

**2020 WHITTIER FERRY TERMINAL
MODIFICATION
Marine Mammal Monitoring and Mitigation Program Draft Report
for
National Marine Fisheries Service**



Prepared for



Harris Sand & Gravel, Inc.
PO Box 6
Valdez, AK 99686

Prepared by



FAIRWEATHERSCIENCE

Fairweather Science
301 Calista Court
Anchorage, AK 99518

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ACRONYMS AND ABBREVIATIONS

4MP	Marine Mammal Monitoring and Mitigation Plan
ACF	Alaska Class Ferry
AMHS	Alaska Marine Highway System
DPS	Distinct Population Segment
DOT&PF	Alaska Department of Transportation and Public Facilities
ESA	Endangered Species Act
FHWA	Federal Highway Administration
hr	hour
IHA	Incidental Harassment Authorization
km	kilometers
L _{pk}	peak level
LOC	Letter of Concurrence
m	meter
min	minute
MMPA	Marine Mammal Protection Act
NMFS	National Marine Fisheries Service
NOAA	National Oceanic and Atmospheric Administration
PM	Project manager
POC	Point of Contact
PSO	Protected Species Observer
PTS	Permanent Threshold Shift
QA/QC	Quality analysis and quality control
SEL	Sound Exposure Level
SOP	Standard Operating Procedures
SPL	sound pressure level

EXECUTIVE SUMMARY

Harris Sand & Gravel contracted Fairweather Science, LLC (Fairweather Science) to implement the Marine Mammal Monitoring and Mitigation Program during the 2020 Whittier Ferry Terminal Modification Project (Project) for pile installation and removal operations at the Whittier ferry terminal in Whittier, Alaska.

Marine mammal monitoring occurred during activities specified in the Incidental Harassment Authorization (IHA) and Letter of Concurrence (LOC) issued by the National Oceanic and Atmospheric Administration (NOAA) National Marine Fisheries Service (NMFS) on December 23 and October 29, 2019, respectively. The pile driving activities associated with the Project commenced on April 3, 2020 and concluded on April 14, 2020.

Pile driving activities, including impact and vibratory operations, occurred on April 3, 7-10, and 14, 2020. Three Protected Species Observers (PSOs) monitored continuously for at least 30 minutes (min) prior to initiation of pile driving activities, and 30 min after activities ceased. One PSO was stationed at the ferry terminal to monitor the Level A zone, and the other two PSOs monitored the larger Level B zone from locations along the shoreline.

The total on-effort PSO monitoring time was 86.1 hours (hr); PSOs recorded 71.7 hr of observation time when No Work was occurring and 14.4 hr of observation time when Work was occurring. A total of 20 sightings (i.e., groups) of approximately 46 individual animals were observed by PSOs from April 3 to April 14, 2020 (Table 1). Steller sea lions were the most frequently observed species, followed by harbor seals.

Mitigation measures identified in the IHA and LOC were incorporated into PSO field protocol for implementation during the Project. Prior to the start of pile driving operations, PSOs observed the Level A and Level B harassment zones (Section 2.2) for 30 min in order to request delays to pile driving if a marine mammal was present in a shutdown zone. During the Project, two marine mammal sightings were observed during the pre-construction watch period, neither of which resulted in a shutdown or work delay. Six marine mammal sightings were observed while operations were ongoing, none of which required mitigation, and there were no marine mammals observed post-activity.

As required by NMFS, this report is being submitted within 90 days of the Project completion date (April 14, 2020) and presents a summary of information requested in the IHA and LOC including, completed operations, cumulative numbers of marine mammal sightings, and number and type of mitigation measures implemented.

Table 1. Marine Mammal Sightings, Shutdowns, Level A and B Exposures during the Whittier Ferry Terminal Modification Project.

Marine Mammal Species	No. of Sightings¹	Estimated No. of Individuals	No. of Shutdowns/ Delays	No. of Project Level A Exposures	No. of Allowable Project Level A Exposures	No. of Project Level B Exposures²	No. of Allowable Project Level B Exposures
Humpback whale	0	0	0	0	0	0	6
Killer whale Resident & Transient	0	0	0	0	0	0	20
Dall's porpoise	1	6	0	0	0	0	5
Steller sea lion	9	27	0	0	0	10	15
Harbor seal	10	13	0	0	0	7	60
Total	20	46	0	0	0	17	106

¹One sighting equals one group.

²The number of Level B exposures has been extrapolated (20% of the Level B zone was not visible by the PSOs) and rounded up to the nearest whole number.

1.0 INTRODUCTION

The Alaska Department of Transportation and Public Facilities (DOT&PF) requested on behalf of the Federal Highway Administration (FHWA) a joint IHA and endangered species consultation with concurrence that the proposed action may affect, but is not likely to adversely affect, the western distinct population segment (DPS) of Steller sea lions (*Eumetopias jubatus*) and the Mexico and Western North Pacific DPSs of humpback whale (*Megaptera novaeangliae*).

NMFS issued an IHA to the DOT&PF on December 23, 2019, under the authority of Section 101(a)(5)(D) of the Marine Mammal Protection Act (MMPA; 16 U.S.C. 1371 (a)(5)(D)) for work proposed to occur during 2020 in Whittier, Alaska. This authorization allowed the DOT&PF to harass small numbers of marine mammals, by Level B acoustic harassment, incidental to the Project that commenced on April 3 and concluded on April 14, 2020. The IHA authorized a small number of takes for the following species: humpback whale, killer whale (*Orcinus orca*), Dall's porpoise (*Phocoenoides dalli*), Steller sea lion, and harbor seal (*Phoca vitulina*). NMFS completed informal consultation under section 7(a)(2) of the Endangered Species Act (ESA) on October 29, 2019 and concurred with the DOT&PF determination that Project activities were unlikely to adversely affect listed species occurring in the area.

The Project was located in Whittier, Alaska (Figure 1). Relocation of the S3 mooring structure of the ferry terminal required use of both impact and vibratory pile driving hammers. Pile installation and removal operations occurred on April 3, 7-10, and 14, 2020, with a total time of 6.6 hr of active hammering. Marine mammal monitoring occurred during pile driving activities, as specified in the IHA and LOC.

The specific objectives of the monitoring and mitigation program include:

- real-time mitigation
- estimate the number of "takes" of marine mammals by harassment
- collect data on the occurrence, distribution, and behaviors of marine mammals in the area of activity
- evaluate the distances, distributions, behaviors, and movements of marine mammals relative to the permitted activities

This report presents information on operations, marine mammal sightings, and mitigation measures implemented during the Project. Data fields and values are listed in Appendix A and example effort and marine mammal sighting forms are in Appendix B. A condensed version of the marine mammal sighting database is provided in Appendix C. Our complete master effort and sightings dataset is available in Excel form, upon request. Appendix D contains an example marine mammal stranding report form; however, no strandings were observed.

