

Marine Mammal Monitoring and Mitigation Plan
for the

Railroad Dock Dolphin Installation

White Pass & Yukon Route

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Submitted to:

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TABLE OF CONTENTS

SECTION	PAGE
1 Introduction.....	1
2 Project Description.....	3
3 Species Covered Under IHA	3
4 Methods.....	3
4.1 Observer Qualifications.....	4
4.2 Data Collection	4
4.3 Equipment.....	5
4.4 Shutdown and Monitoring Zones.....	5
4.5 Observer Monitoring Locations.....	6
4.6 Monitoring Techniques	8
4.6.1 Pre-Activity Monitoring.....	8
4.6.2 Soft Start Procedures.....	8
4.6.3 During-Activity Monitoring	9
4.6.4 Inclement weather.....	9
4.6.5 Shutdown	9
4.6.6 Breaks in Work.....	9
4.6.7 Post-Activity Monitoring.....	9
5 Reporting.....	10
5.1 Injured or Dead Marine Mammal.....	10
5.2 Monthly Report.....	10

LIST OF TABLES

Table 1. Shutdown and Monitoring Zones – Underwater Sources	6
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LIST OF FIGURES

Figure 1. Project location within Taiya Inlet, Skagway, Alaska	2
Figure 2. Observer Locations.....	7

LIST OF APPENDICES

- Appendix A. Marine Mammal Observation Record
- Appendix B. Beaufort Wind Force Scale



ACRONYMS AND ABBREVIATIONS

- 4MP Marine Mammal Monitoring and Mitigation Plan
- ESA Endangered Species Act
- GPS global positioning system
- IHA Incidental Harassment Authorization
- MMPA Marine Mammal Protection Act
- MSE Mechanically Stabilized Earth
- NMFS National Marine Fisheries Service
- NOAA National Oceanic and Atmospheric Administration
- PND PND Engineers, Inc.
- PTS permanent threshold shift
- SPL sound pressure level
- TTS temporary threshold shift
- WP&YR White Pass & Yukon Route



1 Introduction

White Pass & Yukon Route (WP&YR) is proposing improvements to the Railroad Dock within Taiya Inlet in Skagway, Alaska (Figure 1) to provide safe moorage when both Breakaway and Quantum class cruise ship vessels dock simultaneously at the Railroad Dock (RR Dock) aft berth. The purpose of this Marine Mammal Monitoring and Mitigation Plan (4MP) is to provide a protocol for monitoring affected species during the proposed construction. This 4MP was developed to support the Incidental Harassment Authorization (IHA) application under the Marine Mammal Protection Act, Section 101(a)(5)(D) permitting. The IHA application provides a detailed discussion on determining monitoring zones for the proposed action.

