Protected Species Final Monitoring DRAFT Report:
Tongass Narrows Ferry Berth Improvements
Phase 1 Incidental Harassment Authorization Renewal
April 2021 – February 2022

Alaska Department of Transportation and Public Facilities
Tongass Narrows, Ketchikan, Alaska
June 2022

FINAL

Submitted to:
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1 INTRODUCTION

1.1 BACKGROUND

The Alaska Department of Transportation & Public Facilities (DOT&PF) is constructing six marine projects in Tongass Narrows, near Ketchikan, to improve access to developable land on Gravina Island, improve access to the Ketchikan International Airport, and facilitate economic development in the Ketchikan Gateway Borough (specifically on Gravina Island). The projects have been split into two phases:

- Phase 1**:**
    - SFHWY00085 Revilla New Ferry Berth & Upland Improvements
    - SFHWY00109 New Gravina Island Shuttle Ferry Berth/Related Terminal Improvements
    - SFHWY00150 Revilla Refurbish Existing Ferry Berth
    - SFHWY00153 Gravina Refurbish Existing Facility
- Phase 2:
    - SFHWY00152 Gravina Layup Facility
    - SFHWY00154 Gravina Freight Facility

The National Marine Fisheries Service (NMFS) issued DOT&PF two Incidental Harassment Authorizations (IHA) under section 101(a)(5)(D) of the Marine Mammal Protection Act (MMPA; 16 U.S.C. 1371(a)(5)(D)) to harass marine mammals incidental to pile driving, pile removal, and drilling (socketing and tension anchors). The initial Phase 1 IHA was valid for one year from March 1, 2020 to February 28, 2021. Work was unable to be completed within the authorized timeline and NMFS granted DOT&PF a renewal IHA that was valid from April 26, 2021 to February 28, 2022.

Under the IHAs, NMFS granted Level A and Level B take of a small number of Steller sea lions (*Eumpetopia jubatus*), harbor seals (*Phoca vitulina*), harbor porpoise (*Phocoena phocoena*), Dall's porpoise (*Phocoenoides dalli*), Pacific white-sided dolphins (*Lagenorhynchus obliquidens*), killer whales (*Orcinus orca*), humpback whales (*Megaptera novaeangliae*), and minke whales (*Balaenoptera acutorostrata*) (Table 1).

The 'takes' granted under the Phase 1 Renewal IHA were generated based upon takes used under the initial Phase 1 IHA, stock assessments completed by NMFS, direct consultation with NMFS, and observations from another other projects in Tongass Narrows. Action areas were established through consultation with NMFS, various literary sources, and NMFS User Spreadsheet Tool. Following a NMFS-approved Marine Mammal Monitoring and Mitigation Plan (4MP) drafted for this project, mitigation included NMFS-approved Protected Species Observers (PSOs) monitoring the Level A and Level B take areas, recording species, and shutting down in-water work if the abovementioned species or any other marine mammal species approached or appeared likely to enter their designated shutdown area (Tables 2).

A final monitoring report for work completed under the original Phase 1 IHA was submitted to NMFS on September 22, 2021.[1] This document's purpose is to meet the preliminary report and final monitoring report requirements outlined in section 6(a)(b) of the Renewal IHA issued to DOT&PF and detail work completed from May 2021 through February 2022.

TABLE 1. Tongass Narrows Ferry Berth Improvements: NMFS Authorized Level A and Level B Takes Under the Phase 1 Renewal IHA (April 26, 2021 to February 28, 2022)

Species	DPS/Stock	Exposures to Level B Harassment	Exposures to Level A Harassment	Total Exposures (Level A and Level B Harassment)
Steller sea lion	Eastern DPS	1,800	0	1,800
Harbor seal	Clarence Strait	765	18	783
Harbor porpoise	Southeast Alaska	109	15	124
Dall's porpoise	Alaska	317	15	332
Pacific white-sided dolphin	North Pacific	92	0	92
Killer whale	Alaska resident Northern Resident West Coast Transient	144	0	144
Humpback whale	Hawaii DPS Mexico DPS	238 15	0 0	238 15
Minke whale	Alaska	7	0	7