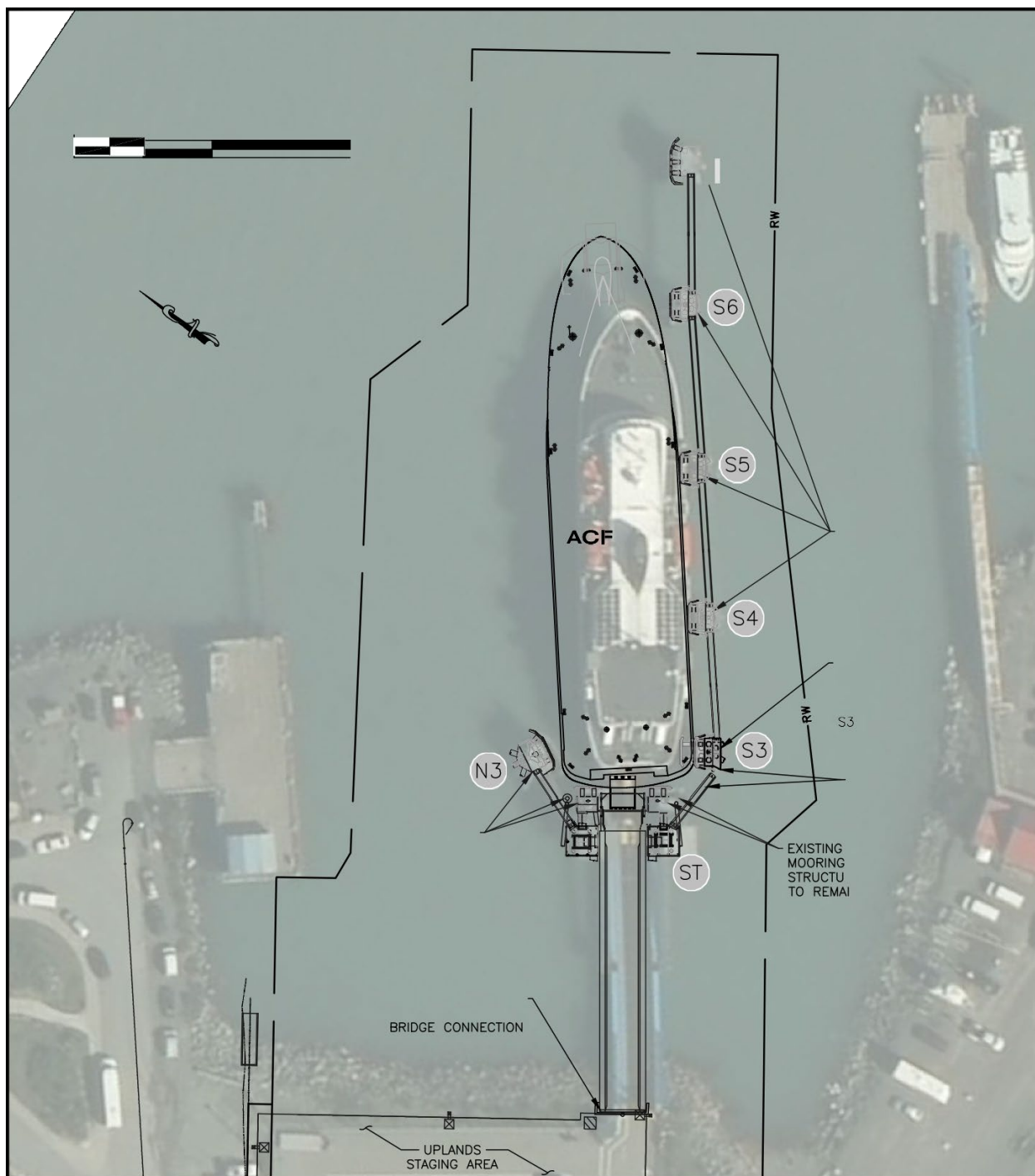


Figure 1. Whittier Ferry Terminal and Mooring Structures.

1.1 DESCRIPTION OF ACTIVITIES

The DOT&PF contracted Harris Sand & Gravel to modify the Whittier ferry terminal in Whittier, Alaska to accommodate the new Alaska Class Ferry (ACF). The ACF is a stern/bow roll on-roll off design with more efficient loading and unloading capabilities and greater capacity. Several ferry terminals along the Alaska Marine Highway System (AMHS), including the Whittier ferry terminal, need to be modified to accommodate the roll on-roll off design and to provide safe and efficient berthing. At the Whittier terminal, three actions were required:

1. Relocate mooring structure S3.
2. Modify existing catwalk and landing.
3. Modify shoreward floor beam – girder bridge connection.

Relocation of the S3 mooring structure at the Whittier ferry terminal required use of both impact and vibratory pile driving hammers. The vibratory hammer was used to extract the four 30-inch steel piles that form the S3 mooring structure and to reinstall the piles approximately 1.2 meters (m) southeast of their existing location. The impact hammer was used to proof the piles to a final depth of 19.8 m into the sea floor. Pile driving operations produced underwater noise in excess of harassment “take” thresholds established by NMFS and marine mammal monitoring was conducted during this activity in order to quantify authorized take and avoid unauthorized take. The additional construction activities, including modifications to the existing catwalk and landing, and bridge girder connection, occurred above water and did not produce underwater sound levels of concern. Monitoring was not required during these activities.

Prior to the Project start, a pre-construction teleconference was held on March 27, 2020 that was attended by representatives from DOT&PF, Harris Sand & Gravel, and Fairweather Science. On March 31, the Fairweather Science Project Manager (PM) and Lead PSO had a conference call with the Harris Sand & Gravel Construction Point of Contact (POC) to review communication protocols and mitigation procedures. PSO training occurred on April 2, and included marine mammal identification, data collection protocols, IHA and LOC permit review, mitigation measures, and Project operations.

Pile driving operations for the Project occurred on April 3, 7-10, and 14, 2020. Pile installation required use of both impact and vibratory hammers, and pile removal required use of the vibratory hammer. Over the six days that pile driving operations were conducted, active hammering occurred for a total time of 6.6 hr; the impact hammer was used for 0.2 hr and the vibratory hammer was used for 6.4 hr. One PSO was stationed at the ferry terminal to monitor the Level A zone, and two PSOs monitored the larger Level B zone from locations along the shoreline during pile driving operations.

2.0 MARINE MAMMAL MONITORING AND MITIGATION PROGRAM

The IHA authorized small numbers of takes (Table 1), by Level B harassment, for five NMFS-managed marine mammal species. Other species of marine mammals were recorded, if observed.

The Project utilized three land-based PSOs for marine mammal monitoring and mitigation during pile installation and removal activities. The PSO team had two primary objectives:

1. **Monitoring:** Record species, group size, behaviors, and proximity to the activity for marine mammal sightings during monitoring. Document potential animal reactions (when observed), and environmental variables that may affect the ability to detect marine mammals.
2. **Mitigation:** Initiate mitigation measures, including work shut down or delay activity, for marine mammals within, or about to enter, the applicable zones.

2.1 VISUAL OBSERVATIONS

Five potential observation stations were scouted and considered before the Project started; however, only three were used (Figure 2). The Level A harassment zone was monitored from Station 1. Initially, Station 1 was to be located at the end of the ferry terminal catwalk. Construction operations prohibited safe access to this location and a nearby alternate location, with a clear view of the Level A zones, was used instead. Station 2 was located 1.48 kilometers (km) away from Station 1 along the shoreline off of Shotgun Cove Road. Station 3 was originally located 2.57 km away from Station 1 along the shoreline off of Shotgun Cove Trail. Trail conditions made access difficult and unsafe, and Station 3 was relocated on April 8 to a location 1.58 km away from Station 1 off of Shotgun Cove Trail Road. Station 4, located farther down Shotgun Cove Trail, was only accessible by snow machine and no attempts were made to access this location. The Level A zone was monitored at all times from Station 1 and 80% of the Level B zone was visible from Stations 2 and 3 (final).

All three PSOs were equipped with 7x50 Fujinon reticle binoculars, a Bushnell rangefinder, a Canon Powershot camera, a Garmin GPS, and a clipboard with rite-in-the-rain datasheets. PSOs remained in contact with each other at all times via marine radios and cell phones. The Lead PSO communicated regularly with the Construction POC via marine radio on a designated working channel.

PSOs observed the Project area with the naked eye and binoculars, scanning the area in a systematic manner, including both far and near fields of view. PSOs were on watch during daylight hours and monitored from at least 30 min prior to planned pile driving operations until 30 min post-activity. When continuous observations extended beyond 4 hr, Station 3 was abandoned and the three PSOs rotated between Stations 1 and 2 to prevent observer fatigue while ensuring adequate coverage of the Level A zones.



Figure 2. PSO Stations for the 2020 Whittier Ferry Terminal Modification Project.

2.1.1 Data Collection

PSOs collected effort and sightings data to provide a comprehensive account of marine mammal observations in the context of Project activities. Data sheets (Appendix B) printed on Rite-in-the-Rain[®] paper were used to document all records. Paper data forms were chosen due to the brevity of the Project, expected low frequency of sightings, harsh early spring weather conditions in Whittier, and the lack of shelter at the PSO stations.

PSOs recorded effort data every 0.5 hr or when environmental conditions changed. Additionally, the Lead PSO, located at Station 1, recorded effort data any time there was a change in Project activity. Marine mammal sightings were recorded immediately upon observation. All effort and sighting data fields, values, and descriptions are provided in Appendix A.

PSOs transcribed effort and sightings data into a master Excel database housed on Google Docs at the end of each day of monitoring. All entries were Quality Assurance/Quality Controlled (QA/QCed) by the Lead PSO and the Fairweather Science PM. The Lead PSO distributed a daily marine mammal sightings summary to Harris Sand & Gravel personnel via email.

PSOs recorded the initial and secondary behaviors (as applicable) of each marine mammal sighting. The initial behavior was defined as the first behavior that observers noticed upon detecting the marine mammal. Secondary behaviors were additional behaviors observed over the duration of the sighting. Marine mammals were observed until they were no longer in view. PSOs also recorded any potential reactions that marine mammals may have had in response to Project operations. If the animal did not appear to acknowledge the ongoing activity, the reaction was coded as no reaction (none). For sightings comprised of more than one animal, the most common behavior of the group was recorded. Effort-specific data, particularly pile driving activity, was also recorded at the time of the sighting.

The PSOs and Fairweather Science management team were trained to follow protocol for reporting dead or injured marine mammals as outlined in the IHA (stipulation 6[c]). An example Level A Stranding Report form is provided in Appendix D.

2.2 MITIGATION MEASURES

PSOs established monitoring zones and shutdown zones around the pile driving area of activity in accordance with the Marine Mammal Monitoring and Mitigation Plan (4MP; Table 2). The shutdown zones implemented were slightly larger and, therefore, more conservative than those included in the NMFS issued IHA and LOC. The zones represented species-specific estimated 160-decibel disturbance harassment thresholds for marine mammals, as defined by NMFS. PSOs cleared the zones for 30 min prior to the start of pile driving activities. If any marine mammals were observed within the respective Level A shutdown zones, pile driving did not occur until the marine mammal was visually confirmed to have exited the shutdown zone or was not observed for an additional 30 min for cetaceans or 15 min for pinnipeds. PSOs observed the Project area for 30 min after pile driving operations ceased; pile driving did not occur later than 30 min prior to sunset to accommodate post-activity monitoring. All marine mammals observed within the Project area were documented.

