

# Memorandum

May 23, 2018

To: Jeff Bertram and Jill Macik, City of Seattle Department of Transportation

From: Calvin Douglas, Anchor QEA

cc: Dean Beauchamp and Jody Robinson, Jacobs  
Jennifer Horwitz, Anchor QEA

**Re: Pier 62 Project (NWS-2016-296-WRD, WCR-2016-5583, and 01EWF00-2016-F-1325)  
Marine Mammal Monitoring Season 1 Report**

This report provides the marine mammal monitoring results for Season 1 (Winter 2017–2018 in-water work window) for the Pier 62 Project (Project). In compliance with the Endangered Species Act (ESA) and the Marine Mammal Protection Act (MMPA), marine mammal monitoring was conducted during all in-water pile driving and removal activities for the Project. As part of the MMPA compliance, the National Marine Fisheries Service (NMFS) issued an Incidental Harassment Authorization (IHA) for in-water pile driving and removal, which allows take of marine mammals by harassment incidental to pile driving activities in Elliott Bay.

## Marine Mammal Monitoring Methods

Marine mammal monitoring methods and protocols were established per agency guidelines and permits, based on information in the following Project monitoring plan and permit documents:

- *Marine Mammal Monitoring Plan for the Pier 62 Project* (City of Seattle 2017a)
- *Request for Incidental Harassment Authorization under the Marine Mammal Protection Act for the Pier 62 Project 2018-2019 In-Water Work* (City of Seattle 2017b)
- *Marine Mammal Protection Act Incidental Harassment Authorization for the Pier 62 Project* (NOAA 2017)
- *Joint National Marine Fisheries Service's and U.S. Fish and Wildlife Service's Endangered Species Act (ESA) Section 7(a)(2) Biological Opinion, Letter of Concurrence, and Magnuson-Stevens Fishery Conservation and Management Act Essential Fish Habitat Consultation for the Pier 62 Project* (NMFS and USFWS 2017)
- *Technical Guidance for Assessing the Effects of Anthropogenic Sound on Marine Mammal Hearing: Underwater Acoustic Thresholds for Onset of Permanent and Temporary Threshold Shifts* (NMFS 2016)

Under the IHA, the Project is required to monitor for 11 species, which are organized into the following five functional hearing groups:

- High-Frequency Cetaceans (Porpoises)

- Dall's porpoise (*Phocoena dalli*)
- Harbor porpoise (*Phocoena phocoena*)
- Mid-Frequency Cetaceans (Dolphins and Whales)
  - Killer whale Southern Resident (*Orcinus orca*)
  - Killer whale transient
  - Long-beaked common dolphin (*Delphinus capensis*)
- Low-Frequency Cetaceans (Whales)
  - Gray whale (*Eschrichtius robustus*)
  - Humpback whale (*Megaptera novaeangliae*)
  - Minke whale (*Balaenoptera acutorostrata*)
- Otariid Pinnipeds (Sea lions/Eared)
  - California sea lion (*Zalophus californianus*)
  - Steller sea lion (*Eumetopias jubatus*)
- Phocid Pinnipeds (Seals/Earless)
  - Elephant seal (*Mirounga angustirostris*)
  - Harbor seal (*Phoca vitulina*)

The monitoring area included an Exclusion Zone (Level A Take) and a Harassment Zone (Level B Take) for each group. The two zones varied by the type of pile work and marine mammal functional hearing group. The Exclusion Zone comprised areas where a stop-work order was to be issued if species were present. Within the Level B Harassment Zones, marine mammals were closely monitored, and take was documented, but work was allowed to continue. Exclusion Zones and Level B Harassment Zones have been established for each hearing group based on the type of in-water pile driving and removal construction activities, including:

- Pile removal via vibratory hammer
- Pile (steel sheet) installation via vibratory hammer
- Pile installation via impact hammer

During Season 1, a vibratory hammer was used for sheet pile installation and timber pile removal, but there were no impact hammer activities. Installation of two sheet piles was not a planned activity but was approved by Stephanie Egger (NOAA) in an email to Mark Mazzola dated December 21, 2017. A few steel piles were also unexpectedly encountered and removed during the timber pile removal. The Exclusion Zones and Level B Harassment Zones implemented during Season 1 are presented on Table 1 and shown on Figures 1 and 2 in Attachment A.

**Table 1**  
**Season 1 Exclusion Zone and Level B Harassment Zone Monitoring Thresholds, by Species Group and Pile Activity**

<b>Zone Threshold</b>	<b>Location to Monitor<sup>1</sup></b>	<b>Species Group</b>
<b><i>Vibratory Removal (Timber Pile)</i></b>		
Exclusion Zone (Stop-Work Order)	35 feet (11 meters [m]) to Source	Mid-Frequency Cetaceans, Otariids, and Phocids
	57 feet (17 m) to Source	Low-Frequency Cetaceans
	84 feet (26 m) to Source	High-Frequency Cetaceans
Level B Harassment Threshold (Take)	From 6,119 feet/1.2 miles (1,865 m) to Exclusion Zone for each hearing group	All Cetaceans, Otariids, and Phocids
<b><i>Vibratory Installation (Steel Sheet Pile)</i></b>		
Exclusion Zone (Stop-Work Order)	72 feet (22 m) to Source	Otariids
	148 feet (45 m) to Source	Mid-Frequency Cetaceans
	1,007 feet (307 m) to Source	Phocids
	1,656 feet (505 m) to Source	Low-Frequency Cetaceans
	2,449 feet (746 m) to Source	High-Frequency Cetaceans
Level B Harassment Threshold (Take)	From 177,549 feet/33.6 miles (54,117 m) to Exclusion Zone for each hearing group	All Cetaceans, Otariids, and Phocids

Notes:

1. Rounded up

Sources: NMFS 2016, NOAA 2017

All monitoring was performed by land-based observers. The number of land-based observers was determined by the type of pile-related activity: steel sheet pile installation or timber pile removal using a vibratory hammer. One observer was located at the Project construction site during sheet pile installation and timber pile removal. Two additional observers conducted monitoring at designated viewpoints on the north and south entrances to Elliott Bay, with unobstructed views of the bay. The south monitoring point is located at the Hamilton Viewpoint Park pier, identified as the Alki monitoring site. The north monitoring point is located at the West 32nd Avenue City pump station, identified as the Magnolia monitoring site. The monitoring locations are shown on Figures 1 and 2 in Attachment A.

Trained marine mammal monitors from Anchor QEA and The Greenbusch Group used binoculars to search the monitoring zones for the presence of marine mammals during pile driving and removal activities. Observations and positions of marine mammals were recorded on a daily monitoring data sheet, which was developed prior to program implementation for efficient and consistent data collection. The following data were collected: date; time monitoring activity begins and ends; location; construction activity during monitoring period; weather conditions; environmental conditions that could deter or prevent marine mammal detections; marine mammal species

observed; number of species and sex and age class, if possible; time, duration, and location of marine mammals observed; observable species behavior during pile driving activities; pile-related activities taking place during monitoring; distances from pile activities to marine mammals; communication between the observers and the contractor or SDOT; notable human activity in the area; and, if applicable, why a stop-work order was or was not initiated. The locations of marine mammal sightings were also noted on grid maps. Take numbers were tallied each day to ensure the project did not exceed the authorized number of incidental take for each species.