1.2 PROJECT OVERVIEW AND LOCATION

From May 2021 to February 2022, construction occurred at the Gravina Island Shuttle Ferry Berth (Lat: 55° 21' 24.5"N, Lon: 131° 42' 28.6"W) and New Revilla Ferry Berth (Lat: 55° 21' 32.9"N, Lon: 131° 42' 9.8"W) in Tongass Narrows in Ketchikan, Alaska (Figure 1). Between May 2021 and February 2022, piles were installed using a vibratory hammer, impact hammer, and drill (tension anchors and rock sockets). Each of these methods and pile sizes required varying monitoring zones, Level A shutdown zones, and Level B monitoring zones (Table 2 and Figure 2).

[1] The Initial Phase 1 Monitoring Report and data can be accessed at https://media.fisheries.noaa.gov/2022-02/AKDOTTongass_2019IHA_Mon%20Report_OPR1.pdf.

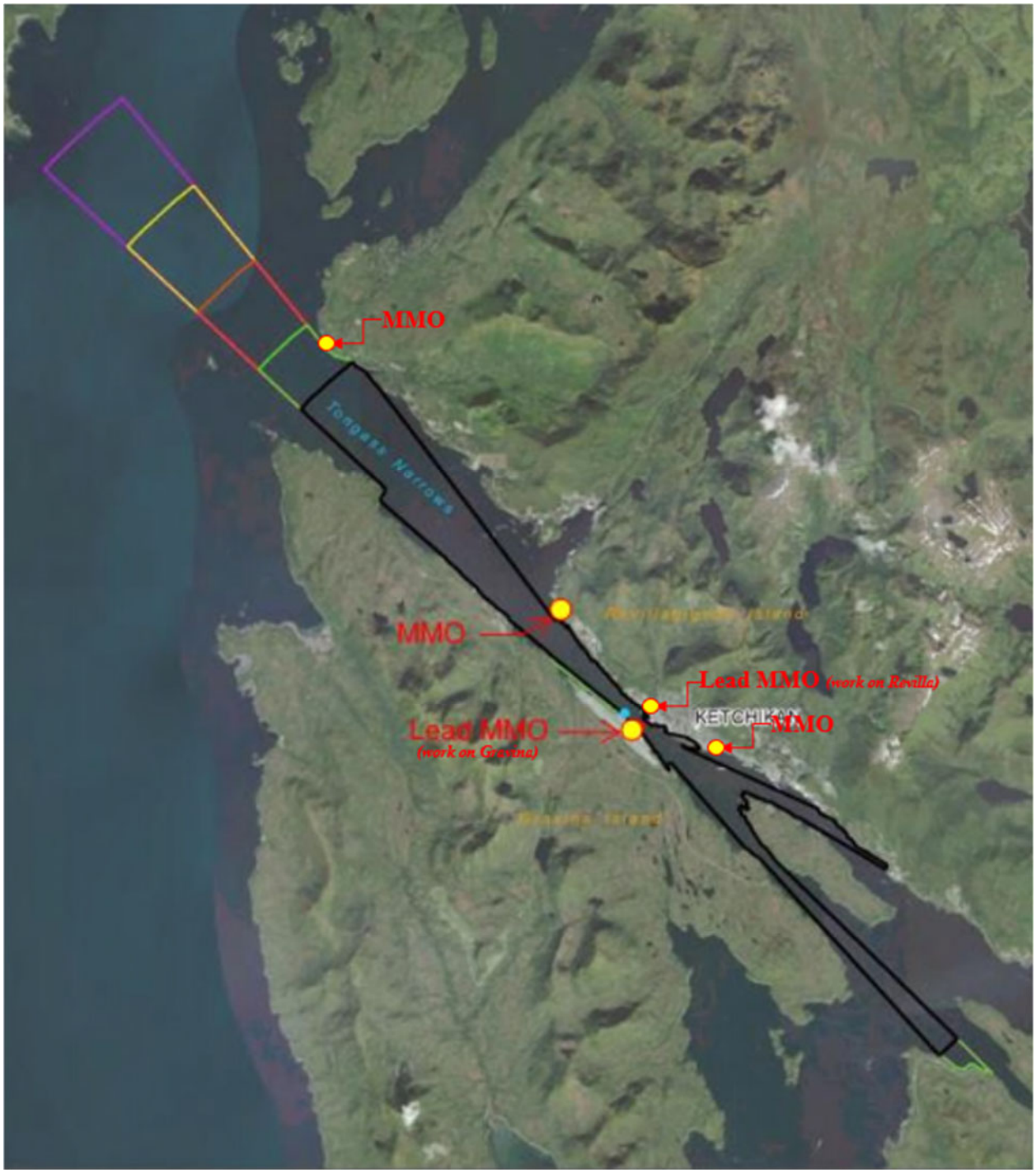
FIGURE 1. Tongass Narrows Ferry Berth Improvements: Construction Locations from May 2021 to February 2022