Table 2. Level A and Level B Harassment Zones.

Activity	Level A Shutdown Zone (m)					Level B Monitoring Zone All Marine Mammals (km)
	LF Cetaceans (Humpback whale)	MF Cetaceans (Killer whale)	HF Cetaceans (Harbor porpoise)	Phocids (Harbor seal)	Otariids (Steller sea lion)	
Impact Pile	550	25	700	300	25	1.2
Vibratory Pile	50	50	50	50	50	12

3.0 MARINE MAMMAL MITIGATION AND MONITORING ANALYSIS METHODS

This section describes analysis methods for data collected during IHA and LOC specified pile driving activities during the Project. Terminology and definitions used in this section are defined in Table 3.

Table 3. Definitions of Data Collection and Analysis Terminology.

No Work effort	Periods during which PSOs were on watch and pile driving activities were not occurring (e.g., pre- and post-activity monitoring, no work, delay).
Work effort	Periods when PSOs were on watch and pile driving activities were occurring (e.g., vibratory pile installation, vibratory pile removal, impact pile installation, soft start).
Sighting	An observation of one of more marine mammals. One sighting equals one group.
Station	Location of PSOs.
Group (i.e., sighting)	One or more individuals in close proximity and behaving in a similar manner (e.g., coordinated surfacing, orientation, etc.).
Actual effort	Actual run time (hr:min) during which PSOs were on watch, accounts for duplication.
Total effort	Total on watch effort (hr:min); sum of independent watch periods of three PSOs.
Sighting rate	The number of marine mammal groups (or individuals) recorded per hour of observation effort. Sighting rates are calculated during No Work and Work effort.

3.1 MONITORING EFFORT AND ENVIRONMENTAL CONDITIONS

Monitoring effort was based on PSO observation effort records and calculated for No Work and Work watch periods. Effort by environmental conditions includes the Beaufort sea state and visibility. Beaufort sea state is presented by ranking on a 0-12 scale, and effort by visibility is presented at distances of 0-10.0 km. Precipitation is displayed as relative frequency. All environmental analyses using effort data were calculated using total PSO effort.

3.2 METHODS FOR CALCULATING EFFORT HOURS

Observation effort hours were calculated on a daily basis and added to a cumulative total. Daily No Work and Work observation time was recorded and summed for actual daily effort. The sum for each station was added together to capture the total PSO effort.

3.3 METHODS FOR CALCULATING SIGHTINGS AND SIGHTING RATES

Marine mammal observations are presented per species as number of sightings (i.e., one sighting equals one group), and estimated number of individuals. Rates were calculated for No Work, Work, and cumulative time periods. Actual observation effort was used to calculate all sighting rates.

3.4 MARINE MAMMAL BEHAVIOR

Marine mammal movement relative to Project activities, initial and secondary behavior states, and observable reactions were recorded for each marine mammal sighting. These data fields and associated values were consistent with those presented in other marine mammal monitoring and mitigation reports (e.g., Aerts et al. 2008; Blees et al. 2010; Fairweather Science 2020; Lomac-MacNair et al. 2014).

3.5 NUMBER OF EXPOSURES

Under the MMPA, NMFS defined levels of harassment for marine mammals. Level A harassment is defined as “...any act of pursuit, torment, or annoyance which has the potential to injure a marine mammal or marine mammal stock in the wild.” Level B harassment is defined as “...any act of pursuit, torment, or annoyance which has the potential to disturb a marine mammal or marine mammal stock in the wild by causing disruption of behavioral patterns, including, but not limited to, migration, breathing, nursing, breeding, feeding, or sheltering.”

For Level A, the NOAA Technical Memorandum NMFS-Office of Protected Resources provides guidelines for assessing the onset of permanent threshold shifts (PTS) from anthropogenic sound. Under this guideline, marine mammals were separated into five functional hearing groups. Source types are separated into impulsive and non-impulsive, and require analyses of the distance to the peak received sound pressure level (SPL, L_{pk}) and 24-hr cumulative sound exposure level (SEL_{24h}). Monitoring and shutdown zones (Table 2) were established based on marine mammal hearing thresholds and Project sound sources.

3.5.1 Implemented Mitigation Measures

The PSO team developed a Standard Operating Procedures (SOP) document prior to the commencement of the Project. The purpose of the SOP was to provide a brief summary of IHA and LOC requirements, marine mammal monitoring and shutdown zones, mitigation protocols, and communication processes. The document was distributed to relevant construction personnel so that all parties maintained a clear understanding of marine mammal-related monitoring and mitigation procedures throughout the duration of the Project.

4.0 RESULTS

The results below provide a summary of data collected while PSOs were on watch, during pile driving operations that occurred from April 3 to April 14, 2020.

4.1 EFFORT AND ENVIRONMENTAL CONDITIONS

4.1.1 Total Monitoring Effort

The total PSO monitoring effort associated with the Project was 86.1 hr, which included 23.7 hr of No Work effort and 14.4 hr of Work (pile driving operations; Table 4).

Table 4. Total PSO Observation Hours Relative to Pile Driving Activities.

Category	Activity	Actual Effort (HH:MM:SS)	Total Effort (HH:MM:SS)
No Work	Pre-activity	08:26:00	22:14:00
	Delay ¹	02:46:00	08:08:00
	No Work	15:22:00	34:22:00
	Post-activity	02:56:00	06:56:00
	Total	29:30:00	71:40:00
Work	Soft Start	00:03:00	00:07:00
	Vibratory Hammer (Installation)	03:50:00	08:45:00
	Vibratory Hammer (Removal)	02:32:00	05:15:00
	Impact Hammer	00:09:00	00:18:00
	Total	06:34:00	14:25:00
	TOTAL	36:04:00	86:05:00

¹Operations were delayed on April 7 due to sea otters observed within the Level B zone.

4.1.2 Monitoring Effort by Environmental Conditions

The environmental conditions in the Project area were favorable for effective monitoring efforts. Beaufort sea states ranged from 0 to 5, and were documented as 4 or less for 97% of the total monitoring effort (Figure 3). Sightability ranged from “Poor” to “Excellent”, and “Good” or “Excellent” was recorded for 75% of the total monitoring effort. Visibility ranged from 2 to 10 km, and a visibility of 3 km or more was recorded approximately 98% of the time (Figure 4). Precipitation occurred during 14% of effort hours (Figure 5) and included primarily snow (12% effort). Light rain and light fog were documented in four effort records.

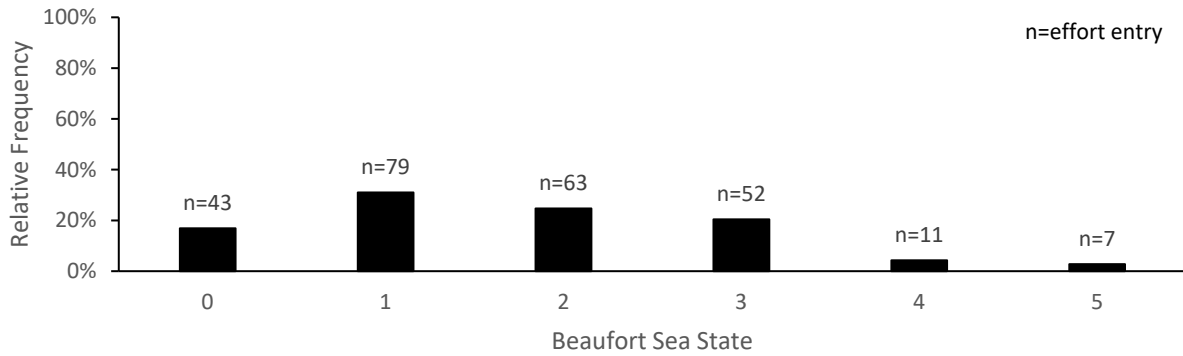


Figure 3. Relative Frequencies of Beaufort Sea State During the Project.