## Marine Mammal Monitoring Results

Marine mammal monitoring during vibratory timber pile removal and sheet pile installation activities was performed by trained marine mammal monitors from Anchor QEA and The Greenbusch Group for 21 days, between December 29, 2017, and February 21, 2018. On one monitoring day, February 3, vibratory pile removal was scheduled but did not occur. Vibratory pile installation of two steel sheets occurred on one monitoring day: December 29, 2017. On the remaining 19 monitoring days, a vibratory hammer was used to remove timber piles. On most days, pile activity occurred off and on throughout the monitoring period, with breaks in hammer activity ranging from less than 30 minutes to 2 hours or more.

Throughout this monitoring season, only 2 of the 11 potential marine mammal species were observed during the monitoring period: California sea lion and harbor seal. Both species were observed in the Level B Harassment Zone during pile driving. Total takes documented during monitoring included eight California sea lions and ten harbor seals. Of these, three California sea lion takes and nine harbor seal takes occurred on December 29. During the other 19 monitoring days, five California sea lion takes and one harbor seal take were documented, all from the construction site.

The number of takes documented for California sea lions and harbor seals during the Season 1 monitoring were both considerably below the maximum number of Level B takes authorized for these species in the Pier 62 IHA for Season 1 (NOAA 2017). There were no Level A (serious injury or mortality) takes for any species during the Season 1 monitoring. Table 2 compares documented take per species to the amount of authorized Level B takes.

**Table 2**  
**Season 1 Take Per Species**

Species	Documented Level B Take	IHA Authorized Level B Take
California Sea Lion	8	1,465
Harbor Seal	10	1,695

No marine mammal species were observed within the Exclusion Zone during the timber pile removal or sheet pile installation, and therefore no pile hammer activity was stopped or delayed due to a stop-work order during the Season 1 monitoring period.

Because the Level B Harassment Zone for vibratory pile removal does not extend to the outer monitoring sites (Figure 1), most of the marine mammal observations that occurred from the outer monitoring sites did not result in takes. In addition, construction activity during Season 1 included demolition of Pier 62, so there were extended breaks in pile removal activity while demolition occurred that exposed piles for removal. Therefore, many of the marine mammal observations occurred more than 30 minutes prior to or after vibratory hammer activity occurred and did not result in takes.

The number of sea lions observed from all three monitoring locations combined ranged from 0 to 13 per day, with a per-day average of 8. There was only one monitoring day when no sea lions were observed. The majority (149 of 167) of California sea lion observations and the largest grouping (13) of sea lions observed occurred at the Alki monitoring site. They were frequently observed resting on the two buoys in the southwest area of Elliott Bay (Figure 3 in Attachment A). On 20 of 21 monitoring days, sea lions were observed resting on these mooring buoys. On the day when they were absent, large vessels were moored at both buoys and weather conditions were windy and rainy. There were no observable changes in sea lion behavior during vibratory pile driving or removal. Table 3 summarizes California sea lion observations per monitoring site during the Season 1 monitoring.

**Table 3**  
**Summary of Season 1 California Sea Lion Observations, Per Monitoring Site**

<b>Monitoring Site</b>	<b>Total Observed</b>	<b>Range of Number of Individuals Observed Per Day</b>
Construction Site	8	0 to 3
Alki Site	149	0 to 13
Magnolia Site	10	0 to 2
<b>Total</b>	<b>167</b>	

Many (34 of 72 total) harbor seal observations occurred from the Magnolia monitoring site. Between 0 and 13 harbor seals were observed per monitoring day, with a per-day average of 3. Harbor seals were typically observed swimming for a few minutes or less. The most (13) harbor seals were observed on December 29, 2017, 11 from the Magnolia site. The harbor seals were observed at various times over the monitoring period, swimming west toward the main body of Puget Sound.

A juvenile harbor seal was observed resting on the beach near the Alki monitoring site on two monitoring days, January 24 and February 2. On both dates, representatives from the Seal Sitters

Marine Mammal Stranding Network (Seal Sitters) were also on site cordoning off the area of beach to protect the seal and answering questions from interested members of the public. Seal Sitters is an all-volunteer organization that responds to reports of marine mammal species, dead or alive, along West Seattle's shoreline, including the Lower Duwamish Waterway. The organization provides health and mortality data to government agencies, such as the National Oceanic and Atmospheric Administration, who monitor seal populations and emerging diseases.

On January 24, a juvenile harbor seal was observed resting on the beach west of the King County West Seattle Water Taxi launch. The seal arrived on the beach after marine mammal monitoring had started and was soon joined by members of the Seal Sitters, who cordoned off the area. The seal reentered Elliott Bay after 54 minutes.

On February 2, a juvenile harbor seal was observed for more than 3 hours resting on the beach in a similar area west of the Water Taxi launch. The seal arrived on the beach after marine mammal monitoring had started and was joined by Seal Sitter representatives soon after, who again cordoned off the beach to protect the seal and answered questions from interested members of the public. On this date the Project's marine mammal monitor left the site prior to the seal and Seal Sitters representatives leaving the area.

There were no observable changes in harbor seal behavior during vibratory pile driving and removal. Table 4 summarizes harbor seal observations per monitoring site during the Season 1 monitoring.

**Table 4**  
**Summary of Season 1 Harbor Seal Observations, Per Monitoring Site**

<b>Monitoring Site</b>	<b>Total Observed</b>	<b>Range of Number of Individuals Observed Per Day</b>
Construction Site	6	0 to 2
Alki Site	32	0 to 5
Magnolia Site	34	0 to 11
<b>Total</b>	<b>72</b>	

Per monitoring protocols, both prior to and during monitoring shifts, observers reviewed websites<sup>1</sup> that track whale activity in Puget Sound. On a few days during the monitoring period, the websites reported killer whale observations in Puget Sound north and south of Elliott Bay, in Everett and Tacoma, but no whales approached Elliott Bay.

<sup>1</sup> Orca Network ([http://www.orcanetwork.org/Main/index.php?categories\\_file=Sightings](http://www.orcanetwork.org/Main/index.php?categories_file=Sightings) and <https://www.facebook.com/OrcaNetwork>) and West Seattle Blog (<http://westseattleblog.com/>)

Detailed data collected during Season 1 monitoring is presented in Attachment B. Table B-1 provides a daily summary of pile driving and removal activity, weather conditions during the monitoring period, marine mammal species observed, time and duration of observations, distance from pile driving and removal activities, and species behavior. Table B-2 provides a daily summary of California sea lion and harbor seal takes and the average of total takes per species and monitoring site. Table B-3 provides a summary of takes documented during the monitoring period. As noted in Table B-1, some monitoring days included fog, rain, and wind conditions that made monitoring more challenging than during clear weather periods; however, no environmental conditions occurred during the monitoring period that warranted a stop or delay of pile driving or removal activities because marine mammal species could not be observed. In addition, monitoring was conducted during a range of tidal cycles; however, no changes in marine mammal behavior were identified based on tidal fluctuations.

## References

City of Seattle, 2017a. *Marine Mammal Monitoring Plan for the Pier 62 Project*. Pier 62 Project.

City of Seattle, 2017b. *Request for Incidental Harassment Authorization under the Marine Mammal Protection Act for the Pier 62 Project 2018-2019 In-Water Work*. Pier 62 Project.

NMFS (National Marine Fisheries Service), 2016. *Technical Guidance for Assessing the Effects of Anthropogenic Sound on Marine Mammal Hearing: Underwater Acoustic Thresholds for Onset of Permanent and Temporary Threshold Shifts*. U.S. Dept. of Commerce, NOAA. NOAA Technical Memorandum NMFS-OPR-55, 178 p.