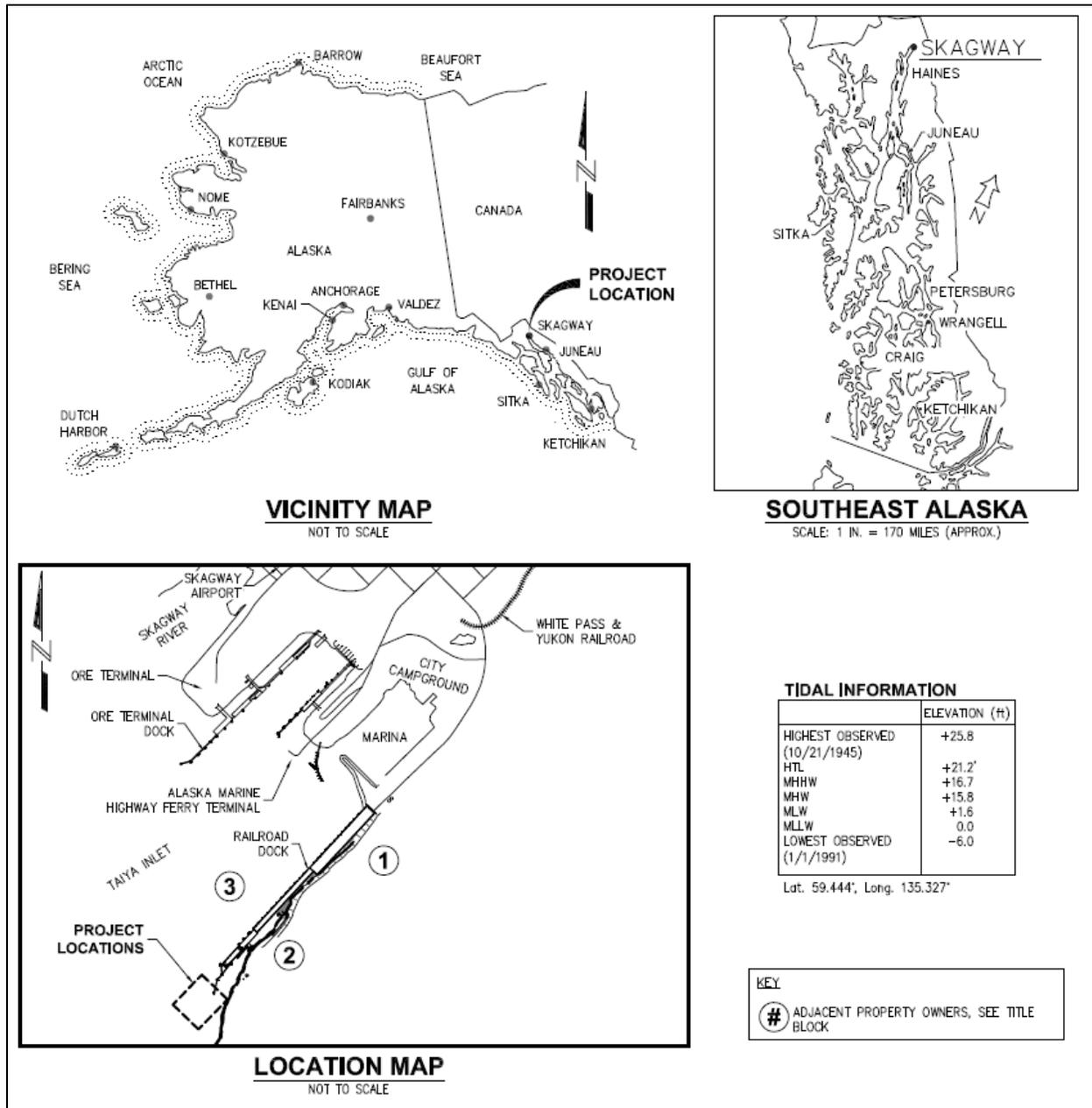


Figure 1. Project location within Taiya Inlet, Skagway, Alaska



A marine mammal monitoring program will be implemented at the start of specified construction activities and will follow the protocols outlined in this 4MP. The primary goals of the monitoring program are to:

- Monitor the proposed shutdown and monitoring zones to estimate the number of marine mammals exposed to noise at or exceeding established thresholds, and to document animal responses;
- Minimize impacts to marine mammal species present in the action area by implementing mitigation measures that include monitoring, ensuring shutdown zones are clear of marine mammals, soft start, and shutdown procedures; and
- Collect data on takes, occurrence, and behavior of marine mammal species in the action area and any potential impacts from the project.

2 Project Description

A complete description of the region, project tasks, project materials, dates and duration, affected species, and anticipated impacts are included in the IHA application (PND 2018) to which this document is attached as an appendix. In general terms, this project will consist of the installation of two 200-ton mooring dolphins (MD#4 and MD#5) and catwalks.

3 Species Covered Under IHA

The species covered under the IHA include the humpback whale (*Megaptera novaeangliae*), Steller sea lion (*Eumetopias jubatus*), harbor seal (*Phoca vitulina*), Dall's porpoise (*Phocoenoides dalli*), harbor porpoise (*Phocoena phocoena*), killer whale (*Orcinus orca*), and minke whale (*Balaenoptera acutorostrata*).

Harbor seals and Steller sea lions are the primary species occurring in Taiya Inlet with humpback whales, harbor porpoises, and killer whales occurring less frequently. Minke whales and Dall's porpoises have been recorded in Taiya Inlet only on rare occasions.

4 Methods

Under directives in the Marine Mammal Protection Act (MMPA) and the Endangered Species Act (ESA), this 4MP is tailored to the project to ensure appropriate documentation and compliance with applicable regulations. Monitoring will be conducted by qualified, trained marine mammal observers (hereafter, "observers"). Land-based observers will be located at established sites appropriate for monitoring before, during, and after in-water construction activity to monitor marine mammals within and approaching the shutdown zones and monitoring zones.

During observation periods, observers will continuously scan the area for marine mammals using binoculars and the naked eye. Observers will work shifts of a maximum four consecutive hours followed by an observer rotation or a 1-hour break and will work no more than 12 hours in any 24-hour period. Observers will collect data including environmental conditions (e.g., sea state, precipitation, glare), marine mammal sightings (e.g., species, numbers, location, behavior, responses to construction activity), construction activity at the time of sighting, and number of marine mammal exposures (takes). Observers will conduct observations, meet training requirements, fill out data forms, and report findings in accordance with this 4MP and requirements outlined in the approved IHA.