Note: Although the IHA renewal was issued on April 26, 2021, work did not start until May 4, 2021.

TABLE 2. Tongass Narrows Ferry Berth Improvements: Level A Shutdown Zones and Level B Monitoring Zones Under the Phase 1 Renewal IHA

Activity	Pile Size (Inches)	Minutes per pile or Strikes per Pile	Piles Installed or Removed per Day	Level B Harassment Isopleth (m)	Shutdown Distances (m)				
					LF	MF	HF	PW	OW
Vibratory Installation	30	30 min	3	6,310	50				
	24, 18	30 min	3	5,420					
	27.6 sheet pile, 30.3 sheet pile	15 min	10	4,650					
Vibratory Removal	24, 16	30 min	5	5,420					
Drilling Rock Sockets and Tension Anchors	30	180 min	3	12,030	70	50	60	50	
	24, 18	120 min	3		60	50			
Impact Installation	30	50 strikes	3	2,160	250	50	250	150	50
			2		200		200	100	
			1		100		150	100	
		200 strikes	3		550		650	300	
			2		400		500	250	
			1		300		300	150	
	24	50 strikes	3	1,000	150		150	100	
			2		100		150	50	
			1		100		100	50	
		200 strikes	3		300		350	200	
			2		250		300	150	
			1		150		200	100	
	18	50 strikes	3		150		150	100	
			2		100		150	50	
			1		100		100	50	

FIGURE 2. Tongass Narrows Ferry Berth Improvements: NMFS-Approved PSO Locations in Relation to the Largest Monitoring Zone from May 2021 to February 2022 Under the Phase 1 Renewal IHA



Source: HDR 2019

2 MARINE MAMMAL MONITORING METHODS

The PSOs followed mitigation measures detailed in the 4MP and approved by NMFS, which was updated to reflect the conditions of the renewal IHA issued in April 2021. The monitoring and mitigation protocols were established in order to minimize impacts to marine mammals in the vicinity of the ferry terminal projects. Visual observations allowed for the adherence of the shutdown areas, documentation of take, and collection of data for use in future activities. All data collected by PSOs are located in Attachments A and B.

When in-water work began on May 4, 2021, three qualified and NMFS-accepted PSOs scanned the area for marine mammals, recorded and reported sightings, and implemented mitigation actions (shut downs) in accordance with the IHA during in-water pile driving activities. The PSOs also performed a 30-minute watch prior to the start of and at the conclusion of any in-water work and consistently observed the areas while all in-water work occurred. The three to four land-based PSOs had a clear view of the action areas and had a nearly full view of Tongass Narrows (Figure 2).

The PSOs were equipped with binoculars, a rangefinder, radio, cell phone, and GPS unit. Guidelines for observers to mitigate for fatigue were closely followed. If a marine mammal was sighted, the observer would identify and record the species. If the marine mammal appeared to be likely to enter a shutdown area, the superintendent was notified by the lead observer and in water work was halted and delayed until the marine mammal left the area for 15 minutes (pinnipeds) and 30 minutes (cetaceans) had passed after the last sighting within or near the action area.

The PSOs recorded the following information for each protected species observation:

- Species, date, and time for each sighting event.
- Number of animals per sighting event (adults/juveniles/calves).
- Primary, and if observed, secondary behaviors of the marine mammal.
- Geographic coordinates for the observed animals.
- Time of the most recent pile-driving activity or other project activity prior to sighting.
- Weather and water conditions (i.e. sea state, visibility, lighting conditions, etc.).