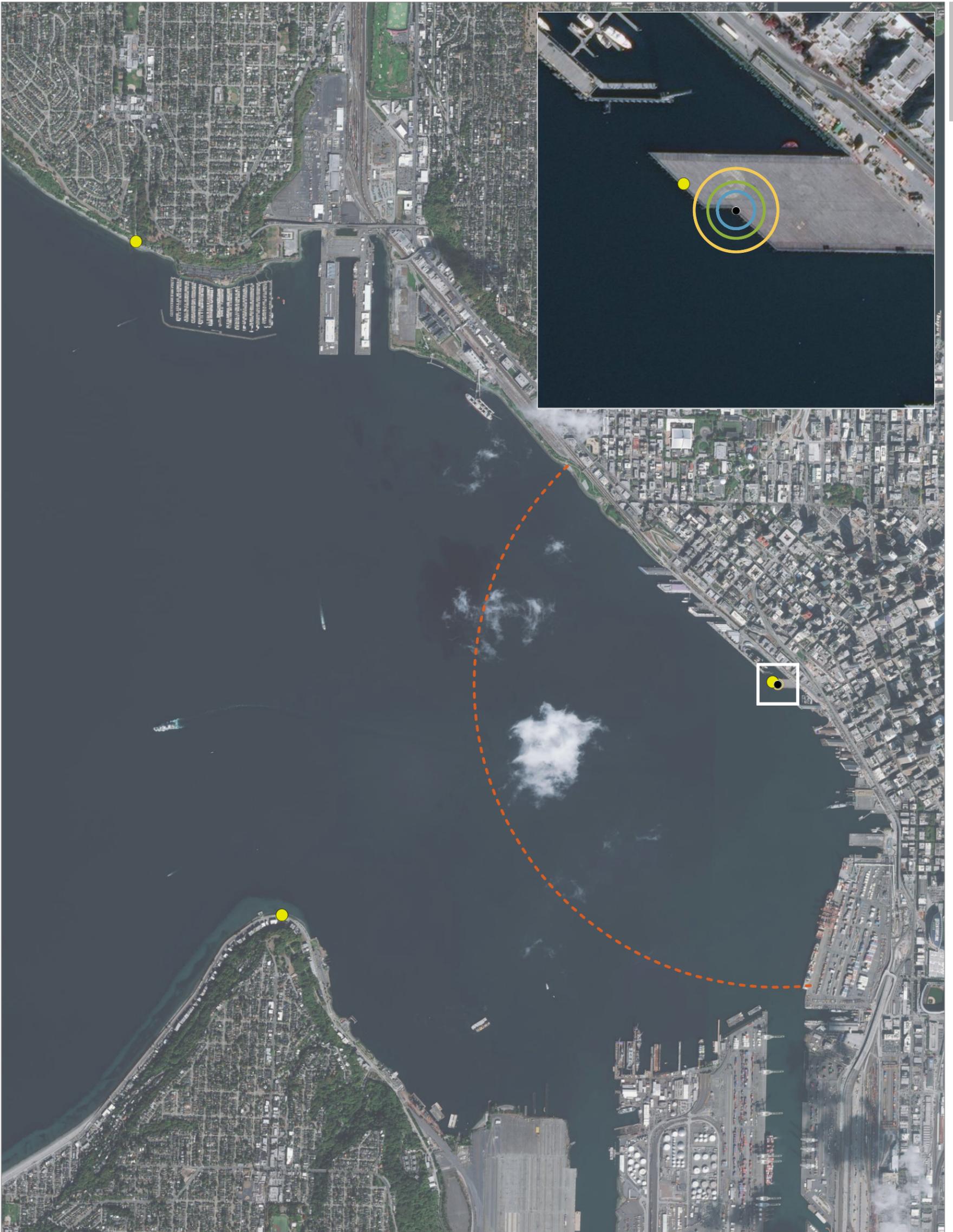
NMFS and USFWS (U.S. Fish and Wildlife Service), 2017. *Joint National Marine Fisheries Service's and U.S. Fish and Wildlife Service's Endangered Species Act (ESA) Section 7(a)(2) Biological opinion, Letter of Concurrence, and Magnuson-Stevens Fishery Conservation and Management Act Essential Fish Habitat Consultation for the Pier 62 Project*.

NOAA (National Oceanic and Atmospheric Administration), 2017. *Marine Mammal Protection Act Incidental Harassment Authorization for the Pier 62 Project*. October 4, 2017.

Attachment A

Figures

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**LEGEND:**

**Exclusion Zone – Vibratory Removal (Timber Pile)<sup>1</sup>**

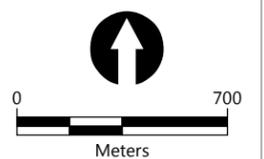
- Mid-Frequency Cetaceans, Otariid Pinnipeds, and Phocid Pinnipeds (35 feet / 11 meters)
- Low-Frequency Cetaceans (57 feet / 17 meters)
- High-Frequency Cetaceans (84 feet / 26 meters)

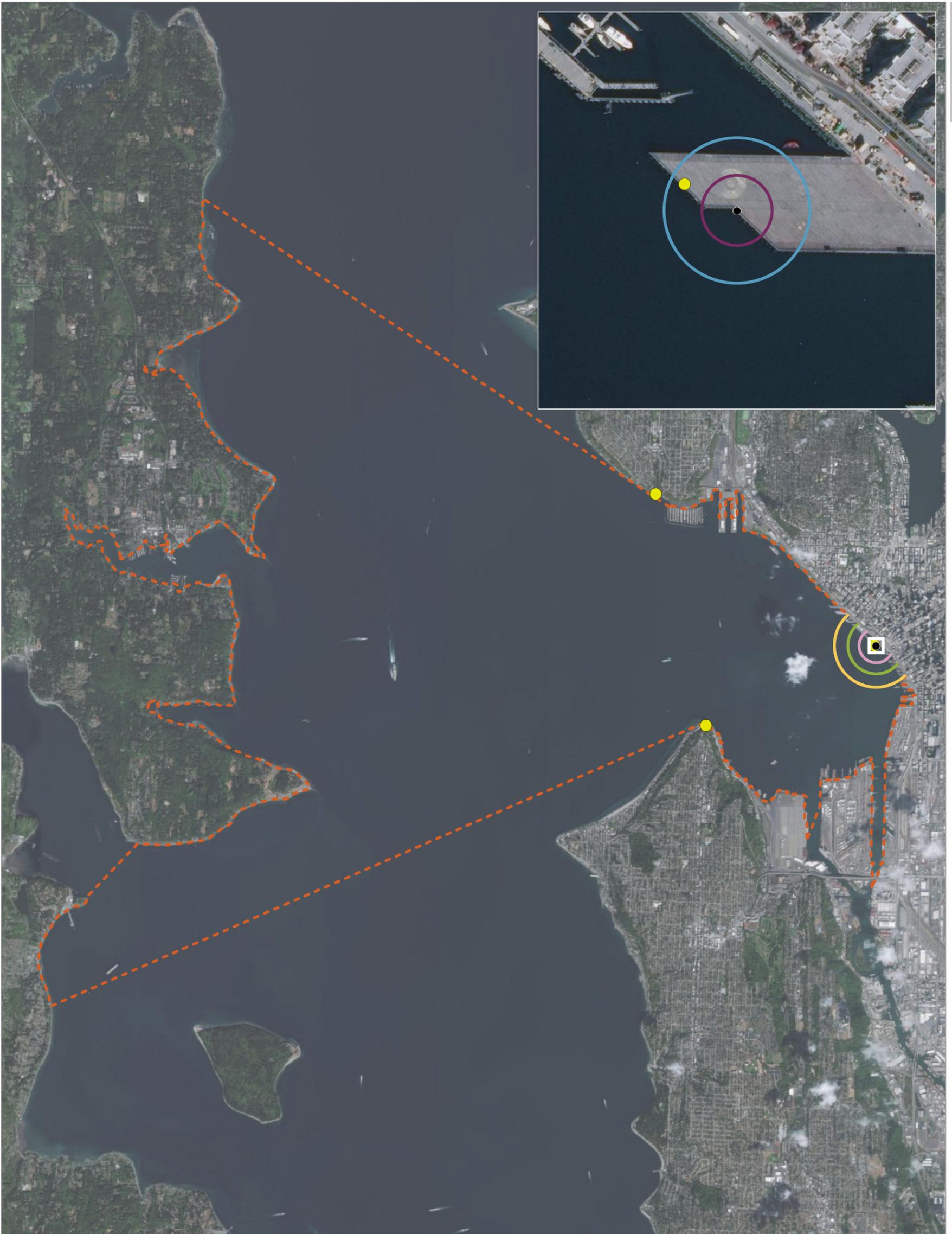
**Level B Harassment Zone – All Hearing Groups<sup>2</sup>**