Observers will implement mitigation measures including: monitoring of the proposed shutdown and monitoring zones, ensuring shutdown zones are clear of marine mammals prior to starting operations, and shutdown procedures if marine mammals are observed approaching or within the appropriate shutdown zones.



They will be in continuous contact with construction personnel via two-way radio. A cellular phone with local service will be used as back-up communications and for safety purposes.

An employee of the construction contractor will be identified as the monitoring coordinator for observers at the start of each construction day. Observers will report directly to the monitoring coordinator when a shutdown is deemed necessary due to marine mammals approaching or within the applicable shutdown zones during pile driving or drilling activity.

4.1 Observer Qualifications

Monitoring will be conducted by qualified, trained observers. Observers will be independent (i.e. not construction personnel) and that at least one observer will have prior experience working as a marine mammal observer during construction activities. The following requirements must be met for observers to be considered qualified:

- Visual acuity in both eyes (correction is permissible) enough for discernment of moving targets at the water's surface with ability to estimate target size and distance;
- Physical capability of performing essential duties, including sitting or standing for periods of up to four hours, using binoculars or other field aid, and documenting observations;
- Experience and ability to conduct field observations and collect data according to assigned protocols;
- Experience or training in the field identification of marine mammals and marine mammal behavior, including the ability to accurately identify marine mammals in Alaskan waters to species;
- Sufficient training, orientation or experience with the construction operation to provide for identification of concurrent activities and for personal safety during observations;
- Writing skills sufficient to prepare reports of observations; and
- Ability to communicate orally, by radio and in person, with project personnel to provide real-time information on marine mammals observed in the area and the appropriate mitigation response for the circumstances.

4.2 Data Collection

Observers will use a National Marine Fisheries Service (NMFS)-approved Observation Record (Appendix A) which will be completed by each observer for each survey day and location. Observation Records will be used by observers to record the following:

- Date and time that permitted construction activity begins or ends;
- Weather parameters (e.g. percent cloud cover, percent glare, visibility) and sea state (the Beaufort Wind Force Scale will be used to determine sea-state);
- Species, numbers, and, if possible, sex and age class of observed marine mammals;
- Construction activities occurring before, during, and after each sighting;
- Marine mammal behavior patterns observed, including bearing and direction of travel;
- Specific focus should be paid to behavioral reactions just prior to, or during, soft-start and shutdown procedures;
- Location of marine mammal, distance from observer to the marine mammal, and distance from dolphin installation and catwalk construction activities to marine mammals; and
- Record of whether an observation required the implementation of mitigation measures, including shutdown procedures and the duration of each shutdown.



4.3 Equipment

The following equipment will be required to conduct observations for this project:

- Appropriate Personal Protective Equipment;
- Portable radios and headsets for the observers to communicate with the monitoring coordinator and other observers;
- Cellular phone as backup for radio communication;
- Contact information for the other observers, monitoring coordinator, and NMFS point of contact;
- Daily tide tables for the action area;
- Watch or chronometer;
- Binoculars (quality 7 x 50 or better) or spotting scope with built-in rangefinder or reticles (rangefinder may be provided separately);
- Hand-held GPS unit, map and compass, or grid map to record locations of marine mammals;
- Copies of 4MP, IHA, and/or other relevant permit requirement specifications in sealed clear plastic covers; and
- Notebook with standardized monitoring Observation Record forms on waterproof paper.

4.4 Shutdown and Monitoring Zones

WP&YR has established shutdown and monitoring zones to delineate areas in which marine mammals may be exposed to injurious underwater sound levels due to in-water construction. Work which could cause noise levels to rise above non-permitted thresholds will shut down if marine mammals are approaching shutdown zones. Observers will also monitor and document activities in areas where animals could be subjected to noise levels at or above the permitted thresholds. The zones are summarized below and are discussed in detail in Section 5 of the IHA request.

Determination of shutdown and monitoring zones was discussed fully in the IHA request. The shutdown zone radii are summarized in Tables 1 below. Selection of the appropriate observation radius depends on concurrent work activities and planned duration. The following shall apply to shutdown and monitoring zones.