When a protected species was observed, distance estimates were made using a rangefinder, the naked eye, and by relating the animal's proximity to an object at a known distance. Species and sex determinations were attempted by observing anatomical features and behaviors. Identifications were confirmed and recorded.

Based upon the location, timeframe, behavior, and tracking movement, observers determined if an individual or group was being resighted. If an individual or group was resighted, a note was made on the sighting form to ensure that additional takes or sightings were not counted again.

If it could not be positively determined whether it was the same individual or group, the individual or group was counted as a new sighting and an additional take, if appropriate.

A detailed description of monitoring methods is documented in *Marine Mammal Monitoring and Mitigation Plan for Ketchikan Revilla and Gravina Airport Ferry Facility Improvements* (Attachment C).

3 RESULTS

3.1 GENERAL MONTIORING AND CONSTRUCTION ACTIVITIES

A total of 98 days of in-water work occurred from May 4, 2021 to February 28, 2022. From May 4 to June 15, 2021, twenty-five (25) 24-inch permanent piles were installed using the vibratory hammer and impact hammer at the New Gravina Island Shuttle Ferry Berth/Related Terminal Improvements (SFHWY00109) site. On June 16, 2021, work resumed at the New Revilla Ferry Berth where nine (9) 24-inch permanent piles and eighteen (18) 30-inch permanent piles were installed using a vibratory hammer and impact hammer (Table 4). From February 8 to 27, 2022, five (5) tension anchors were installed with the drill in the previously installed 30-inch piles. On February 28, 2022, the construction crew returned back to Gravina and used the drill to rock socket one (1) of the previously installed 24-inch piles. PSOs were on duty during every day of in-water work.

Attachment A and B details the dates, times, construction activities, and pile information for each marine mammal monitoring period.

TABLE 3. Summary of In-Water Work Activities by Month Under the Phase 1 Renewal IHA (May 2021 to January 2022)

Year	Month	Number of Days	Time Monitored	Number of Piles[1]	Pile Size	Pile Type	Location/Project	Pile Driving Method(s)
2021	May	17 driving 1 monitor only[2]	83 hrs 36 mins	22	24-inch	Permanent	Gravina Ferry Berth	Vibratory and Impact Hammer
	June	13 driving 1 monitor only[2]	71 hrs 20 mins	6	24-inch	Permanent	Gravina Ferry Berth	Vibratory and Impact Hammer
				4	30-inch	Permanent	New Revilla Ferry Berth	Vibratory and Impact Hammer
	July	8 driving 1 monitor only[2]	26 hrs 27 mins	2	30-inch	Permanent	New Revilla Ferry Berth	Vibratory Hammer and Impact Hammer
	August	16	36 hrs 58 mins	4	30-inch	Permanent	New Revilla Ferry Berth	Vibratory Hammer and Impact Hammer
	September	7	39 hrs 26 mins	4	24-inch	Permanent	New Revilla Ferry Berth	Vibratory Hammer and Impact Hammer
				3	30-inch	Permanent		
	October	12 driving 1 monitor only[2]	45 hrs 1 min	8	24-inch	Permanent	New Revilla Ferry Berth	Vibratory Hammer and Impact Hammer
				2	30-inch	Permanent		
	November	0	-	-	-	-	-	-
	December	1	2 hrs 6 mins	2	30-inch	Permanent	New Revilla Ferry Berth	Vibratory Hammer and Impact Hammer
2022	January	6 driving 1 monitor only[2]	19 hrs 27 mins	5	30-inch	Permanent	New Revilla Ferry Berth	Vibratory Hammer and Impact Hammer
	February	12 driving 1 monitor only[2]	85 hrs 13 mins	1	30-inch	Permanent	New Revilla Ferry Berth	Vibratory Hammer and Impact Hammer
				5	30-inch	Permanent	New Revilla Ferry Berth	Tension Anchors
				1	24-inch	Permanent	Gravina Ferry Berth	Rock Socket

[1]Piles may have required multiple methods of installation and may have been worked on multiple times/days throughout the project to achieve design embedment.