- - - All Cetaceans, Otariids, and Phocids (6,119 feet / 1.2 miles / 1,865 meters)
- Marine Mammal Monitor Location
- Hammer Location

**NOTES:**

1. Exclusion zones will be adjusted as needed, based on location of hammer operations.
2. Harassment zone extends from the dashed line (1,865 meters) to the exclusion zone for each hearing group.





**LEGEND:**

**Exclusion Zone – Vibratory Installation (Steel Pile)**

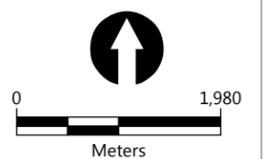
- Otariid Pinnipeds (72 feet / 22 meters)
- Mid-Frequency Cetaceans (148 feet / 45 meters)
- Phocid Pinnipeds (1,007 feet / 307 meters)
- Low-Frequency Cetaceans (1,656 feet / 505 meters)
- High-Frequency Cetaceans (2,449 feet / 746 meters)

**Level B Harassment Zone - All Hearing Groups<sup>1</sup>**

- All Cetaceans, Otariids, and Phocids (177,549 feet / 33.6 miles / 54,117 meters)
- Marine Mammal Monitor Location
- Hammer Location

**NOTES:**

1. Level B zone measured from end of permanent threshold shift for each hearing group out to common land-based attenuation points shown on map.
2. Harassment zone extends from the dashed line (54,117 meters) to the exclusion zone for each hearing group.



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# Attachment B

## Monitoring Data

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**Table B-1**

**Daily Summary of Pile Driving Activity, Weather Conditions, Species Observed, Time, Duration, Distance from Pile Driving, and Species Behavior, Per Monitoring Site**

Date, Activity, Weather Conditions	Monitoring Site	Species Observed (quantity)	Take (Yes/No)	Time and Duration Observed	Distance from Pile Driving	Swimming	Foraging	Resting	Intermittent	Near shoreline	No Observable Change in Behavior During Hammer Operation	Pile Activity at Time of Sighting	Additional Information	
Friday, December 29, 2017	Construction Site	None	No	NA	NA							NA		
	Alki Site	CSL (2)	Yes	0830 to 1120 (3 Hours and 50 Minutes)	~9,000 ft (~2,740 m)			x						
HS (1)		Yes	0900 to 0907 (7 Minutes)	~9,000 ft (~2,740 m)	x						x	Vibratory sheetpile installation		
HS (1)		Yes	0930 to 0931 (1 Minute)	~9,000 ft (~2,740 m)	x						x	Vibratory sheetpile installation		
Weather Conditions: Overcast and rain, mild wind, mid 40 °F (4 °C).	Magnolia Site	CSL (1)	No	0801 to 0804 (3 Minutes)	~15,900 ft (~4.87 km)	x						None	Occurred more than 30 minutes prior to hammer activity, so not included in the take tally count.	
		CSL (1)	No	0820 to 0822 (2 Minutes)	~15,000 ft (~4.6 km)	x						None	Occurred more than 30 minutes prior to hammer activity, so not included in the take tally count.	
		HS (1)	No	0825 to 0826 (1 Minute) and 0830 to 0831 (1 Minute)	~15,200 ft (~4.6 km)	x						None	Occurred more than 30 minutes prior to hammer activity, so not included in the take tally count.	
		HS (1)	No	0826 to 0827 (1 Minute)	~15,800 ft (~4.7 km)	x						None	Occurred more than 30 minutes prior to hammer activity, so not included in the take tally count.	
		HS (1)	Yes	0853 to 0854 (1 Minute)	~15,000 ft (~4.6 km)	x							Vibratory sheetpile installation	Observed 9 minutes before pile installation began.
		HS (1)	Yes	0923 to 0924 (1 Minute)	~15,800 ft (~4.7 km)	x							Vibratory sheetpile installation	Observed 2 minutes after pile installation ended.
		HS (1)	Yes	0935 to 0936 (1 Minute)	~16,000 ft (~4.8 km)	x							Vibratory sheetpile installation	Observed 15 minutes after pile installation ended.
		HS (3)	Yes	0940 to 0943 (3 Minutes)	~15,800 ft (~4.7 km)	x				x			Vibratory sheetpile installation	Observed 20 minutes after pile installation ended.
		HS (1)	No	0951 to 0952 (1 Minute)	~15,600 ft (~4.7 km)	x							None	Occurred more than 30 minutes after and prior to hammer activity, so not included in the take tally count.
		HS (1)	No	0953 to 0954 (1 Minute)	~15,800 ft (~4.7 km)	x							None	Occurred more than 30 minutes after and prior to hammer activity, so not included in the take tally count.
		HS (1)	Yes	1045 to 1046 (1 Minute)	~15,600 ft (~4.7 km)	x						x	Vibratory sheetpile installation	
		CSL (1)	Yes	1116 to 1117 (1 Minute)	~14,500 ft (~4.4 km)	x							Vibratory sheetpile installation	Observed 19 minutes after pile installation ended.

**Table B-1**

**Daily Summary of Pile Driving Activity, Weather Conditions, Species Observed, Time, Duration, Distance from Pile Driving, and Species Behavior, Per Monitoring Site**