- A shutdown safety zone will be established during all over-water construction activities that have the potential to affect marine mammals, and species/activity specific monitoring zones will be monitored to ensure that animals are not endangered by physical interaction with construction equipment. These activities could include, but are not limited to, positioning of the pile on the substrate via a crane (“stabbing” the pile) or the slinging of construction materials via crane.
- Shutdown and monitoring zones will be monitored throughout the permitted in-water construction activities (Table 1).
 - If a permitted marine mammal enters the monitoring zone, an exposure will be recorded, and animal behaviors documented. However, permitted construction activities would continue without cessation unless the animal approaches or enters the applicable shutdown zone.
 - If a marine mammal approaches or enters a shutdown zone, all permitted construction activities will be immediately halted until the marine mammal has been visually observed outside the shutdown zone or 30 minutes have passed without observation.
 - Shutdown safety zones will be limited to a practical monitoring radius of 2 km. Level A take has been requested for animals occurring within the Level A ensonification zone and the shutdown safety zone.



- Take, in the form of Level B harassment, of marine mammals other than permitted species is not authorized and will be avoided by shutting down construction activities before individuals of these species enter the Level B harassment zone.

Table 1. Shutdown and Monitoring Zones – Underwater Sources

Source	Monitoring Zone (m)	Shutdown Zone (m)
Drilling and Vibratory Installation/Removal	13,000	Low- and High-Frequency Cetaceans: 150 Phocid Pinnipeds: 80 Mid-Frequency Cetaceans and Otariid Pinnipeds: 10
Impact Installation	3,700	Low-Frequency Cetaceans: 2,000 All Other Species: 150

4.5 Observer Monitoring Locations

To monitor the shutdown and monitoring zones effectively, observers will be positioned at the best practicable vantage points taking into consideration security, safety, access, and space limitations. Observers will be stationed at locations that provide adequate visual coverage for shutdown and monitoring zones. During all types of installation an observer will be stationed at the Railroad Dock, Yakutania Point, and Dyea Point (Figure 2). These stations will allow full monitoring of the impact hammer monitoring zone and the Level A shutdown zones. The vibratory and drilling monitoring zone will be additionally monitored using PSOs stationed on boats anchored near the shoreline, with each team (of two) stationed approximately 2 km apart.