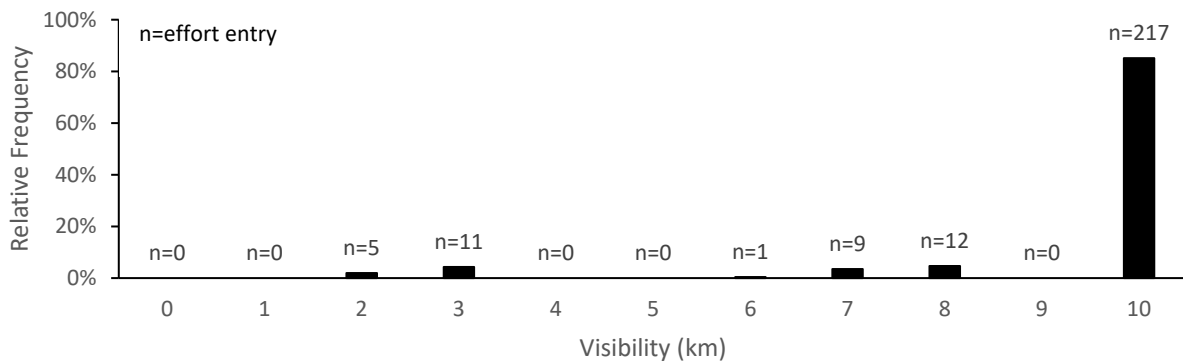


Figure 4. Relative Frequencies of Visibility Recorded During the Project.

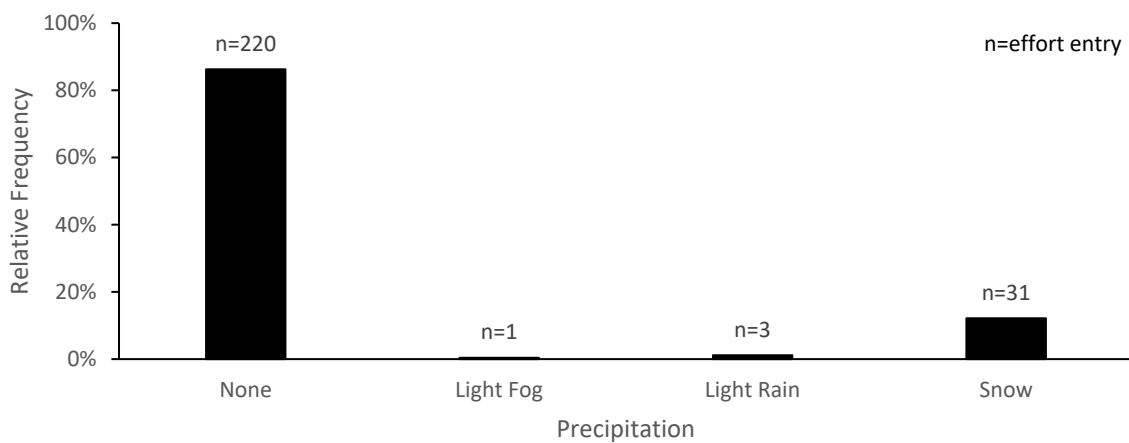


Figure 5. Relative Frequencies of Precipitation Types During the Project.

4.2 MARINE MAMMAL VISUAL OBSERVATIONS

4.2.1 Marine Mammal Sightings

During the Project, PSOs recorded a total of 20 independent marine mammal sightings comprised of 46 individuals (Table 5; Figure 6). The two sightings recorded at Station 3 (final), one sighting of Dall's porpoise and one of a Steller sea lion, are mapped on land. The likely cause is an incorrect bearing value, either due to faulty equipment or PSO error.

Table 5. Marine Mammal Sightings and Initial Behaviors Recorded During the Project.

Marine Mammal Species	No. of Sightings ¹	Estimated No. of Individuals ²	Initial Behaviors
Humpback whale	0	0	-
Killer whale	0	0	-
Dall's porpoise	1	6	Swim
Steller sea lion	9	27	Look, Surface active, Swim, Travel
Harbor seal	10	13	Look, Sink
Total	20	46	-

¹One sighting equals one group.

²Totals do not include re-sightings.

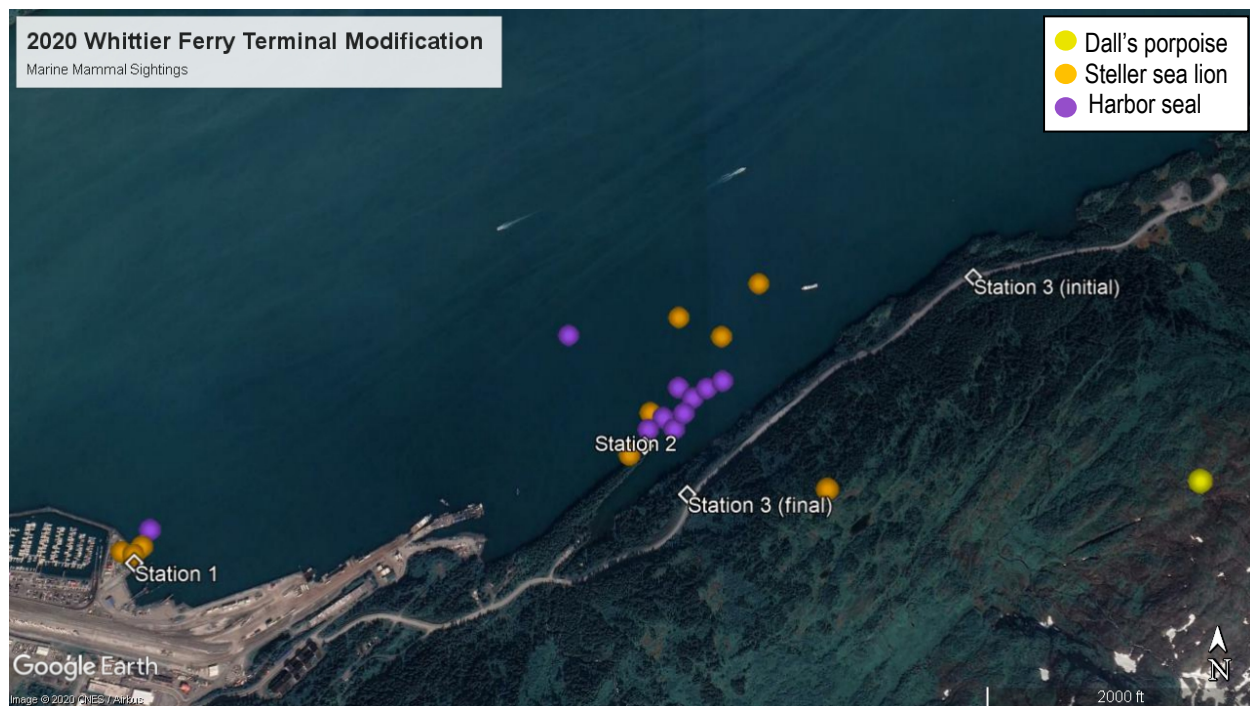


Figure 6. Marine Mammal Sightings

Table 6 presents the total marine mammal sightings recorded per station. Twenty percent (20%; n=4) of marine mammal sightings were recorded from Station 1, 70% (n = 14) from Station 2, and 10% (n=2) from Station 3 (final). There were no marine mammal sightings from the Station 3 (initial) location, when monitoring was conducted there on April 3 and 7.

Table 6. Total Marine Mammal Sightings and Estimated Individual Counts per PSO Station.

	Station 1		Station 2		Station 3 (final)¹		Total	
Species	No. of Sightings²	Estimated No. of Individuals³	No. of Sightings²	Estimated No. of Individuals³	No. of Sightings²	Estimated No. of Individuals³	No. of Sightings²	No. of Individuals³
Humpback whale	0	0	0	0	0	0	0	0
Killer whale	0	0	0	0	0	0	0	0
Dall's porpoise	0	0	0	0	1	6	1	6
Steller sea lion	3	12	5	14	1	1	9	27
Harbor seal	1	1	9	12	0	0	10	13
Total	4	13	14	26	2	7	20	46

¹ There were no sightings at the Station 3 (initial) location.

² One sighting equals one group.

³ Totals do not include individuals from re-sightings.

4.2.1.1 Cetaceans

One sighting of six Dall's porpoise was observed during the Project. The Dall's porpoise were observed for over an hour during a period of No Work, approximately 1.3 km from the Station 3 (final) location. The animals were observed swimming and diving at a slow pace.

4.2.1.2 Pinnipeds

Collectively, pinniped species were sighted between 25 m and 600 m from the PSO stations, with an average sighting distance of approximately 205 m. Pinnipeds were observed in groups of one to seven individuals, but sightings were solitary 53% (n=10) of the time.

4.2.1.2.1 Behavior

Pinniped initial behaviors recorded during the Project included, look, sink, surface active, swim, and travel (Table 7), and look was the most commonly recorded initial behavior. Secondary behaviors observed included, dive, sink, swim, and travel.

Table 7. Pinniped Sighting Initial Behaviors.

Pinniped Initial Behavior	Percent of Sightings¹ (%)	No. of Sightings
Look	58	11
Sink	5	1
Surface Active	11	2
Swim	21	4
Travel	5	1
Total	100	19

¹One sighting equals one group.