Date, Activity, Weather Conditions	Monitoring Site	Species Observed (quantity)	Take (Yes/No)	Time and Duration Observed	Distance from Pile Driving	Swimming	Foraging	Resting	Intermittent	Near shoreline	No Observable Change in Behavior During Hammer Operation	Pile Activity at Time of Sighting	Additional Information	
Friday, January 19, 2018  Pile Hammer Activity: Vibratory pile removal from 0820 to 1150. More than 60 minute break from 0940 to 1055.  Weather Conditions: Overcast, moderate wind, mid 40 °F (4 °C).	Construction Site	CSL (1)	No	1015 to 1017 (2 Minutes)	~200 ft (~61 m)	x						None	Occurred more than 30 minutes after and prior to hammer activity, so not included in the take tally count.	
	Alki Site	HS (1)	No	0809 to 0810 (1 Minute), 0932 to 0933 (1 Minute), and 1118 to 1120 (2 Minutes)	~8,000 ft (~2,440 m)	x	x				x	Vibratory pile removal	Observed outside take zone for vibratory pile removal.	
		CSL (10)	No	0813 to 1220 (4 Hours and 7 Minutes)	~7,500 ft (~2,290 m)	x	x	x			x	Vibratory pile removal	Observed outside take zone for vibratory pile removal.	
		CSL (1)	No	1106 to 1108 (2 Minutes)	~8,000 ft (~2,440 m)	x						None	Observed 11 minutes after pile removal ended and observed outside take zone for vibratory pile removal.	
	Magnolia Site	HS (1)	No	1044 to 1045 (1 Minute)	~21,000 ft (~6.4 km)	x						None	Observed 10 minutes prior to pile removal start and observed outside take zone for vibratory pile removal.	
Monday, January 22, 2018  Pile Hammer Activity: Vibratory pile removal from 1300 to 1505. More than 60 minute break from 1340 to 1445.  Weather Conditions: Overcast and sun, moderate wind, mid 40 °F (4 °C).	Construction Site	None	No	NA	NA							NA		
	Alki Site	CSL (7)	No	1230 to 1535 (3 Hours and 5 Minutes)	~7,500 ft (~2,290 m)			x				Vibratory pile removal	Observed outside take zone for vibratory pile removal.	
	Magnolia Site	HS (1)	No	1405 to 1406 (1 Minute)	~18,000 ft (~5.5 km)	x							None	Observed 26 minutes after pile removal ended and observed outside take zone for vibratory pile removal.
		HS (1)	No	1425 to 1426 (1 Minute)	~20,000 ft (~6.1 km)	x							None	Observed 20 minutes prior to pile removal start and observed outside take zone for vibratory pile removal.
		CSL (1)	No	1520 to 1521 (1 Minute)	~15,000 ft (~4.6 km)	x							None	Observed 15 minutes after pile removal ended and observed outside take zone for vibratory pile removal.
Tuesday, January 23, 2018  Pile Hammer Activity: Vibratory pile removal from 0840 to 1415. More than 60 minute break from 1028 to 1310.  Weather Conditions: Overcast and rain, mild wind, mid 40 °F (4 °C).	Construction Site	None	No	NA	NA							NA		
	Alki Site	CSL (5)	No	0745 to 1522 (7 Hours and 37 Minutes)	~7,500 ft (~2,290 m)	x		x			x	Vibratory pile removal	Observed outside take zone for vibratory pile removal.	
		HS (1)	No	0901 to 0902 (1 Minute)	~8,000 ft (~2,440 m)	x					x	Vibratory pile removal	Observed outside take zone for vibratory pile removal.	
		HS (1)	No	1027 to 1028 (1 Minute)	~5,000 ft (~1,520 m)	x					x	Vibratory pile removal	Observed outside take zone for vibratory pile removal.	
	Magnolia Site	HS (2)	No	0813 to 0820 (7 Minutes)	~15,400 ft (~4.7 km)	x							None	Observed 20 minutes prior to pile removal start and observed outside take zone for vibratory pile removal.
		HS (1)	No	1133 to 1134 (1 Minute)	~15,400 ft (~4.7 km)	x							None	Observed more than 30 minutes after and prior to hammer activity and outside take zone for vibratory pile removal.
		HS (1)	No	1400 to 1401 (1 Minute)	~15,200 ft (~4.6 km)	x					x	Vibratory pile removal	Observed outside take zone for vibratory pile removal.	
		HS (1)	No	1430 to 1434 (4 Minutes)	~15,400 ft (~4.7 km)	x							None	Observed 15 minutes after pile removal ended and observed outside take zone for vibratory pile removal.
		HS (1)	No	1456 to 1458 (2 Minutes)	~15,200 ft (~4.6 km)	x							None	Occurred more than 30 minutes after hammer activity and outside take zone for vibratory pile removal.

**Table B-1**

**Daily Summary of Pile Driving Activity, Weather Conditions, Species Observed, Time, Duration, Distance from Pile Driving, and Species Behavior, Per Monitoring Site**

Date, Activity, Weather Conditions	Monitoring Site	Species Observed (quantity)	Take (Yes/No)	Time and Duration Observed	Distance from Pile Driving	Swimming	Foraging	Resting	Intermittent	Near shoreline	No Observable Change in Behavior During Hammer Operation	Pile Activity at Time of Sighting	Additional Information	
<p>Wednesday, January 24, 2018</p> <p>Pile Hammer Activity: Vibratory pile removal from 1018 to 1045 and 1126 to 1159.</p> <p>Weather Conditions: Overcast, moderate wind, mid 40 °F (4 °C).</p>	Construction Site	CSL (1)	No	0935 to 0937 (2 Minutes)	~150 ft (~46 m)	x						None	Occurred more than 30 minutes prior to hammer activity, so not included in the take tally count.	
		HS (1)	No	1245 to 1248 (3 Minutes)	~75 ft (~23 m)	x							None	Occurred more than 30 minutes after hammer activity, so not included in the take tally count.
		HS (1)	No	1320 to 1322 (2 Minutes)	~110 ft (~33 m)	x							None	Occurred more than 30 minutes after hammer activity, so not included in the take tally count.
	Alki Site	CSL (8)	No	0930 to 1159 (2 Hours and 29 Minutes)	~7,500 ft (~2,290 m)			x				x	Vibratory pile removal	Observed outside take zone for vibratory pile removal.
		HS (1)	No	1105 to 1159 (54 Minutes)	~8,000 ft (~2,440 m)			x					None	Seal on shoreline. Seal arrived and reentered Elliott Bay during monitoring period. Observed outside take zone for vibratory pile removal.
		HS (1)	No	1110 to 1111 (1 Minute)	~8,000 ft (~2,440 m)	x							None	Observed during 41 minute break in pile removal activity and observed outside take zone for vibratory pile removal.
		CSL (1)	No	1215 to 1216 (1 Minute)	~7,500 ft (~2,290 m)	x							None	Observed 21 minutes after pile removal ended and observed outside take zone for vibratory pile removal.
		CSL (1)	No	1222 to 1223 (1 Minute)	~7,500 ft (~2,290 m)	x							None	Observed 28 minutes after pile removal ended and observed outside take zone for vibratory pile removal.
	Magnolia Site	CSL (1)	No	1042 to 1043 (1 Minute)	~18,000 ft (~5.5 km)							x	Vibratory pile removal	Observed outside take zone for vibratory pile removal.
	<p>Thursday, January 25, 2018</p> <p>Pile Hammer Activity: Vibratory pile removal from 1200 to 1309.</p> <p>Weather Conditions: Overcast and rain, mild wind, mid 40 °F (4 °C).</p>	Construction Site	CSL (1)	Yes	1202 to 1204 (2 Minutes) and 1245 to 1246 (1 minute)	~100 ft (~30 m) and ~80 ft (~24 m)	x					x	Vibratory pile removal	
Alki Site		CSL (4)	No	1130 to 1500 (3 Hours and 30 Minutes)	~9,800 ft (~2,990 m)			x				x	Vibratory pile removal	Observed outside take zone for vibratory pile removal.
		HS (1)	No	1200 to 1215 (15 Minutes)	~9,500 ft (~2,900 m)	x						x	Vibratory pile removal	Observed outside take zone for vibratory pile removal.
		HS (1)	No	1237 to 1258 (21 Minutes)	~10,200 ft (~3,110 m)	x						x	Vibratory pile removal	Observed outside take zone for vibratory pile removal.
Magnolia Site		None	No	NA	NA								NA	
<p>Friday, January 26, 2018</p> <p>Pile Hammer Activity: Vibratory pile removal from 0947 to 1001.</p> <p>Weather Conditions: Overcast, rain, moderate wind, mid 40 °F (4 °C).</p>	Construction Site	CSL (1)	Yes	0932 to 0934 (2 Minutes)	~90 ft (~27 m)	x						None	Observed 13 minutes before pile removal started.	
	Alki Site	None	No	NA	NA								NA	
	Magnolia Site	None	No	NA	NA								NA	

**Table B-1**

**Daily Summary of Pile Driving Activity, Weather Conditions, Species Observed, Time, Duration, Distance from Pile Driving, and Species Behavior, Per Monitoring Site**

