea lion sighting rates are likely explained by a combination of their reproductive history and local conditions. Many Steller sea lions are likely at rookeries in July, possibly accounting for the low numbers observed by MMOs. It does not appear that marine construction on the project attracted or deterred Steller sea lions or altered their behavior in any noticeable manner. Harbor seals were present in low number during July. MMOs did not note any visible reaction by harbor seals.

Several species for which takes were authorized under the IHA were not observed during the entire monitoring period. These species are listed in Table 6.

Species	Sightings
Harbor porpoise	0
Dall's porpoise	0
Killer whale	0
Fin whale	0
Gray whale	0
Minke whale	0

Table 6 – IHA species not observed during monitoring

Vessel activity did not appear to result in any change in marine mammal abundance or behavior. The months with the most sightings also had abundant vessel traffic and very active marine construction.



## 5.1 Potential Noise Exposures

Of the 9 recorded sightings, 3 potential exposures (3 individuals) of marine mammals to Level B Harassment (behavioral disturbance) from noise were identified from the recorded sightings (table 7). The total number of individuals potentially exposed is well below the numbers authorized in the IHA (Table 4). Of the 3 potential exposures, all were due to vibratory pile driving. No potential exposures of marine mammals not authorized under the IHA were observed. Coordination of a delayed effort for vibratory pile driving with the contractor (a mitigation measure), was not necessary to prevent Level A exposures to Steller sea lions.

The monthly reports did not include any potential noise exposures. This final report concludes that there were actually 3 potential exposures. The reason for the discrepancy is that it was not obvious during the monthly report preparation that three of the Steller sea lions indeed had to have been exposed to Level B harassment from vibratory pile driving due to the short time separation between the beginning or ending of vibratory pile driving and the sighting. Only when the data was revisited during the final report preparation did it become clear that three of the data sheets had incorrectly stated there was no Level B exposure. In two cases, there was a situation where vibratory pile driving had ended a few minutes before a sighting. The data sheet stated there was no exposure, but with such a large Level B zone the animal had to have been in the zone while the recent pile driving was occurring. In the third case, the observation ended, and vibratory pile driving began so shortly thereafter that there was no time for the animals to have left the large Level B zone.

Species	Authorized Level A takes	Authorized Level B takes	Potential exposures (individuals)*	Unused Level A Allowance	Unused Level B Allowance
Steller sea lion	0	960	3	0	957
Harbor seal	27	53	0	27	53
Harbor porpoise	16	33	0	16	33
Dall's porpoise	0	4	0	0	4
Killer whale	0	14	0	0	14
Humpback whale	2	30	0	2	30
Fin whale	0	6	0	0	6
Gray whale	0	2	0	0	2
Minke whale	0	3	0	0	3
<b>TOTAL</b>	<b>45</b>	<b>1,105</b>	<b>3</b>	<b>45</b>	<b>1,102</b>

\*Count of individuals is based on "Group Max" field (the observers' estimate of the maximum number of individuals in a group).

**Table 7 – Potential exposures to level A and B harassment**

Appendix A summarizes the potential noise exposures for this project. Additional details are available in the list of sightings (Appendix B) and in the digital observer records (Appendix C).

## 5.2 Mitigation Measures

Soft starts were used as a mitigation measure to prevent unauthorized exposures. Due to the small nature of the project and low marine mammal abundance, delays and shutdowns were not necessary. Soft starts for pile driving were performed at the beginning of each day and anytime there was break in pile driving longer than 30 minutes.

## 6 Conclusions

Protected species monitoring during the Sand Point City Replacement Project successfully prevented unauthorized take of marine mammals. Observations continued regardless of concurrent construction activities and showed little to no evidence of behavioral changes because of the project. The marine mammals that were observed did not appear to alter their behavior or use of the observed area. There were lengthy gaps in construction and marine mammals had large expanses of time to utilize the area without underwater noise created by the project, namely pile driving.

The monitoring stations were effective in providing observer coverage of the shutdown and monitoring zones, and communication with the contractors was successful in ensuring that all mitigation protocols were followed. Less than 1% of the authorized takes were used to complete the project.

## **Appendix A. Potential Noise Exposures**

Final Observer Report  
 For Sand Point City Dock Replacement Project

Date	Start Time	End Time	Sight #	Species	Number of Animals (Group)	Calculated Distance (m) Animal to Construction	Construction Type	Mitigation Type	Behavior change/ Response to Activity/ Comments
1-Aug-19	850	852	3	Steller Sea Lion	1	100	V	None	No change observed. Vibing occurred eight minutes after the sighting, so SSL was in Level B during vibing but after sighting. No vibing occurred during the sighting timeframe, but animal had to be in Level B zone and exposed due to the size of the zone.
1-Aug-19	1600	1602	4	Steller Sea Lion	1	80	V	None	No change observed. Vibing occurred two minutes before the sighting, so SSL was in Level B during vibing but before sighting. No vibing occurred during the sighting timeframe, but animal had to be in Level B zone and exposed due to the size of the zone.
28-Aug-19	1707	1708	9	Steller Sea Lion	1	200	V	None	No change observed. Vibing occurred within minutes of the sighting, so SSL was in Level B zone before and after the sighting. No vibing occurred during the sighting timeframe, but animal had to be in Level B zone and exposed due to the size of the zone.

## **Appendix B. Summary of Sightings**



Final Observer Report  
For Sand Point City Dock Replacement Project

Sight #	Exp?	Species	Group Max	Behavior Code	Date	Shutdown?	GPS	water depth (feet)	Dist Obs. to An. (m)	Dir Obs. to Animal	Dir. Of Travel	Const. Type	Behavior change/ Response to Activity/ Comments	Weather	Wind speed (MPH)	Wind Dir	BSS	Glare	vis	cloud cover %
1	N	SSL	2	traveling	28-Jul-19	none	55.328642° -160.509473°	30	400	SW	W	none	No change observed. Vibing was not occurring.	PC	10	SW	1	0	Good	100
2	N	Harbor Seal	1	travelling	30-Jul-19	none	55.336430° -160.517283°	54	1000	NW	-	none	No change observed. Vibing was not occurring.	OC	5	N	0	0	Good	40
3	Y	SSL	1	travelling	1-Aug-19	none	55.329027° -160.507404°	18	100	W	NE	Vibing	No change observed.	Fog	7	SW	0	0	Mod	100
4	Y	SSL	1	travelling	1-Aug-19	none	55.330395° -160.505620°	15	80	NW	E	Vibing	No change observed.	S	2	SW	0	0	Good	20
5	N	SSL	1	travelling	13-Aug-19	none	55.329193° -160.510788°	25	100	NW	unk	none	No change observed. Vibing was not occurring.	OC	5	SW	0	0	Good	40
6	N	SSL	1	travelling	14-Aug-19	none	55.329837° -160.509698°	25	150	NW	NW	none	No change observed. Pile driving was not occurring.	PC	5	W	0	0	Good	15
7	N	SSL	1	travelling	21-Aug-19	none	55.334256° -160.503211°	20	400	NE	none	none	No change observed. Pile driving was not occurring.	Rain	15	SW	1	0	Good	100

Final Observer Report  
 For Sand Point City Dock Replacement Project

8	N	SSL	1	travelling	22- Aug- 19	none	55.330006° -160.508344°	25	100	NW	unk	none	No change observed. Pile driving was not occurring.	PC	10	NE	0	0	Good	20
9	Y	SSL	1	travelling	28- Aug- 19	none	55.334116° -160.505536°	30	200	NE	unk	Vibing	No change observed.	S	5	N	0	0	Good	10

## **Appendix C. Daily Observation Records (Digital)**