Steller Sea Lion

Steller sea lions were detected by the presence of a head (67%; n=6) or body (33%; n=3), and swim was the most commonly recorded initial behavior (44%). Behaviors were performed at slow, moderate, and vigorous paces. Group sizes ranged from one to seven animals. Seventy-eight percent (78%) of Steller sea lion sightings were observed during periods when No Work was occurring, and 22% of sightings were observed when the vibratory hammer was in use for pile installation or removal. Two reactions were recorded for Steller sea lions. One group of five animals was observed swimming at a moderate pace 1.8 km from the noise source during pile installation with the vibratory hammer. The animals were swimming west in a tight group before stopping in front of Station 2 and changing direction to swim east. A single Steller sea lion was observed swimming at a vigorous pace 375 m from Station 3 (final) immediately after pile driving with the impact hammer ceased. The observer recorded a potential reaction of "avoid". Distance to the noise source could not be determined due to an inaccurate bearing recorded for the sighting; however, Station 3 (final) was 1.5 km away from the noise source. No mitigation measures were required or implemented.

Harbor Seal

Harbor seal sightings were detected by the presence of a head (100%; n=10), and look was the most commonly recorded initial behavior (90%). All behaviors occurred at a slow pace (100%).

Most (80%) of the sightings were solitary animals. Sixty percent (60%) of sightings were observed during periods when No Work was occurring, and 40% of sightings were observed when the vibratory hammer was in use for pile installation or removal. No reactions were recorded for harbor seals. No mitigation measures were required or implemented.

4.2.2 Marine Mammal Sighting Rates

Table 8 presents overall marine mammal sighting and individual animal observation rates, and Table 9 shows sightings per hour and individuals observed per hour for effort during periods of No Work and Work.

Harbor seal sightings and individual Steller sea lions were observed at the highest overall rates (Table 8). Harbor seals and Steller sea lions were observed at higher rates during periods of Work effort than during No Work (Table 9). This, however, may have been influenced by a number of confounding variables such as weather conditions and low sample size.

Table 8. Marine Mammal Sighting Rates.

Species	No. of Sightings ¹	Estimated No. Individuals ²	Sightings/hour	Individuals/Hour
Humpback whale	0	0	0.00	0.00
Killer whale	0	0	0.00	0.00
Dall's porpoise	1	6	0.03	0.17
Steller sea lion	9	27	0.25	0.75
Harbor seal	10	13	0.28	0.36
Total	20	46	NA	NA

¹One sighting equals one group.

²Totals do not include individuals from re-sightings.

Six sightings of 13 individual animals were observed within the Level B zone during pile driving operations. Table 10 shows the total daily sighting rates for individual marine mammals observed in the Level B zone. Two sightings of a total of eight Steller sea lions (one sighting of three animals and one sighting of five animals) were observed in the Level B zone during vibratory pile driving operations (Table 10); these sightings were 1.7 and 1.8 km from the noise source. Four sightings of five individual harbor seals were observed in the Level B zone during vibratory pile driving operations. The harbor seals were observed between 1.5 and 1.7 km from the noise source.

Table 9. Marine Mammal Sighting Rates During No Work and Work Effort.

Species ¹	No Work				Work			
	No. of Sightings ²	Estimated No. Individuals ³	No. of Sightings/hour	No. of Individuals/Hour	No. of Sightings ²	Estimated No. Individuals ³	No. of Sightings/Hour	No. of Individuals/Hour
Dall's Porpoise	1	6	0.03	0.20	0	0	0.00	0.00
Steller sea lion	7	19	0.24	0.64	2	8	0.30	1.22
Harbor seal	6	8	0.20	0.27	4	5	0.61	0.76
Total	14	33	-	-	6	13	-	-

¹Includes observed species only. See Table 8 for a complete list of species and overall rates.

²One sighting equals one group.

³Totals do not include individuals from re-sightings.

Table 10. Daily Individual Sighting Rates for Marine Mammals Observed in the Level B Zone.

	Individuals ¹ in the Level B zone	Level B Zone Individuals/Day
Steller sea lion	8	1.33
Harbor seal	5	0.83

¹Includes observed species only. See Table 8 for a complete list of species and overall rates.

4.3 MARINE MAMMAL EXPOSURES

Six sightings were recorded within the Level B zone while vibratory pile installation and removal activities were occurring. Four harbor seal sightings of a total of five individuals (three sightings of a single animal and one sighting of two animals) and two Steller sea lion sightings of a total of eight individuals (one sighting of three animals and one sighting of eight animals) were observed during Work. All were observed from and in proximity to Station 2, with distances to the activity ranging from 1.5 km to 1.8 km. The PSOs were able to monitor 80% of the Level B zone, and the total number of marine mammal exposures was extrapolated. Therefore, 6.25 or seven harbor seals were exposed to Level B harassment; the number of allowable Project Level B exposures was 60. Ten Steller sea lions were exposed to Level B harassment; the number of allowable exposures was 15.

4.4 SUMMARY OF MITIGATION MEASURES

No shutdowns were implemented during the Project, and cetacean and pinniped sightings did not result in delays to operations (Table 11). All marine mammals observed prior to initiation of pile driving activities were visually confirmed beyond species-specific shutdown zones. Only three sightings of Steller sea lions occurred in proximity (25 m and 50 m) to the Level A shutdown zone; however, the sightings were observed during periods of No Work. All other sightings were well beyond their species-specific shutdown zones during both periods of No Work and Work.

Table 11. Mitigation Measures Implemented for Marine Mammal Sightings.

Species	Mitigation Measure ¹			
	Shut down	Delay ²	None	Total
Humpback whale	0	0	0	0
Killer whale	0	0	0	0
Dall's porpoise	0	0	1	1
Steller sea lion	0	0	9	9
Harbor seal	0	0	10	10
Total	0	0	20	20

¹Count refers to sightings, not individuals.

²Sightings that result in a delay of operations. The only delay occurred on April 7 and was due to a sea otter sighting.

5.0 REFERENCES

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- Blees, M.K., K.G. Hartin, D.S. Ireland, and D. Hannay. 2010. Marine mammal monitoring and mitigation during open water seismic exploration by Statoil USA E&P Inc. in the Chukchi Sea, August-October 2010: 90-day Report. LGL Report P1119. Prepared by LGL Alaska Research Associates Inc., LGL Ltd., and JASCO Research Ltd. for by Statoil USA E&P Inc., National Marine Fisheries Service, and U.S. Fish and Wildlife Service. 102 pp., plus appendices.
- Fairweather Science, LLC. 2020. 2019 Hilcorp Alaska Lower Cook Inlet Seismic Survey Marine Mammal Monitoring and Mitigation Report. Prepared for Hilcorp Alaska, LLC, 3800 Centerpoint Drive, Suite 1400, Anchorage, Alaska 99503 Submitted to National Oceanic and Atmospheric Administration, National Marine Fisheries Service, Office of Protected Resources, 1315 East West Highway, Silver Spring, MD 20910, and; United States Fish and Wildlife Service, 1011 East Tudor Road, #200, Anchorage, Alaska 99503. Prepared by Fairweather Science, 301 Calista Court, Anchorage, AK 99518. January 2020.
- Lomac-MacNair, K., M.A. Smultea and G. Campbell. 2014. Draft NMFS 90-Day Report for Marine Mammal Monitoring and Mitigation during Apache's Cook Inlet 2014 Seismic Survey, 2 April – 27 June 2014. Prepared for Apache Alaska Corporation, 510 L Street #310, Anchorage AK 99501. Prepared by Smultea Environmental Sciences (SES), P.O. Box 256, Preston, WA 98050.

APPENDIX A. EFFORT AND SIGHTINGS DATA FIELDS

EFFORT		
Field	Code	Definition
Location	A1	Alternate Station 1 – located at the ferry terminal (the catwalk station was inaccessible)
	S2	Station 2 – located along Shot Gun Cove Road, ~1.5 km from pile driving
	S3I	Station 3 Initial – located along Shot Gun Cove Trail, ~2.5 km from pile driving (Observations collected here April 3 and 7)
	S3F	Station 3 Final – located along Shot Gun Cove Road, ~1.6 km from pile driving (Observations collected here April 8-10 and 14)
PSO	XX	Initials of the PSO recording the data
Latitude	DD.DDDD	Location of observation station. Decimal degrees
Longitude	-DDD.DDDD	Location of observation station. Decimal degrees
Effort ID	XX-001	Individual ID for each Effort entry. Initials of the location followed by the number of the entry (e.g. S1001)
Date	DD-MM-YYYY	Date of entry
Time	HH:MM:SS	Time of entry using 24-hr clock
Watch	Start	Observations begin for the day or after a break in monitoring. Indicates the start of a continuous monitoring period.
	Watch	Continuous watch, entered between "Start" and "End".
	End	Observations end for the day or there is a break in monitoring due to weather or other circumstances. PSOs are off watch.
Activity	PRE	Pre-construction watch begins 30 minutes prior to the start of operations
	POST	Post-construction watch continues for 30 minutes after operations have ceased
	SS	Soft-start procedures will be implemented immediately prior to pile driving activities
	VIB	Vibratory pile installation
	VIBR	Vibratory pile removal
	IMP	Impact pile installation
	IMPR	Impact pile removal
	STAB	Stabbing
	DRILL	Drilling
	DELAY	Operations are delayed because a marine mammal has entered the EZ while the PSO was clearing the area.
	No Work	Continuous monitoring is occurring but no operations are underway.
	WX Down	Operations are ceased due to weather - shut down zones are not visible or the Beaufort sea state is above a 4.
	SHUT	Operations have been shut down for a marine mammal sighting.
	Other	Activity not otherwise captured by the above categories. Please describe in the Notes.
Strike Counts	#	Number of strikes. Please communicate with the construction POC as necessary.
Sea State (Beaufort)	0	Sea surface is calm and smooth like a mirror
	1	Scaly ripples, no foam crests
	2	Small wavelets, glassy crests, no breaking waves, cats paw
	3	Large wavelets, crests begin to break, scattered whitecaps
	4	Small waves 1-4 ft becoming longer, numerous whitecaps
	5	Moderate waves 4-8 ft taking longer form, many whitecaps, chance of spray
	6	Larger waves 8-13 ft, white foam crests everywhere, probably spray
	7	Sea heaps up, waves 13-19 ft, white foam streaks off breakers. Sightings are rare in a Bf ≥ 7 and monitoring is typically suspended.