Date, Activity, Weather Conditions	Monitoring Site	Species Observed (quantity)	Take (Yes/No)	Time and Duration Observed	Distance from Pile Driving	Swimming	Foraging	Resting	Intermittent	Near shoreline	No Observable Change in Behavior During Hammer Operation	Pile Activity at Time of Sighting	Additional Information	
<p>Wednesday, January 31, 2018</p> <p>Pile Hammer Activity: Vibratory pile removal from 1238 to 1320 and 1410 to 1445.</p> <p>Weather Conditions: Overcast and sun, mild wind, mid 40 °F (4 °C).</p>	Construction Site	None	No	NA	NA							NA		
	Alki Site	CSL (2)	No	1130 to 1530 (4 Hours and 0 Minutes)	~7,500 ft (~2,290 m)			x				Vibratory pile removal	Observed outside take zone for vibratory pile removal.	
	Magnolia Site	CSL (1)	No	1342 to 1343 (1 Minute)	~18,000 ft (~5.5 km)	x							None	Observed during 50 minute break in pile removal activity and observed outside take zone for vibratory pile removal.
		CSL (1)	No	1412 to 1413 (1 Minute)	~18,000 ft (~5.5 km)	x					x		Vibratory pile removal	Observed outside take zone for vibratory pile removal.
<p>Thursday, February 1, 2018</p> <p>Pile Hammer Activity: Vibratory pile removal from 1000 to 1035.</p> <p>Weather Conditions: Overcast, rain, moderate wind, mid 40 °F (4 °C).</p>	Construction Site	CSL (2)	Yes	1020 to 1026 (6 Minutes)	~1,000 ft (~305 m)	x	x				x	Vibratory pile removal		
		CSL (1)	Yes	1035 to 1037 (2 Minutes)	~200 ft (~61 m)	x						x	Vibratory pile removal	
	Alki Site	CSL (3)	No	0930 to 1445 (5 Hours and 15 Minutes)	~9,800 ft (~2,990 m)			x				x	Vibratory pile removal	Observed outside take zone for vibratory pile removal.
		HS (1)	No	0950 to 1030 (40 Minutes)	~10,100 ft (~3,080 m)	x						x	Vibratory pile removal	Observed outside take zone for vibratory pile removal.
		HS (1)	No	1016 to 1030 (14 Minutes)	~10,100 ft (~3,080 m)	x			x			x	Vibratory pile removal	Observed outside take zone for vibratory pile removal.
		CSL (1)	No	1225 to 1230 (5 Minutes)	~10,000 ft (~3,050 m)	x							None	Occurred more than 30 minutes after hammer activity and outside take zone for vibratory pile removal.
	Magnolia Site	HS (1)	No	1015 to 1016 (1 Minute)	~15,000 ft (~4.6 km)	x						x	Vibratory pile removal	Observed outside take zone for vibratory pile removal.
		HS (2)	No	1257 to 1313 (16 Minutes)	~15,000 ft (~4.6 km)	x							None	Occurred more than 30 minutes after hammer activity and outside take zone for vibratory pile removal.
<p>Friday, February 2, 2018</p> <p>Pile Hammer Activity: Vibratory pile removal from 0815 to 0845 and 1130 to 1225.</p> <p>Weather Conditions: Overcast, rain, moderate wind, mid 40 °F (4 °C).</p>	Construction Site	None	No	NA	NA							NA		
	Alki Site	HS (1)	No	0759 to 0801 (2 Minutes)	~10,000 ft (~3,050 m)	x								Observed 14 minutes before pile removal started and observed outside take zone for vibratory pile removal.
		CSL (3)	No	0735 to 1315 (5 Hours and 30 Minutes)	~8,000 ft (~2,440 m)			x				x	Vibratory pile removal	Observed outside take zone for vibratory pile removal.
		CSL (3)	No	0935 to 0945 (10 Minutes)	~10,000 ft (~3,050 m)	x							None	Occurred more than 30 minutes after hammer activity and outside take zone for vibratory pile removal.
		HS (1)	No	0954 to 0955 (1 Minute)	~10,000 ft (~3,050 m)	x							None	Occurred more than 30 minutes after hammer activity and outside take zone for vibratory pile removal.
		HS (1)	No	1000 to 1315 (3 Hours and 15 Minutes)	~10,000 ft (~3,050 m)				x			x	Vibratory pile removal	Seal on shoreline. Seal arrived during monitoring period and was still on shoreline at end of monitoring period. Observed outside take zone for vibratory pile removal.
		CSL (1)	No	1000 to 1315 (3 Hours and 15 Minutes)	~8,000 ft (~2,440 m)				x			x	Vibratory pile removal	Observed outside take zone for vibratory pile removal.
		CSL (1)	No	1204 to 1315 (1 Hour and 11 Minutes)	~8,000 ft (~2,440 m)				x			x	Vibratory pile removal	Observed outside take zone for vibratory pile removal.
Magnolia Site	None	No	NA	NA								NA		

**Table B-1**

**Daily Summary of Pile Driving Activity, Weather Conditions, Species Observed, Time, Duration, Distance from Pile Driving, and Species Behavior, Per Monitoring Site**

Date, Activity, Weather Conditions	Monitoring Site	Species Observed (quantity)	Take (Yes/No)	Time and Duration Observed	Distance from Pile Driving	Swimming	Foraging	Resting	Intermittent	Near shoreline	No Observable Change in Behavior During Hammer Operation	Pile Activity at Time of Sighting	Additional Information
Saturday, February 3, 2018  Pile Hammer Activity: No vibratory hammer activity occurred.  Weather Conditions: Overcast, rain, moderate wind, mid 40 °F (4 °C).	Construction Site	None	No	NA	NA							NA	
	Alki Site	CSL (8)	No	0900 to 1230 (3 Hours and 30 Minutes)	~9,000 ft (~2.7 km)			x				None	
	Magnolia Site	None	No	NA	NA							NA	
Monday, February 5, 2018  Pile Hammer Activity: Vibratory pile removal from 0830 to 0935.  Weather Conditions: Overcast and sun, mild wind, mid 40 °F (4 °C).	Construction Site	None	No	NA	NA							NA	
	Alki Site	CSL (4)	No	0800 to 1130 (3 Hours and 30 Minutes)	~8,000 ft (~2,440 m)	x		x	x		x	Vibratory pile removal	Observed outside take zone for vibratory pile removal.
		CSL (3)	No	0958 to 1010 (12 Minutes)	~10,000 ft (~3.0 km)	x						None	Observed 23 minutes after pile removal ended and observed outside take zone for vibratory pile removal.
		CSL (1)	No	1000 to 1005 (5 Minutes)	~9,000 ft (~2,740 m)	x						None	Observed 25 minutes after pile removal ended and observed outside take zone for vibratory pile removal.
		HS (1)	No	1000 to 1100 (60 Minutes)	~9,000 ft (~2,740 m)	x			x			None	Observed 25 minutes after pile removal ended and observed outside take zone for vibratory pile removal.
Magnolia Site	None	No	NA	NA							NA		
Tuesday, February 6, 2018  Pile Hammer Activity: Vibratory pile removal from 1210 to 1305 and 1430 to 1445.  Weather Conditions: Overcast and sun, mild wind, mid 40 °F (4 °C).	Construction Site	None	No	NA	NA							NA	
	Alki Site	CSL (7)	No	1130 to 1515 (3 Hours and 45 Minutes)	~9,800 ft (~2,990 m)			x			x	Vibratory pile removal	Observed outside take zone for vibratory pile removal.
		HS (1)	No	1156 to 1200 (4 Minutes)	~10,300 ft (~3,140 m)	x					x	Vibratory pile removal	Observed outside take zone for vibratory pile removal.
		HS (1)	No	1203 to 1204 (1 Minute)	~10,300 ft (~3,140 m)	x					x	Vibratory pile removal	Observed outside take zone for vibratory pile removal.
		CSL (1)	No	1215 to 1216 (1 Minute)	~10,800 ft (~3,290 m)	x					x	Vibratory pile removal	Observed outside take zone for vibratory pile removal.
		HS (2)	No	1251 to 1300 (9 Minutes)	~11,600 ft (~3,540 m)	x					x	Vibratory pile removal	Observed outside take zone for vibratory pile removal.
		CSL (1)	No	1430 to 1431 (1 Minute)	~10,500 ft (~3,200 m)	x					x	Vibratory pile removal	Observed outside take zone for vibratory pile removal.
	HS (1)	No	1440 to 1450 (10 Minutes)	~10,900 ft (~3,320 m)	x					x	Vibratory pile removal	Observed outside take zone for vibratory pile removal.	
Magnolia Site	None	No	NA	NA							NA		