[2]PSOs were deployed and conducted monitoring according to planned in-water work; however, no in-water work happened during the monitoring period.

3.2 WEATHER PARAMETERS AND WATER CONDITIONS

Environmental conditions, including weather parameters and water conditions, were recorded at the start of each monitoring period and when conditions changed. The sea state, visibility, glare, and weather conditions occasionally varied on a daily basis and could sometimes vary slightly between monitoring locations. Conditions were generally favorable throughout the duration of the project; although there were a few days when the construction crews determined that conditions were not suitable to start or continue work. Outside of extrapolating takes, no mitigation measures, as a result of weather and/or reduced visibility, were enacted by PSOs between May 2021 and February 2022. Table 5 provides a general overview of conditions during each month of in-water work from May 2021 to February 2022. A full log of conditions each day is located in Attachment A and B.

TABLE 4. Tongass Narrows Ferry Berth Improvements: Environmental Conditions During Each Month of Construction Under the Phase 1 Renewal IHA (May 2021 to February 2022)

Year	Month	Temperature Range	Visibility	Beaufort Sea State (range)	Average Wind Speed (mph)
2021	May	44-55°F	Excellent	0-3	7.6
	June	49-64°F	Good-Excellent	0-3	8.3
	July	55-65°F	Good-Excellent	0-2	6.2
	August	55-65°F	Moderate-Excellent	0-2	7.0
	September	53-57.5°F	Moderate-Excellent	0-4	8.3
	October	40.5-50°F	Good-Excellent	0-4	8.2
	December	27°F	Excellent	0-2	5.0
2022	January	35-44°F	Bad-Excellent	0-4	8.2
	February	29-44°F	Bad-Excellent	0-5	8.7

(Source: NOAA 2021 and 2022)

3.3 MARINE MAMMAL MONITORING RESULTS

3.3.1 Overview

On 83 of the 98 days of marine mammal monitoring, 279 sighting events of 4 species occurred with 342 individuals recorded. PSOs carefully watched the designated shutdown and monitoring zones to prevent any unauthorized takes, no sightings resulted in the delay or shutdown of in-water work. A total of 106 Level B takes occurred, and no Level A takes were needed.

The average animal sighting per hour per month was estimated using the total number of hours of monitoring and the total number of animal sightings for each month. Discounting December, when 4 animals were seen during 2 hours of total monitoring, the average numbers of

individuals sighted per hour of monitoring was highest in September (average of about 1.3 individuals sighted during each hour of monitoring) and May (average of about 1 individual sighted each hour). The lowest average number of individuals per hour were sighted in January and February when 0.6 and 0.5 individuals were sighted each hour, respectively. Interestingly, the average numbers of Level B takes per hour of monitoring was similar (about 1 take every 4 hours or 0.25 sightings per hour) in September and May, when individuals sightings were high, and January and February, when individual sightings were low (Table 5).

Four species of marine mammals were identified during monitoring efforts: Steller sea lions, harbor seals, humpback whales, and killer whales. Steller sea lions and harbor seals were consistently present during each month of in-water work. Cetaceans (humpback whales and killer whales) were sighted with less frequency and during periods of time that align with known presence patterns in the Tongass Narrows presented in the *Endangered Species Act Section 7(a)(2) Biological Opinion for Construction of the Tongass Narrows Project* (NMFS 2019).[2, 3]

Humpback whales were documented in Tongass Narrows in May, June, July, August, and October. The frequency of sightings per month ranged from 1 to 5 days. Peak presence occurred in May (5 days), and other months had less frequent humpback whale sightings; 1 or 2 days per month. Group sizes generally ranged from 1 to 3 individuals with one pod of 4 in June.[1]

Killer whale sightings were scattered and infrequent with peak presence also in May. Pod sizes ranged from 2 to 8, and they generally spent 30 minutes to one hour foraging and transiting Tongass Narrows before leaving the action area.[2]

A summary of observations per month is located in Table 5.