EFFORT		
Field	Code	Definition
Visibility (km)	#	Number of kilometers visible to the horizon. Maximum value is 10 km. Use decimals when visibility is less than 1 km (500 m = 0.5 km).
% Glare	0-100	Percent of monitoring area covered by glare
Cloud Cover	#	Percent range of cloud cover: 0-10, 10-50, 50-90, 90-100%.
Precip	NO	None - No precipitation present
	DR	Drizzle - Very fine drops of misty rain falling intermittently
	LTRN	Light Rain - Small drops of rain falling steadily and possibly obscuring visibility
	HYRN	Heavy Rain - Larger drops of rain falling steadily and likely obscuring visibility
	LFOG	Light Fog - Patchy, intermittent, gauzy fog
	HFOG	Heavy Fog - Dense fog obscuring visibility
	HAIL	Small balls or lumps of ice and compact snow
	SNOW	Ice crystals falling in flakes
Sightability	MULT	Multiple - Enter when more than one type of precipitation is occurring and describe in the "Notes". For example, light rain and light fog are present.
	-	<i>Sightability is an overall assessment of how the environmental conditions as a whole impact your ability to detect a marine mammal.</i>
	EXCEL	Excellent - Ideal conditions for detecting a marine mammal (e.g. low sea state, 10 km visibility, daylight, no glare, no precipitation).
	Good	Favorable conditions for detecting a marine mammal (e.g. sea state 1-3, 7-10 km visibility, daylight, minimal glare, no/limited precipitation).
	Fair	Marginal conditions for detecting a marine mammal (e.g. sea state 3-4, visibility \leq 5km, daylight/twilight, moderate glare, precipitation present).
Notes	Poor	Conditions make it unlikely to detect a marine mammal (e.g. sea state \geq 5, visibility \leq 3km, twilight/dark, severe glare, heavy precipitation).
		Additional notes or descriptions not otherwise captured by the above fields.

Sightings		
Field	Code	Definition
Location	A1	Alternate Station 1 – located at the ferry terminal (the catwalk station was inaccessible due to operations)
	S2	Station 2 – located along Shot Gun Cove Road, ~1.5 km from pile driving
	S3I	Station 3 Initial – located along Shot Gun Cove Trail, ~2.5 km from pile driving (Observations collected here April 3 and 7)
	S3F	Station 3 Final – located along Shot Gun Cove Road, ~1.6 km from pile driving. The initial Station 3 was difficult to access and PSOs felt unsafe at the site. (Observations collected here April 8-10 and 14)
Latitude	DD.DDDD	Location of observation station. Decimal degrees.
Longitude	-DDD.DDDD	Location of observation station. Decimal degrees.
PSO	XX	Initials of the PSO recording the data.
Sighting ID	XX-001	Individual ID for each Sighting. Initials of the location followed by the number of the entry. (e.g. S1001)
Date	MM-DD-YYYY	Date of entry
Sighting Time	HH:MM:SS	Time when animal first observed
End Time	HH:MM:SS	Time of sighting end
Species	HS	Harbor Seal
	SSL	Steller Sea Lion
	HP	Harbor Porpoise
	DP	Dall's Porpoise
	PWD	Pacific White Sided Dolphin
	KW	Killer Whale
	GW	Gray Whale
	HW	Humpback Whale
	FW	Fin Whale
	MW	Minke Whale
	SO	Sea Otter
	Other	Marine mammal species not listed in drop-down. Describe in Notes.
	UPIN	Unidentified Pinniped - Pinniped species that could not be identified. Describe in Notes.
	UDP	Unidentified Dolphin/Porpoise - Smaller cetacean species that could not be identified. Describe in Notes.
	UMW	Unidentified Mysticete Whale - Large baleen whale that could not be identified. Describe in Notes.
	UTW	Unidentified Toothed Whale - Larger cetacean species that could not be identified. Describe in Notes.
	UW	Unidentified Whale - Whale species but no further identifying characteristics visible. Describe in Notes.
	UMM	Unidentified Marine Mammal - Certain a marine mammal but no other characteristics visible for further identification. Describe in Notes.
Confidence	%	Confidence level in species identification - 100, 75, or 50%
Total # of Animals	#	Total number of individuals observed in the group, including juveniles and calves/pups. If animals are more than FIVE body lengths apart, enter as a separate sighting.
Juveniles	#	Number of juveniles observed.
Distance (m)	#	Distance in meters from the observer to the marine mammal.

Sightings		
Field	Code	Definition
MM Bearing	#	Compass degrees (0-359) of where the animal is in relation to the observer
MM Heading	XX	Cardinal direction animal is heading (North, NE, East, SE, South, SW, West, NW).
Sighting Cue		<i>Initial visual cue that the PSO saw and resulted in a marine mammal sighting.</i>
	Birds	Group of birds on water surface or hovering over a particular area, possibly feeding.
	Body	Part of the body visible.
	Blow	Exhalation visible.
	Dorsal	Dorsal fin visible above the water surface.
	Fluke	Fluke visible above the water surface.
	Footprint	Wake on water surface from animal swimming.
	Head	Part of the head visible.
	Other	Describe in Notes.
	Splash	Splash from marine mammal movement visible.
Behaviors	Blow	Visible exhalation from a cetacean species.
	Breach	Cetacean jumping out of the water.
	Dead	Carcass is found. Describe condition in Notes. Complete stranding report.
	Dive	Animal dives below the water surface and is not seen again for an extended period of time.
	Enter Water	Pinniped enters the water from a haul-out for no obvious reason.
	Feed	Animal is feeding or prey is observed in combination with characteristic feeding movement/behavior.
	Flipper Slap	Cetacean slapped the water surface with the pectoral fin and produced a splash.
	Fluke	Cetacean raises tail before completing a forward dive.
	Haulout	Pinniped(s) resting on land or ice.
	Lobtail	Cetacean slapped the water surface with fluke vigorously and produced a splash.
	Logging	Animal resting at the water surface. Drifting and not otherwise moving.
	Look	Animal looked in any direction above the water surface.
	Mill	Animals are slowly moving about while remaining in the same general area.
	Other	Behavior not otherwise captured by the options listed in the drop-down. Describe in the Notes.
	Porpoising	Rapid travel at the water surface. Low, arching leaps above the water surface.
	Rafting	Group of animals motionless at the surface. Typical for sea otters.
	Rest	Animal is motionless at the water surface or on land/ice.
	Rush	Rapid movement into the water from the land/ice.
	Sink	Pinniped sinks below the water surface in an upright/vertical position.
	Slap	Vigorously slapping the water surface with body, flippers, tail, etc.
	Splash	Animal moves quickly/vigorously and creates a splash.
	Spyhop	Cetacean raises head in a vertical position with eyes above the water surface.
	Startle	Rapidly changing behavior, dispersement, or travel that suggests a response to an external event.
	Surface active	Several behaviors observed at the surface, including splashing, breaching, lobtailing, etc.
	Swim	Animal swimming at the water surface. May include several short shallow dives.
	Tail wave	Vertical body position with tail held out of the water. Tail may be moving slowly but slapping/splashing does not occur.