**Table B-1**

**Daily Summary of Pile Driving Activity, Weather Conditions, Species Observed, Time, Duration, Distance from Pile Driving, and Species Behavior, Per Monitoring Site**

Date, Activity, Weather Conditions	Monitoring Site	Species Observed (quantity)	Take (Yes/No)	Time and Duration Observed	Distance from Pile Driving	Swimming	Foraging	Resting	Intermittent	Near shoreline	No Observable Change in Behavior During Hammer Operation	Pile Activity at Time of Sighting	Additional Information	
<p>Wednesday, February 7, 2018</p> <p>Pile Hammer Activity: Vibratory pile removal from 1200 to 1300 and 1423 to 1444.</p> <p>Weather Conditions: Overcast and sun, mild wind, upper 40 °F (4 °C).</p>	Construction Site	HS (1)	No	1330 to 1334 (4 Minutes)	~110 ft (~33 m)	x						None	Occurred more than 30 minutes after hammer activity, so not included in the take tally count.	
	Alki Site	CSL (8)	No	1130 to 1511 (3 Hours and 41 Minutes)	~8,000 ft (~2,440 m)			x			x	Vibratory pile removal	Observed outside take zone for vibratory pile removal.	
		HS (2)	No	1131 to 1311 (1 Hour and 40 Minutes)	~8,000 ft (~2,440 m)	x	x				x	Vibratory pile removal	Observed outside take zone for vibratory pile removal.	
	Magnolia Site	HS (1)	No	1423 to 1451 (28 Minutes)	~8,000 ft (~2,440 m)	x					x	Vibratory pile removal	Observed outside take zone for vibratory pile removal.	
		CSL (1)	No	1140 to 1230 (50 Minutes)	~16,000 ft (~4.8 km)	x	x				x	Vibratory pile removal	Observed outside take zone for vibratory pile removal.	
		HS (1)	No	1250 to 1258 (8 Minutes)	~16,000 ft (~4.8 km)	x					x	Vibratory pile removal	Observed outside take zone for vibratory pile removal.	
<p>Thursday, February 8, 2018</p> <p>Pile Hammer Activity: Vibratory pile removal from 0900 to 0935.</p> <p>Weather Conditions: Overcast, mild wind, mid 40 °F (4 °C).</p>	Construction Site	None	No	NA	NA							NA		
	Alki Site	CSL (8)	No	0830 to 1200 (3 Hours and 30 Minutes)	~8,000 ft (~2,440 m)			x			x	Vibratory pile removal	Observed outside take zone for vibratory pile removal.	
	Magnolia Site	HS (1)	No	0923 to 0938 (15 Minutes)	~15,800 ft (~4.7 km)	x					x	Vibratory pile removal	Observed outside take zone for vibratory pile removal.	
<p>Friday, February 9, 2018</p> <p>Pile Hammer Activity: Vibratory pile removal from 1110 to 1200 and 1405 to 1445.</p> <p>Weather Conditions: Overcast and sun, mild wind, upper 40 °F (4 °C).</p>	Construction Site	HS (1)	No	0913 to 0917 (4 Minutes)	~1,100 ft (~335 m)	x						None	Occurred more than 30 minutes prior to hammer activity, so not included in the take tally count.	
		HS (1)	Yes	1421 to 1423 (2 Minutes)	~300 ft (~91 m)	x					x	Vibratory pile removal		
	Alki Site	CSL (9)	No	0900 to 1515 (5 Hours and 15 Minutes)	~7,500 ft (~2,290 m)			x			x	Vibratory pile removal	Observed outside take zone for vibratory pile removal.	
		HS (1)	No	0915 to 0920 (5 Minutes)	~100 ft (~30 m)	x							None	Observed 10 minutes after pile removal ended and observed outside take zone for vibratory pile removal.
	Magnolia Site	HS (1)	No	1210 to 1212 (2 Minutes)	~80 ft (~24 m)	x							None	Observed 10 minutes after pile removal ended and observed outside take zone for vibratory pile removal.
		CSL (1)	No	0942 to 0943 (1 Minute)	~18,000 ft (~5.5 km)	x							None	Occurred more than 30 minutes prior to hammer activity and outside take zone for vibratory pile removal.
<p>Saturday, February 10, 2018</p> <p>Pile Hammer Activity: Vibratory pile removal from 1315 to 1355 and 1458 to 1510.</p> <p>Weather Conditions: Sun, mild wind, upper 40 °F (4 °C).</p>	Construction Site	None	No	NA	NA							NA		
	Alki Site	CSL (8)	No	0930 to 1540 (6 Hours and 10 Minutes)	~8,000 ft (~2,440 m)	x	x	x	x		x	Vibratory pile removal	Observed outside take zone for vibratory pile removal.	
		HS (1)	No	1328 to 1410 (42 Minutes)	~7,500 ft (~2,290 m)	x			x		x	Vibratory pile removal	Observed outside take zone for vibratory pile removal.	
	Magnolia Site	HS (1)	No	1258 to 1259 (1 Minute)	~16,000 ft (~4.8 km)	x						None	Observed 16 minutes prior to pile removal start and observed outside take zone for vibratory pile removal.	

**Table B-1**

**Daily Summary of Pile Driving Activity, Weather Conditions, Species Observed, Time, Duration, Distance from Pile Driving, and Species Behavior, Per Monitoring Site**