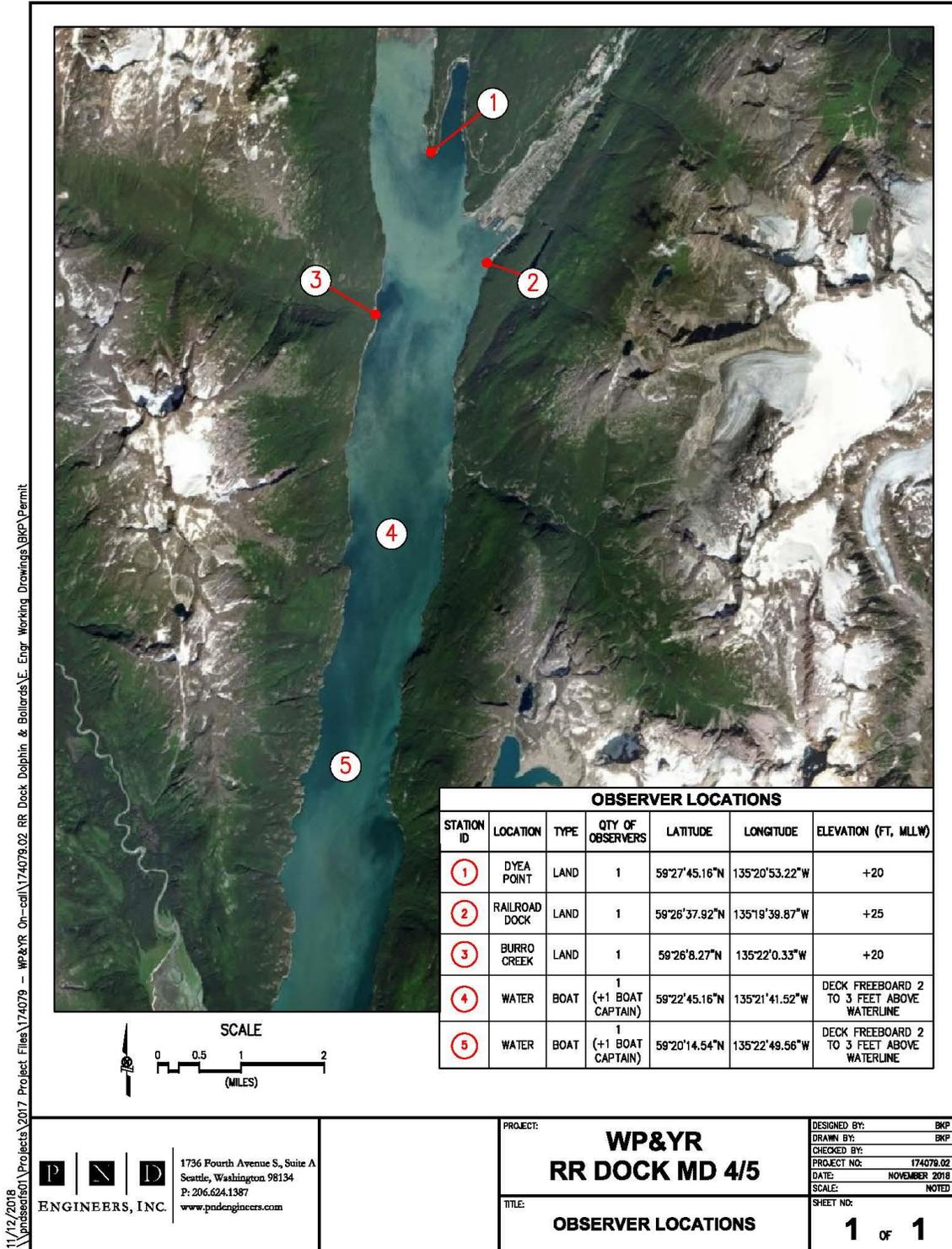


Figure 2. Observer Locations



4.6 Monitoring Techniques

WP&YR observers will collect sighting data and behaviors of marine mammal species that are observed in the shutdown and monitoring zones during construction. All observers will be qualified and trained in marine mammal identification and behaviors, as described in Section 4.1. NMFS requires that the observers have no other construction-related tasks while conducting monitoring.

Observers will actively monitor the shutdown and monitoring zones 30 minutes prior to initiation, during, and 30 minutes post-completion of all permitted activities.

Observation generally necessitates that natural light conditions is sufficient for observers to see the entirety of the shutdown and monitoring zones; monitoring will commence and be completed during daylight hours to the extent possible.

4.6.1 Pre-Activity Monitoring

The following monitoring methodology will be implemented prior to commencing permitted activities:

- Prior to the start of permitted activities, observers will monitor the shutdown and monitoring zones for 30 minutes. They will ensure that no marine mammals are present within the shutdown zones before permitted activities begin.
- The shutdown zones will be cleared when marine mammals have not been observed within the zone for that 30-minute period. If a marine mammal is observed within the applicable shutdown zone, a soft-start cannot proceed until the animal has left the zone or has not been observed for 15 minutes (for pinnipeds and cetaceans).
- After all applicable shutdown zones have been cleared, the observers will radio the monitoring coordinator. Permitted activities will not commence until the monitoring coordinator receives verbal confirmation the zones are clear.
- If permitted species are present within the monitoring zone, work will not be delayed, but observers will monitor and document the behavior of individuals that remain in the monitoring zone. Delay will occur however if the authorized take quota is close to being reached.
- In case of fog or reduced visibility, observers must be able to see the entirety of shutdown and monitoring zones before permitted activities can be initiated.

4.6.2 Soft Start Procedures

Soft start procedures will be initiated prior to periods of pile installation to allow marine mammals to leave the area before exposure to maximum noise levels.

- For drilling, the contractor shall run the hammer/drill for no more than 30 seconds followed by a quiet period of at least 60 seconds without hammering or drilling. The process shall be repeated twice more within 10 minutes before beginning driving/drilling operations that last longer than 30 seconds.
- For impact hammers, the soft start technique will initiate several strikes at a reduced energy level, followed by a brief waiting period. This procedure would be repeated two additional times.
- For other heavy equipment operating from barges or nearshore, the equipment will be idled for 15 minutes prior to operation.
- If work ceases for more than 30 minutes, zone clearance (see Section 4.6.1) and soft start procedures must recommence prior to performing additional work.



4.6.3 During-Activity Monitoring

The following monitoring methodology will be implemented during permitted activities:

- If permitted species are observed within the monitoring zone during permitted activities, an exposure will be recorded, and behaviors documented. Work will not stop unless an animal enters or appears likely to enter the applicable shutdown zone.

4.6.4 Inclement weather

During inclement weather or periods of limited visibility, work that has begun with a fully cleared observation zone may continue. In those cases, an assumed rate of observation similar to the daily average rate of observation will be used to estimate the number of sightings to be reported during those periods. This method will only be used if the full observation zone was visible during the start of work and no shutdowns greater than 30 minutes have occurred.