[2] Anecdotal information suggests that humpback whales are present in low numbers year-round in Tongass Narrows, with the highest abundance during summer and fall. Though most humpback whales depart Alaska for their breeding grounds in October and November, and return in March and April. NMFS estimated that on average, humpback whales would occur in groups of 1-3 whales three times per month in Tongass Narrows (NMFS 2019).
[3] Killer whales tend to transit through Tongass Narrows, and do not linger in the project area. Killer whales are observed on average about once every 2 weeks in Tongass Narrows, and abundance increases between May and July. NMFS (83 FR 22009) has estimated that one group of killer whales is present in Tongass Narrows once a month.

TABLE 5. Tongass Narrows Ferry Berth Improvements: Summary of Recorded Observations by Month Under the Phase 1 Renewal IHA (April 2021 to February 2022)

Month	Monitoring Time	Sighting Events	Individuals Sighted	Number of Species	Level B Takes	Extrapolated Level B Takes*
May 2021	18 days *(83 hrs 36 mins)*	71	81	4	23	0
June 2021	14 days *(71 hrs 20 mins)*	42	62	4	6	0
July 2021	9 days *(26 hrs 27 mins)*	21	22	3	4	0
August 2021	16 days *(36 hrs 58 mins)*	26	27	3	2	0
September 2021	7 days *(39 hrs 26 mins)*	34	50	3	9	0
October 2021	13 days *(45 hrs 1 min)*	34	39	4	3	0
November 2021	0 days *(0 hrs 0 mins)*	-	-	-	-	-
December 2021	1 day *(2 hrs 6 mins)*	4	4	2	1	0
January 2022	7 days *(19 hrs 27 mins)*	9	12	3	7	0
February 2022	13 days *(85 hrs 13 mins)*	38	45	3	20	31
Total	**98 days** *(409 hrs 34 mins)*	**279**	**342**	**-**	**75**	**31**

** During February 2022, takes were extrapolated due to weather-related reduced visibility and the inability to see 18.5 percent (behind Pennock Island) of the Level B zone during tension anchor installation from PSO locations. Reduced visibility did not occur during any other month of in-water work under the renewal IHA.*

Summary take information for each month per species is in Table 6. Table 11 summarizes total take over the course of the construction and the remaining take through February 2022.

TABLE 6. Tongass Narrows Ferry Berth Improvements: Daily and Total Take Numbers by Species Under the Phase 1 IHA Renewal (May 2021 to February2022)

May 2021																																
Species	1	2	4	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	May Total
Steller Sea Lion	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	1	0	0	0	0	1	0	0	0	0	0	0	0	4
Harbor Seal	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	2	0	0	0	0	0	0	0	0	0	0	0	0	0	3
Harbor Porpoise	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Dall's Porpoise	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Pacific White-sided Dolphin	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Killer Whale	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	8	0	0	0	10
Humpback Whale	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	3	1	0	0	0	0	0	0	0	0	0	0	0	6
Minke Whale	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
June 2021																																
Species	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30		June Total
Steller Sea Lion	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		0
Harbor Seal	0	1	0	0	0	0	1	0	0	0	0	0	0	2	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		6
Harbor Porpoise	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		0
Dall's Porpoise	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		0
Pacific White-sided Dolphin	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		0
Killer Whale	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		0
Humpback Whale	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		0
Minke Whale	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		0
July 2021																																
Species	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	July Total
Steller Sea Lion	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
Harbor Seal	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1
Harbor Porpoise	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Dall's Porpoise	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Pacific White-sided Dolphin	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Killer Whale	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Humpback Whale	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
Minke Whale	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
August 2021																																
Species	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	August Total
Steller Sea Lion	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Harbor Seal	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	2
Harbor Porpoise	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Dall's Porpoise	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Pacific White-sided Dolphin	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Killer Whale	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Humpback Whale	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Minke Whale	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

September 2021																																

Species	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28				September Total
Steller Sea Lion	3	0	0	0	0	0	0	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0				6
Harbor Seal	0	0	1	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0				3
Harbor Porpoise	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0				0
Dall's Porpoise	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0				0
Pacific White-sided Dolphin	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0				0
Killer Whale	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0				0
Humpback Whale	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0				0
Minke Whale	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0				0