Date, Activity, Weather Conditions	Monitoring Site	Species Observed (quantity)	Take (Yes/No)	Time and Duration Observed	Distance from Pile Driving	Swimming	Foraging	Resting	Intermittent	Near shoreline	No Observable Change in Behavior During Hammer Operation	Pile Activity at Time of Sighting	Additional Information	
Monday, February 12, 2018  Pile Hammer Activity: Vibratory pile removal from 0803 to 0840.  Weather Conditions: Sun, mild wind, upper 40 °F (4 °C).	Construction Site	None	No	NA	NA							NA		
	Alki Site	CSL (4)	No	0730 to 1100 (3 Hours and 30 Minutes)	~9,800 ft (~2,990 m)			x			x	Vibratory pile removal	Observed outside take zone for vibratory pile removal.	
	Magnolia Site	HS (1)	No	0740 to 0742 (2 Minutes)	~17,000 ft (~5.2 km)	x							None	Observed 19 minutes prior to pile removal start and observed outside take zone for vibratory pile removal.
		HS (3)	No	0822 to 0825 (3 Minutes)	~16,800 ft (~5.1 km)	x					x		Vibratory pile removal	Observed outside take zone for vibratory pile removal.
		CSL (1)	No	1026 to 1027 (1 Minute)	~16,800 ft (~5.1 km)	x							None	Occurred more than 30 minutes after hammer activity and outside take zone for vibratory pile removal.
		HS (1)	No	1048 to 1050 (2 Minutes)	~16,800 ft (~5.1 km)	x							None	Occurred more than 30 minutes after hammer activity and outside take zone for vibratory pile removal.
Tuesday, February 13, 2018  Pile Hammer Activity: Vibratory pile removal from 1240 to 1310.  Weather Conditions: Overcast and sun, mild wind, upper 40 °F (4 °C).	Construction Site	None	No	NA	NA							NA		
	Alki Site	CSL (13)	No	1130 to 1500 (3 Hours and 30 Minutes)	~9,500 ft (~2,900 m)	x		x	x		x	Vibratory pile removal	Observed outside take zone for vibratory pile removal.	
		HS (1)	No	1147 to 1148 (1 Minute), 1258 to 1259 (1 Minute), and 1309 to 1310 (1 Minute)	~9,500 ft (~2,900 m)	x			x		x	Vibratory pile removal	Observed outside take zone for vibratory pile removal.	
	Magnolia Site	CSL (1)	No	1303 to 1304 (1 Minute)	~15,000 ft (~4.6 km)	x					x	Vibratory pile removal	Observed outside take zone for vibratory pile removal.	
Wednesday, February 14, 2018  Pile Hammer Activity: Vibratory pile removal from 0910 to 0945 and 1335 to 1425.  Weather Conditions: Overcast, rain, moderate wind, mid 40 °F (4 °C).	Construction Site	HS (1)	Yes	0925 to 0928 (3 Minutes)	~200 ft (~61 m)	x					x	Vibratory pile removal		
	Alki Site	CSL (9)	No	0830 to 0949 (1 Hour and 19 Minutes)	~8,000 ft (~2,440 m)	x		x	x		x	Vibratory pile removal	Observed outside take zone for vibratory pile removal. View of buoy blocked by barge at 0949.	
		CSL (1)	No	1330 to 1331 (1 Minute)	~6,000 ft (~1,830 m)	x						None	Observed 5 minutes prior to pile removal start and observed outside take zone for vibratory pile removal.	
		HS (1)	No	1340 to 1341 (1 Minute)	~6,000 ft (~1,830 m)	x					x	Vibratory pile removal	Observed outside take zone for vibratory pile removal.	
	Magnolia Site	HS (1)	No	0924 to 0925 (1 Minute) and 0953 to 0954 (1 Minute)	~15,800 ft (~4.7 km)	x					x	Vibratory pile removal	Observed outside take zone for vibratory pile removal.	
		HS (1)	No	1227 to 1228 (1 Minute)	~15,800 ft (~4.7 km)	x						None	Observed more than 30 minutes after and prior to hammer activity and outside take zone for vibratory pile removal.	
		HS (1)	No	1406 to 1407 (1 Minute) and 1440 to 1441 (1 Minute)	~15,900 ft (~4.7 km)	x					x	Vibratory pile removal	Observed outside take zone for vibratory pile removal.	

**Table B-1**

**Daily Summary of Pile Driving Activity, Weather Conditions, Species Observed, Time, Duration, Distance from Pile Driving, and Species Behavior, Per Monitoring Site**

Date, Activity, Weather Conditions	Monitoring Site	Species Observed (quantity)	Take (Yes/No)	Time and Duration Observed	Distance from Pile Driving	Swimming	Foraging	Resting	Intermittent	Near shoreline	No Observable Change in Behavior During Hammer Operation	Pile Activity at Time of Sighting	Additional Information
Thursday, February 15, 2018	Construction Site	None	No	NA	NA							NA	
Pile Hammer Activity: Vibratory pile removal from 0917 to 1019, 1121 to 1151, and 1359 to 1410.  Weather Conditions: Overcast and sun, moderate wind, upper 40 °F (4 °C).	Alki Site	CSL (7)	No	0830 to 1440 (6 Hours and 10 Minutes)	~9,800 ft (~2,990 m)			x			x	Vibratory pile removal	Observed outside take zone for vibratory pile removal.
		HS (1)	No	0931 to 0933 (2 Minutes)	~9,900 ft (~3,020 m)	x					x	Vibratory pile removal	Observed outside take zone for vibratory pile removal.
		HS (1)	No	1128 to 1136 (8 Minutes)	~10,300 ft (~3,140 m)						x	Vibratory pile removal	Observed outside take zone for vibratory pile removal.
	Magnolia Site	HS (1)	No	0908 to 0909 (1 Minute)	~16,000 ft (~4.8 km)	x						None	Observed 8 minutes prior to pile removal start and observed outside take zone for vibratory pile removal.

Notes:  
 Some observations are not included in the take count because they occurred more than 30 minutes outside of pile driving activity or occurred outside the Harassment Zone.  
 CSL: California Sea Lion  
 ft: feet  
 HS: Harbor Seal  
 km: kilometer  
 m: meter  
 NA: Not Applicable

**Table B-2****Daily Summary of Documented California Sea Lion and Harbor Seal Takes,  
Per Monitoring Site**

Date	California Sea Lion				Harbor Seal			
	Construction Site	Alki Site	Magnolia Site	Total Takes	Construction Site	Alki Site	Magnolia Site	Total Takes
Friday, December 29, 2017	0	2	1	3	0	2	7	9
Friday, January 19, 2018	0	0	0	0	0	0	0	0
Monday, January 22, 2018	0	0	0	0	0	0	0	0
Tuesday, January 23, 2018	0	0	0	0	0	0	0	0
Wednesday, January 24, 2018	0	0	0	0	0	0	0	0
Thursday, January 25, 2018	1	0	0	1	0	0	0	0
Friday, January 26, 2018	1	0	0	1	0	0	0	0
Wednesday, January 31, 2018	0	0	0	0	0	0	0	0
Thursday, February 1, 2018	3	0	0	3	0	0	0	0
Friday, February 2, 2018	0	0	0	0	0	0	0	0
Saturday, February 3, 2018	0	0	0	0	0	0	0	0
Monday, February 5, 2018	0	0	0	0	0	0	0	0
Tuesday, February 6, 2018	0	0	0	0	0	0	0	0
Wednesday, February 7, 2018	0	0	0	0	0	0	0	0
Thursday, February 8, 2018	0	0	0	0	0	0	0	0
Friday, February 9, 2018	0	0	0	0	1	0	0	1
Saturday, February 10, 2018	0	0	0	0	0	0	0	0
Monday, February 12, 2018	0	0	0	0	0	0	0	0
Tuesday, February 13, 2018	0	0	0	0	0	0	0	0
Wednesday, February 14, 2018	0	0	0	0	0	0	0	0
Thursday, February 15, 2018	0	0	0	0	0	0	0	0
<b>Total</b>	<b>5</b>	<b>2</b>	<b>1</b>	<b>8</b>	<b>1</b>	<b>2</b>	<b>7</b>	<b>10</b>
Average	0.2	0.1	0.0	0.4	0.0	0.1	0.3	0.5

**Table B-3****Summary of Documented Takes, Per Species, by Monitoring Site**

Species	Construction Site	Alki Site	Magnolia Site	Total Takes	LOA Authorized Take	Observed but No Take <sup>1</sup>
California Sea Lion	5	2	1	8	1,469	159
Harbor Seal	1	2	7	10	1,695	62

Note:

1. Observed but No Take refers to individuals sighted during the required monitoring period but outside of the Level B Harassment Zone and/or more than 30 minutes prior to or following vibratory hammer activity.