4.6.5 Shutdown

If a marine mammal enters or appears likely to enter the shutdown zone:

- Observers shall immediately radio or call to alert the monitoring coordinator.
- All permitted activities will be immediately halted.
- In the event of a shutdown of pile installation operations, permitted activities may resume only when:
 - The animal(s) within or approaching the shutdown zone has been visually confirmed beyond or heading away from the shutdown zone, or 15 minutes (for pinnipeds) or 30 minutes (for cetaceans) have passed without re-detection of the animal.
 - Observers will then radio or call the monitoring coordinator that activities can re-commence.

4.6.6 Breaks in Work

During an in-water construction delay, the shutdown and monitoring zones will continue to be monitored unless the break extends into several hours. No exposures will be recorded for permitted species in the monitoring zone if there are no concurrent permitted construction activities.

If permitted activities cease for more than 1 hour and monitoring has not continued, pre-activity monitoring (Section 4.6.1) and soft start procedures (Section 4.6.2) must recommence. This includes breaks due to scheduled or unforeseen construction practices or breaks due to permit-required shutdown. Following 15 minutes (for pinnipeds) or 30 minutes (for cetaceans) of monitoring, work can begin according to the pre-activity monitoring protocols. Work cannot begin if an animal is within the shutdown zone or if visibility is not clear throughout the shutdown and monitoring zones.

4.6.7 Post-Activity Monitoring

Monitoring of the shutdown and monitoring zones will continue for 30 minutes following completion of pile installation activities. These surveys will record observations focused on observing and reporting unusual or abnormal behavior of marine mammals. Observation record forms will be used to document observed behavior (Appendix A).



5 Reporting

5.1 Injured or Dead Marine Mammal

In the unanticipated event that the specified activity clearly causes the take of a marine mammal in a manner prohibited by this IHA, such as serious injury, or mortality, WP&YR must immediately cease the specified activities and report the incident to the NMFS Office of Protected Resources (301-427-8401) and Alaska Region Stranding Coordinator (907-586-7209). The report must include the following information:

1. Time and date of the incident;
2. Description of the incident;
3. Environmental conditions (e.g., wind speed and direction, Beaufort sea state, cloud cover, and visibility);
4. Description of all marine mammal observations and active sound source use in the 24 hours preceding the incident;
5. Species identification or description of the animal(s) involved;
6. Fate of the animal(s); and
7. Photographs or video footage of the animal(s).

Activities must not resume until NMFS is able to review the circumstances of the prohibited take. NMFS will work with WP&YR to determine what measures are necessary to minimize the likelihood of further prohibited take and ensure MMPA compliance. WP&YR may not resume their activities until notified by NMFS.

In the event WP&YR discovers an injured or dead marine mammal, and the lead observer determines that the cause of the injury or death is unknown and the death is relatively recent (*e.g.*, in less than a moderate state of decomposition), WP&YR must immediately report the incident to the Office of Protected Resources, NMFS, and the Alaska Region Stranding Coordinator, NMFS. The report must include the same information identified in 6(b)(i) of this IHA. Activities may continue while NMFS reviews the circumstances of the incident. NMFS will work with WP&YR to determine whether additional mitigation measures or modifications to the activities are appropriate.

In the event that WP&YR discovers an injured or dead marine mammal, and the lead observer determines that the injury or death is not associated with or related to the specified activities (*e.g.*, previously wounded animal, carcass with moderate to advanced decomposition, or scavenger damage), WP&YR must report the incident to the Office of Protected Resources, NMFS, and the Alaska Region Stranding Coordinator, NMFS, within 24 hours of the discovery.

5.2 Monthly Report

WP&YR will submit monthly reports on all marine mammal monitoring conducted under the IHA and a draft final report within ninety calendar days of the completion of marine mammal monitoring or sixty days prior to the issuance of any subsequent IHA for this project, whichever comes first. A final report must be prepared and submitted within thirty days following resolution of comments on the draft report from NMFS. This report must contain the informational elements including, but not limited to:

1. Dates and times (begin and end) of all marine mammal monitoring.
2. Construction activities occurring during each daily observation period, including how many and what type of piles were driven or removed and by what method (*i.e.*, impact or vibratory).
3. Weather parameters and water conditions during each monitoring period (*e.g.*, wind speed, percent cover, visibility, sea state).