Sightings		
Field	Code	Definition
	Travel	Steady swimming in one direction.
	Unknown	Unable to determine behavior. Enter this in second behavior, if none is observed.
Pace	ST	Stationary - Animal is not moving. Also use for carcasses.
	SL	Slow - Animal is moving slowly. Behaviors look relaxed.
	MO	Moderate - Animal is moving at a medium pace.
	VI	Vigorous - Animal is moving at a rapid pace that suggests it is agitated.
	UN	Unknown - Cannot determine the pace of movement/behavior.
Reaction	None	No reaction observed. The animal continues to behave in same way and at the same pace as when first encountered.
	Avoid	Animal maneuvers away from project activities.
	Approach	Animal approaches project area.
	Increase Speed	Animal was traveling at a certain speed and then increased speed, likely in response to project activities.
	Decrease Speed	Animal was traveling at a certain speed and then reduced speed, likely in response to project activities.
	Change Direction	Animal was traveling in one direction and then changed course, likely in response to project activities.
	Look	Pinniped appears to look at the project activity.
	Rush	Rapid movement into the water from the land/ice, likely in response to project activities.
	Splash	Animal moves vigorously and creates a splash, likely in response to project activities.
	Startle	Animal exhibits a sudden shock or alarmed behavior, likely in response to project activities.
	Dive	Animal dives below the water surface and is not seen again for an extended period of time, likely in response to project activities.
	Interact with gear	Animal is interacting with project equipment in the water.
	Unknown	Unknown if behavior is a reaction to project activities.
Activity	PRE	Pre-construction watch begins 30 minutes prior to the start of operations
	POST	Post-construction watch continues for 30 minutes after operations have ceased
	SS	Soft-start procedures will be implemented immediately prior to pile driving activities
	VIB	Vibratory pile installation
	VIBR	Vibratory pile removal
	IMP	Impact pile installation
	IMPR	Impact pile removal
	STAB	Stabbing
	DRILL	Drilling
	DELAY	Operations are delayed because a marine mammal has entered the EZ while the PSO was clearing the area.
	No Work	Continuous monitoring is occurring but no operations are underway.
	WX Down	Operations are ceased due to weather - shut down zones are not visible or the Beaufort sea state is above a 4.
	SHUT	Operations have been shut down for a marine mammal sighting.

Sightings		
Field	Code	Definition
	Other	Activity not otherwise captured by the above categories. Please describe in the Notes.
Mitigation	None	No mitigation action implemented because an animal has been observed outside the Shutdown Zone, or after blasting.
	Delay	Operations are delayed because a marine mammal has entered the EZ while the PSO was clearing the area.
	Shut down	Operations have been shut down for a marine mammal sighting within or approaching the EZ.
Mit Time Call	HH:MM:SS	Time mitigation was requested.
Mit Time Implemented	HH:MM:SS	Time mitigation was implemented.
Notes		Additional notes or descriptions pertaining to the sighting.

APPENDIX B. EFFORT AND MARINE MAMMAL SIGHTING FORMS

Whittier Ferry Terminal Modification
PSO Effort Form

Location		Latitude	
PSO Initials		Longitude	

Page _____ of _____

[illegible]

Whittier Terminal Modification
Sighting Form

Location	Latitude	Longitude	PSO	Sighting ID	Date	Sighting Time	End Time
Species	Confidence	Total # of Animals	Juveniles	Distance (m)	MM Bearing	MM Heading	Optics
Sighting Cue	Behavior 1	Behavior 2	Pace	Reaction	Activity	Mitigation	Mit Time Call/Implem

Notes

APPENDIX C. MARINE MAMMAL SIGHTINGS DATA

Date	Time	Station	Latitude	Longitude	Species	Total No. Animals	Observer Distance (m)	Activity Distance (m)	MM Bearing	Behavior	Reaction	Activity	Mitigation
4/3/20	15:38	S2	60.7801	-148.6574	HS	1	250	-	47	Look	None	No Work	None
4/7/20	8:43	S2	60.7801	-148.6574	HS	3	200	-	30	Look	None	PRE Delay	None
4/7/20	10:00	S2	60.7801	-148.6574	SSL	2	100	-	10	Look	None	Delay	None
4/7/20	10:42	A1	60.7771	-148.6839	SSL	2	50	-	20	Travel	None	Delay	None
4/7/20	12:05	A1	60.7771	-148.6839	HS	1	100	-	20	Sink	None	PRE	None
4/7/20	13:27	A1	60.7771	-148.6839	SSL	7	25	-	350	SA	None	No Work	None
4/7/20	13:47	A1	60.7771	-148.6839	SSL	3	50	-	310	SA	None	No Work	None
4/7/20	16:12	S2	60.7801	-148.6574	HS	1	100	1550	60	Look	None	VIBR No Work	None
4/8/20	7:38	S2	60.7801	-148.6574	SSL	3	600	-	35	Swim	None	No Work	None
4/8/20	7:54	S2	60.7801	-148.6574	SSL	3	400	1697	15	Swim	None	VIBR	None

Date	Time	Station	Latitude	Longitude	Species	Total No. Animals	Observer Distance (m)	Activity Distance (m)	MM Bearing	Behavior	Reaction	Activity	Mitigation
4/8/20	8:19	S2	60.7801	-148.6574	HS	1	50	-	13	Look	None	No Work	None
4/9/20	15:09	S2	60.7801	-148.6574	SSL	5	400	1783	35	Swim	Ch Dir	VIB No Work	None
4/10/20	7:00	S2	60.7801	-148.6574	HS	2	150	1592	50	Look	None	No Work VIBR VIB	None
4/10/20	10:14	S3F	60.7788	-148.6552	SSL	1	375	-	90	Swim	Avoid	No Work	None
4/10/20	10:36	S3F	60.7788	-148.6552	DP	6	1300	-	90	Swim	None	No Work	None
4/10/20	12:18	S2	60.7801	-148.6574	HS	1	200	-	45	Look	None	No Work	None
4/14/20	12:29	S2	60.7801	-148.6574	HS	1	400	-	326	Look	None	No Work	None
4/14/20	13:08	S2	60.7801	-148.6574	HS	1	300	1732	50	Look	None	No Work VIBR	None
4/14/20	16:03	S2	60.7801	-148.6574	HS	1	100	1530	33	Look	None	No Work VIBR	None
4/14/20	16:21	S2	60.7801	-148.6574	SSL	1	50	-	240	Look	None	No Work	None

APPENDIX D. EXAMPLE MARINE MAMMAL STRANDING FORM

MARINE MAMMAL STRANDING REPORT - LEVEL A DATA

FIELD #: _____ NMFS REGIONAL #: _____ NATIONAL DATABASE#: _____
(NMFS USE) (NMFS USE)

COMMON NAME: _____ GENUS: _____ SPECIES: _____

EXAMINER Name: _____ Affiliation: _____

Address: _____ Phone: _____

Stranding Agreement or Authority: _____

CONFIDENCE CODE (Check ONE): ☐ Unconfirmed - Low ☐ Confirmed - Minimum ☐ Confirmed - Medium ☐ Confirmed - High