October 2021																																
Species	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	October Total
Steller Sea Lion	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
Harbor Seal	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
Harbor Porpoise	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Dall's Porpoise	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Pacific White-sided Dolphin	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Killer Whale	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Humpback Whale	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
Minke Whale	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

November 2021																																
Species	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30		November Total
Steller Sea Lion	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		0
Harbor Seal	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		0
Harbor Porpoise	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		0
Dall's Porpoise	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		0
Pacific White-sided Dolphin	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		0
Killer Whale	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		0
Humpback Whale	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		0
Minke Whale	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		0

December 2021																																
Species	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	December Total
Steller Sea Lion	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
Harbor Seal	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Harbor Porpoise	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Dall's Porpoise	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Pacific White-sided Dolphin	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Killer Whale	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Humpback Whale	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Minke Whale	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

January 2022																																
Species	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	252	26	27	28	29	30	31	January Total
Steller Sea Lion	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1
Harbor Seal	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1

Harbor Porpoise	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Dall's Porpoise	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Pacific White-sided Dolphin	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Killer Whale	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	0	0	0	5
Humpback Whale	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Minke Whale	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
February 2022																															
Species	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28				February Total
Steller Sea Lion	0	0	0	0	0	0	0	3	0	0	0	0	0	0	0	3	3	0	0	0	0	0	6	3	0	0	0	0				18
Harbor Seal	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	5	0	0	4	0	0	0	0	0	0	0	0				12
Harbor Porpoise	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0				0
Dall's Porpoise	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0				0
Pacific White-sided Dolphin	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0				0
Killer Whale	0	0	0	0	0	0	0	0	0	0	0	0	0	12	0	0	0	0	0	0	0	0	0	9	0	0	0	0				21
Humpback Whale	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0				0
Minke Whale	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0				0

3.3.2 Steller Sea Lions

A total of 70 Steller sea lion sighting events occurred on 43 separate days during in-water work. A total of 87 individuals were recorded and 32 resulted in Level B takes. Twelve (12) of the 32 recorded takes are extrapolated Level B takes due to limited visibility of the monitoring area in February 2022. There were no level A takes, and no sightings resulted in mitigation measures due to their distances from in-water work. The highest number of individuals per month (29) were sighted during 7 days of monitoring in September 2021, when 6 level B takes occurred. There were 14 individuals sighted and 6 level B takes (with an additional 12 extrapolated takes) in February 2022 during 13 days of monitoring. When the Phase 1 Renewal IHA expired, 98.2 percent of theSteller sea lions Level Btakes remained. All of the Level A takes remained.

Observations were mainly of single individuals and pairs with infrequent groups of three (3) and four (4). They were seen within 45 meters and as far away as 5,700 meters of the pile driving site. Steller sea lions were identified as travelling, foraging, diving, breaching, slapping, vocalizing, chuffing, swimming, milling, resting, looking, and sinking. The sex and age of the individuals was not able to be positively determined for any sightings; although, no pups were sighted. Sightings and takes per month are detailed below (Table 7).

TABLE 7. Tongass Narrows Ferry Berth Improvements: Steller Sea Lion Sightings and Takes Per Month Under the Phase 1 Renewal IHA (May 2021 to February 2022)

Month	Days Sighted	Sighting Events	Individuals Sighted	Sightings with Mitigation Measures	Distance Range from In-water work	Level B Takes	Extrapolated Level B Takes
May 2021 *(18 days; 83 hrs 36 mins)*	7	11	12	0	150m-5,700m	4	0
June 2021 *(14 days; 71 hrs 20 mins)*	4	4	4	0	100m-600m	0	0
July 2021 *(9 days; 26 hrs 27 mins)*	4	7	7	0	300m-4,500m	1	0
August 2021 *(16 days; 36 hrs 58 mins)*	4	5	7	0	300m-3,350m	0	0
September *(7 days; 39 hrs 26 mins)*	6	16	29	0	300m-3,500m	6	0
October 2021 *(13 days; 45 hrs 1 min)*	7	9	10		400m-3,800m	1	0
November 2021 *(0 days; 0 hrs 0 mins)*		-	-	-	-	-	-
December 2021 *(1 day; 2 hrs 6 mins)*	1	1	1	0	400m-450m	1	0
January 2022 *(7 days; 19 hrs 27 mins)*	2	3	3	0	45m-2,300m	1	0
February 2022 *(13 days; 85 hrs 13 mins)*	8	14	14	0	50m-3,400m	6	12
Total	**43**	**70**	**87**	**0**	**45m-5,700m**	**20**	**12**