4. The number of marine mammals observed, by species, relative to the pile location and if pile driving or removal was occurring at time of sighting.
5. Age and sex class, if possible, of all marine mammals observed.
6. PSO locations during marine mammal monitoring.
7. Distances and bearings of each marine mammal observed to the pile being driven or removed for each sighting (if pile driving or removal was occurring at time of sighting).
8. Description of any marine mammal behavior patterns during observation, including direction of travel.
9. Number of individuals of each species (differentiated by month as appropriate) detected within the monitoring zone, and estimates of number of marine mammals taken, by species (a correction factor may be applied to total take numbers, as appropriate).
10. Detailed information about any implementation of any mitigation triggered (e.g., shutdowns and delays), a description of specific actions that ensued, and resulting behavior of the animal, if any.
11. Description of attempts to distinguish between the number of individual animals taken and the number of incidences of take, such as ability to track groups or individuals.

Additionally, WP&YR will submit a draft acoustic monitoring report seven calendar days after completing field measurements and a final report within sixty calendar days.



Appendix A. Marine Mammal Observation Record

MARINE MAMMAL OBSERVATION RECORD

Project Name: _____

Monitoring Location: _____

Date: _____

Time Effort Initiated: _____

Time Effort Completed: _____

Page _____ of _____

Time	Visibility	Glare	Weather Condition	Wave Height	BSS	Wind	Swell
:	B-P-M-G-E	%	S-PC-L-R-F-OC-SN-HR	Lt/Mod/Hvy		N S E W	N S E W
:	B-P-M-G-E	%	S-PC-L-R-F-OC-SN-HR	Lt/Mod/Hvy		N S E W	N S E W
:	B-P-M-G-E	%	S-PC-L-R-F-OC-SN-HR	Lt/Mod/Hvy		N S E W	N S E W
:	B-P-M-G-E	%	S-PC-L-R-F-OC-SN-HR	Lt/Mod/Hvy		N S E W	N S E W
:	B-P-M-G-E	%	S-PC-L-R-F-OC-SN-HR	Lt/Mod/Hvy		N S E W	N S E W
:	B-P-M-G-E	%	S-PC-L-R-F-OC-SN-HR	Lt/Mod/Hvy		N S E W	N S E W

Event Code	Sight # (1 or 1.1 if re- sight)	Time/Dur (Start/End time if cont.)	WP/ Grid #/ DIR of travel	Zone/ Radius/ Impact Pile #?	Obs.	Sighting Cue	Species	Group Size	Behavior Code (see code sheet)	Construction Type	Mitigation Type	Exposure (Y/N)	Behavior Change/ Response to Activity/Comments/Human Activity/Vessel Hull # or Name/ Visibility Notes
E ON PRE/POST CON S M OR E OFF		:	Grid N or S W or E			BL BO BR DF SA OTHER		Min: Max: Best:		SSV SSI V DR I DP ST OWC NOWC / NONE	SS/BC DE SD None		
E ON PRE/POST CON S M OR E OFF		:	Grid N or S W or E			BL BO BR DF SA OTHER		Min: Max: Best:		SSV SSI V DR I DP ST OWC NOWC / NONE	SS/BC DE SD None		
E ON PRE/POST CON S M OR E OFF		:	Grid N or S W or E			BL BO BR DF SA OTHER		Min: Max: Best:		SSV SSI V DR I DP ST OWC NOWC / NONE	SS/BC DE SD None		
E ON PRE/POST CON S M OR E OFF		:	Grid N or S W or E			BL BO BR DF SA OTHER		Min: Max: Best:		SSV SSI V DR I DP ST OWC NOWC / NONE	SS/BC DE SD None		
E ON PRE/POST CON S M OR E OFF		:	Grid N or S W or E			BL BO BR DF SA OTHER		Min: Max: Best:		SSV SSI V DR I DP ST OWC NOWC / NONE	SS/BC DE SD None		
E ON PRE/POST CON S M OR E OFF		:	Grid N or S W or E			BL BO BR DF SA OTHER		Min: Max: Best:		SSV SSI V DR I DP ST OWC NOWC / NONE	SS/BC DE SD None		
E ON PRE/POST CON S M OR E OFF		:	Grid N or S W or E			BL BO BR DF SA OTHER		Min: Max: Best:		SSV SSI V DR I DP ST OWC NOWC / NONE	SS/BC DE SD None		
E ON PRE/POST CON S M OR E OFF		:	Grid N or S W or E			BL BO BR DF SA OTHER		Min: Max: Best:		SSV SSI V DR I DP ST OWC NOWC / NONE	SS/BC DE SD None		
E ON PRE/POST CON S M OR E OFF		:	Grid N or S W or E			BL BO BR DF SA OTHER		Min: Max: Best:		SSV SSI V DR I DP ST OWC NOWC / NONE	SS/BC DE SD None		