INITIAL OBSERVATION <input type="checkbox"/> Same Information for Level A Examination DATE: Year: _____ Month: _____ Day: _____ First Observed: <input type="checkbox"/> Beach/Land/Ice <input type="checkbox"/> Floating <input type="checkbox"/> Swimming LOCATION: State: _____ County: _____ City: _____ Body of Water: _____ Locality Details: _____ Lat (DD): _____ N Long (DD): _____ W <input type="checkbox"/> Actual <input type="checkbox"/> Estimated How Determined: (check ONE) <input type="checkbox"/> GPS <input type="checkbox"/> Map <input type="checkbox"/> Internet/Software <input type="checkbox"/> Other _____ CONDITION AT INITIAL OBSERVATION (Check ONE) <input type="checkbox"/> 1. Alive <input type="checkbox"/> 4. Advanced Decomposition <input type="checkbox"/> 2. Fresh Dead <input type="checkbox"/> 5. Mummified/Skeletal <input type="checkbox"/> 3. Moderate Decomposition <input type="checkbox"/> 6. Condition Unknown	LEVEL A EXAMINATION Examined? <input type="checkbox"/> YES <input type="checkbox"/> NO DATE: Year: _____ Month: _____ Day: _____ First Examined: <input type="checkbox"/> Beach/Land/Ice <input type="checkbox"/> Floating <input type="checkbox"/> Swimming LOCATION: State: _____ County: _____ City: _____ Body of Water: _____ Locality Details: _____ Lat (DD): _____ N Long (DD): _____ W <input type="checkbox"/> Actual <input type="checkbox"/> Estimated How Determined: (check ONE) <input type="checkbox"/> GPS <input type="checkbox"/> Map <input type="checkbox"/> Internet/Software <input type="checkbox"/> Other _____ CONDITION AT EXAMINATION (Check ONE) <input type="checkbox"/> 1. Alive <input type="checkbox"/> 4. Advanced Decomposition <input type="checkbox"/> 2. Fresh Dead <input type="checkbox"/> 5. Mummified/Skeletal <input type="checkbox"/> 3. Moderate Decomposition
LIVE ANIMAL INFORMATION INITIAL LIVE ANIMAL DISPOSITION (Check one or more) <input type="checkbox"/> 1. Left at Site <input type="checkbox"/> 5. Died at Site <input type="checkbox"/> 2. Immediate Release at Site <input type="checkbox"/> 6. Died During Transport <input type="checkbox"/> 3. Relocated and Released <input type="checkbox"/> 7. Euthanized <input type="checkbox"/> 4. Disentangled <input type="checkbox"/> 8. Transferred to Rehabilitation: <input type="checkbox"/> a. Partially Date: Year: _____ Month: _____ Day: _____ <input type="checkbox"/> b. Completely Facility: _____ <input type="checkbox"/> 9. Other: _____ CONDITION/DETERMINATION (Check one or more) <input type="checkbox"/> 1. Sick <input type="checkbox"/> 7. Location Hazardous <input type="checkbox"/> 2. Injured <input type="checkbox"/> a. To animal <input type="checkbox"/> 3. Out of Habitat <input type="checkbox"/> b. To public <input type="checkbox"/> 4. Deemed Releasable <input type="checkbox"/> 8. Unknown/CBD <input type="checkbox"/> 5. Abandoned/Orphaned <input type="checkbox"/> 9. No Rehabilitation Options <input type="checkbox"/> 6. Inaccessible <input type="checkbox"/> 10. Other: _____	DEAD ANIMAL INFORMATION CARCASS STATUS (Check one or more) <input type="checkbox"/> 1. Frozen for Later Examination/Necropsy Pending <input type="checkbox"/> 2. Left at Site <input type="checkbox"/> 5. Landfill <input type="checkbox"/> 8. Towed: Lat _____ Long _____ <input type="checkbox"/> 3. Buried <input type="checkbox"/> 6. Incinerated <input type="checkbox"/> 9. Sunk: Lat _____ Long _____ <input type="checkbox"/> 4. Rendered <input type="checkbox"/> 7. Composted <input type="checkbox"/> 10. Unknown/Other _____ NECROPSIED <input type="checkbox"/> YES <input type="checkbox"/> NO <input type="checkbox"/> Limited <input type="checkbox"/> Complete <input type="checkbox"/> Carcass Fresh <input type="checkbox"/> Carcass Frozen/Thawed CARCASS CODE AT NECROPSY <input type="checkbox"/> Code 2 <input type="checkbox"/> Code 3 <input type="checkbox"/> Code 4 NECROPSIED BY: _____ Date: Year: _____ Month: _____ Day: _____
MORPHOLOGICAL INFORMATION SEX (Check ONE) ESTIMATED AGE CLASS (Check ONE) <input type="checkbox"/> 1. Male <input type="checkbox"/> 1. Adult <input type="checkbox"/> 4. Pup/Calf <input type="checkbox"/> 2. Female <input type="checkbox"/> 2. Subadult <input type="checkbox"/> 5. Unknown <input type="checkbox"/> 3. Unknown <input type="checkbox"/> 3. Yearling <input type="checkbox"/> Whole Animal <input type="checkbox"/> Partial Animal Straight Length: _____ cm <input type="checkbox"/> in <input type="checkbox"/> Actual <input type="checkbox"/> Estimated <input type="checkbox"/> Not Measured Weight: _____ kg <input type="checkbox"/> lb <input type="checkbox"/> Actual <input type="checkbox"/> Estimated <input type="checkbox"/> Not Weighed SAMPLES COLLECTED (Check one or more) <input type="checkbox"/> 1. Histology <input type="checkbox"/> 2. Other Diagnostics <input type="checkbox"/> 3. Life History <input type="checkbox"/> 4. Skeletal <input type="checkbox"/> 5. Other _____ PARTS TRACKING (Check one or more) <input type="checkbox"/> 1. Scientific Collection <input type="checkbox"/> 2. Educational Collection <input type="checkbox"/> 3. Other: _____	OCCURRENCE DETAILS <input type="checkbox"/> Restrand GE# _____ (NMFS Use) Group Event: <input type="checkbox"/> YES <input type="checkbox"/> NO If Yes, Type: <input type="checkbox"/> Cow/Calf Pair <input type="checkbox"/> Mass Stranding <input type="checkbox"/> UME # Animals: _____ <input type="checkbox"/> Actual <input type="checkbox"/> Estimated Was the Marine Mammal Human Interaction Report completed? <input type="checkbox"/> YES <input type="checkbox"/> NO Findings of Human Interaction: <input type="checkbox"/> YES <input type="checkbox"/> NO <input type="checkbox"/> Could Not Be Determined (CBD) If YES evidence of: 1. Vessel Interaction <input type="checkbox"/> YES <input type="checkbox"/> NO <input type="checkbox"/> CBD 2. Shot <input type="checkbox"/> YES <input type="checkbox"/> NO <input type="checkbox"/> CBD 3. Fishery Interaction <input type="checkbox"/> YES <input type="checkbox"/> NO <input type="checkbox"/> CBD 4. Other Human Interaction: _____ If YES, what was the likelihood that the human interaction contributed to the stranding event? <input type="checkbox"/> Uncertain (CBD) <input type="checkbox"/> Improbable <input type="checkbox"/> Suspect <input type="checkbox"/> Probable Gear/Hi Items Collected? <input type="checkbox"/> YES <input type="checkbox"/> NO Gear Disposition: _____ Other Findings Upon Level A: <input type="checkbox"/> YES <input type="checkbox"/> NO <input type="checkbox"/> Could Not Be Determined (CBD) If Yes, Choose one or more: <input type="checkbox"/> 1. Illness <input type="checkbox"/> 2. Injury <input type="checkbox"/> 3. Pregnant <input type="checkbox"/> 4. Other: _____ How Determined (Check one or more): <input type="checkbox"/> External Exam <input type="checkbox"/> Internal Exam <input type="checkbox"/> Necropsy <input type="checkbox"/> Other: _____

TAG DATA		ID#	Color	Type	Placement*	Applied	Present	Removed
Tags Were:					(Circle ONE)			
Present at Time of Stranding (Pre-existing):	<input type="checkbox"/> YES <input type="checkbox"/> NO				D DF L R LF LR RF RR	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Applied during Stranding Response/Release:	<input type="checkbox"/> YES <input type="checkbox"/> NO							
Applied during Rehabilitation/Release:	<input type="checkbox"/> YES <input type="checkbox"/> NO				D DF L R LF LR RF RR	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Absent but Suspect Prior Tag:	<input type="checkbox"/> YES <input type="checkbox"/> NO							
					D DF L R LF LR RF RR	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

* D= Dorsal; DF= Dorsal Fin; L= Left Lateral Body R= Right Lateral Body LF= Left Front; LR= Left Rear; RF= Right Front; RR= Right Rear

ADDITIONAL IDENTIFIER: _____ (If animal is restranded, please indicate any previous field numbers here)

ADDITIONAL REMARKS:

DISCLAIMER

THESE DATA SHOULD NOT BE USED OUT OF CONTEXT OR WITHOUT VERIFICATION. THIS SHOULD BE STRICTLY ENFORCED WHEN REPORTING SIGNS OF HUMAN INTERACTION DATA.

DATA ACCESS FOR LEVEL A DATA

UPON WRITTEN REQUEST, CERTAIN FIELDS OF THE LEVEL A DATA SHEET WILL BE RELEASED TO THE REQUESTOR PROVIDED THAT THE REQUESTOR CREDIT THE STRANDING NETWORK AND THE NATIONAL MARINE FISHERIES SERVICE. THE NATIONAL MARINE FISHERIES SERVICE WILL NOTIFY THE CONTRIBUTING STRANDING NETWORK MEMBERS THAT THESE DATA HAVE BEEN REQUESTED AND THE INTENT OF USE. ALL OTHER DATA WILL BE RELEASED TO THE REQUESTOR PROVIDED THAT THE REQUESTOR OBTAIN PERMISSION FROM THE CONTRIBUTING STRANDING NETWORK AND THE NATIONAL MARINE FISHERIES SERVICE.

PAPERWORK REDUCTION ACT INFORMATION

PUBLIC REPORTING BURDEN FOR THE COLLECTION OF INFORMATION IS ESTIMATED TO AVERAGE 30 MINUTES PER RESPONSE, INCLUDING THE TIME FOR REVIEWING INSTRUCTIONS, SEARCHING EXISTING DATA SOURCES, GATHERING AND MAINTAINING THE DATA NEEDED, AND COMPLETING AND REVIEWING THE COLLECTION OF INFORMATION. SEND COMMENTS REGARDING THIS BURDEN ESTIMATE OR ANY OTHER ASPECT OF THE COLLECTION INFORMATION, INCLUDING SUGGESTIONS FOR REDUCING THE BURDEN TO: CHIEF, MARINE MAMMAL AND SEA TURTLE CONSERVATION DIVISION, OFFICE OF PROTECTED RESOURCES, NOAA FISHERIES, 1315 EAST-WEST HIGHWAY, SILVER SPRING, MARYLAND 20910. NOT WITHSTANDING ANY OTHER PROVISION OF THE LAW, NO PERSON IS REQUIRED TO RESPOND, NOR SHALL ANY PERSON BE SUBJECT TO A PENALTY FOR FAILURE TO COMPLY WITH, A COLLECTION OF INFORMATION SUBJECT TO THE REQUIREMENTS OF THE PAPERWORK REDUCTION ACT, UNLESS THE COLLECTION OF INFORMATION DISPLAYS A CURRENTLY VALID OFFICE OF MANAGEMENT AND BUDGET (OMB) CONTROL NUMBER.