Marine Mammal Observation Record – Sighting Codes

Behavior Codes

Code	Behavior	Definition
BR	Breaching	Leaps clear of water
CD	Change Direction	Suddenly changes direction of travel
CH	Chuff	Makes loud, forceful exhalation of air at surface
DI	Dive	Forward dives below surface
DE	Dead	Shows decomposition or is confirmed as dead by investigation
DS	Disorientation	An individual displaying multiple behaviors that have no clear direction or purpose
FI	Fight	Agonistic interactions between two or more individuals
FO	Foraging	Confirmed by food seen in mouth
MI	Milling	Moving slowly at surface, changing direction often, not moving in any particular direction
PL	Play	Behavior that does not seem to be directed towards a particular goal; may involve one, two or more individuals
PO	Porpoising	Moving rapidly with body breaking surface of water
SL	Slap	Vigorously slaps surface of water with body, flippers, tail etc.
SP	Spyhopping	Rises vertically in the water to "look" above the water
SW	Swimming	General progress in a direction. Note general direction of travel when last seen [Example: "SW (N)" for swimming north]
TR	Traveling	Traveling in an obvious direction. Note direction of travel when last seen [Example: "TR (N)" for traveling north]
UN	Unknown	Behavior of animal undetermined, does not fit into another behavior
AWA	Approach Work	
LWA	Leave Work Area	
Pinniped only		
EW	Enter Water (from haul out)	Enters water from a haul-out for no obvious reason
FL	Flush (from haul out)	Enters water in response to disturbance
HO	Haul out (from water)	Hauls out on land
RE	Resting	Resting onshore or on surface of water
LO	Look	Is upright in water "looking" in several directions or at a single focus
SI	Sink	Sinks out of sight below surface without obvious effort (usually from an upright position)
VO	Vocalizing	Animal emits barks, squeals, etc.
Cetacean only		
LG	Logging	Resting on surface of water with no obvious signs of movement

Sea State and Wave Height: Use Beaufort Sea State Scale for Sea State. This refers to the surface layer and whether it is glassy in appearance or full of white caps. In the open ocean, it also considers the wave height or swell, but in inland waters the wave height (swells) may never reach the levels that correspond to the correct surface white cap number. Therefore, include wave height for clarity.

Glare: Percent glare should be the total glare of observers' area of responsibility. Determine if observer coverage is covering 90 degrees or 180 degrees and document daily. Then assess total glare for that area. This will provide needed information on what percentage of the field of view was poor due to glare.

Swell Direction: Swell direction should be where the swell is coming from (S for coming from the south). If possible, record direction relative to fixed location (pier). Choose this location at beginning of monitoring project.

Wind Direction: Wind direction should also be where the wind is coming from.



Event

Code	Activity Type
E ON	Effort On
E OFF	Effort Off
PRE	Pre-Construction Watch
POST	Post-Construction Watch
CON	Construction (see types)
S	Sighting
M	Mitigation (see types)
OR	Observer Rotation

Mitigation Codes

Code	Activity Type
SS	Soft Start
BC	Bubble Curtain
DE	Delay onset of In-Water Work
SD	Shut down In-Water Work

Sighting Cues

Code	Distance Visible
BL	Blow
BO	Body
BR	Breach
DF	Dorsal Fin
SA	Surface Activity
OTHR	Other

Visibility

Code	Distance Visible
B	Bad (<0.5km)
P	Poor (0.5 – 0.9km)
M	Moderate (0.9 – 3km)
G	Good (3 – 10km)
E	Excellent (>10km)

Marine Mammal Species

Code	Marine Mammal Species
HSEA	Harbor Seal
STSL	Steller Sea Lion
HPBK	Humpback Whale
HAPO	Harbor Porpoise
DAPO	Dall's Porpoise
MINK	Minke Whale
ORCA	Killer Whale

Weather Conditions

Code	Weather Condition
S	Sunny
PC	Partly Cloudy
L	Light Rain
R	Steady Rain
F	Fog
OC	Overcast
SN	Snow
HR	Heavy Rain

Construction Type

Code	Activity Type
V	Vibratory Pile Driving
I	Impact Pile Driving
ST	Stabbing
DR	Drilling
OWC	Over-Water Construction
NOWC	No Over-Water Construction
NONE	No Construction

Wave Height

Code	Wave Height
Light	0 – 3 ft
Moderate	4 – 6 ft
Heavy	>6 ft