3.3.3 Harbor Seals

Harbor seals were sighted on 72 days of the 98 days of in-water work. Sighting events were of solo individuals and pairs with one sightings of a group of 3 in May 2021. Fifty (50) and 44 individuals were sighted during 18 days of monitoring in May and 14 days of monitoring in June, respectively. Most level B takes occurred in June 2021 (6 takes) and February 2022 (5 takes plus an additional 7 extrapolated in February due to limited visibility). Twenty-nine (29) out of the 765 authorized Level B takes were used and 736 Level B takes remained, and none of the 18 authorized Level A takes were needed. No mitigation measures were necessary during the 165 sighting events due to each sightings distance from work.

Harbor seals were observed between 40 meters and 3,400 meters from the work sites. The individuals were identified as vocalizing, playing, hauling out, entering the water, looking, sinking, milling, swimming, travelling, foraging, and resting.

On six days in June, a mother and pup were positively identified by the Peninsula Point PSO approximately 3,350 meters to 3,400 meters from in-water work. Level B takes of the pair occurred on June 14 and 15, 2021. The sex and age of the other individuals sighted from May 2021 to February 2022 was unable to be determined. Table 8 details sighting data per month.

TABLE 8. Tongass Narrows Ferry Berth Improvements: Harbor Seal Sightings and Takes Per Month Under the Phase 1 Renewal IHA (May 2021 to February 2022)

Month	Days Sighted	Sighting Events	Individuals Sighted	Sightings with Mitigation Measures	Distance Range from In-water work	Level B Takes	Extrapolated Level B Takes
May 2021 *(18 days; 83 hrs 36 mins)*	14	44	50	0	200m-3,450m	3	0
June 2021 *(14 days; 71 hrs 20 mins)*	12	31	44	0	150m-3,400m	6	0
July 2021 *(9 days; 26 hrs 27 mins)*	7	13	13	0	300m-3,400m	1	0
August 2021 *(16 days; 36 hrs 58 mins)*	12	17	17	0	300m-3,400m	2	0
September *(7 days; 39 hrs 26 mins)*	6	16	16	0	250m-4,300m	3	0
October 2021 *(13 days; 45 hrs 1 min)*	8	18	21	0	300m-3,400m	1	0
November 2021 *(0 days; 0 hrs 0 mins)*		-	-	-	-	-	-
December 2021 *(1 day; 2 hrs 6 mins)*	1	3	3	0	1,800m-3,250m	0	0
January 2022 *(7 days; 19 hrs 27 mins)*	3	4	4	0	40m-2,000m	1	0
February 2022 *(13 days; 85 hrs 13 mins)*	9	19	22	0	40m-2,400m	5	7
Total	**72**	**165**	**190**	**0**	**40m-4,300m**	**22**	**7**

3.3.5 Killer Whales

Killer whales were sighted on 8 days of the 98 days of in-water work. Thirty-six (36; 25 sighted and 12 extrapolated) out of the 144 authorized Level B takes were used and 108 Level B takes remained. There were no authorized Level A takes and none occurred. No mitigation measures were necessary during the 18 sighting events. Details regarding the sighting events are below.

On May 11, 2021, a pair of killer whales spent approximately an hour swimming in the northern portion of the action area (1,300 meters to 5,600 meters from in-water work) and resulted in 2 Level B takes. Later in the month, a pod of eight (8) was documented by the Peninsula Point and Project Site PSOs as they swam, breached, slapped the surface, milled, and porpoised approximately 800 meters to 6,300 meters from in-water work. The pod was likely present in Level B zone during impact driving, and 8 Level B takes were recorded to be cautious. The sex and age of individuals sighted in May could not be positively determined.

On June 24, 2021 (pod of 4), September 2, 2021 (pod of 5), and October 4, 2021 (pod of 6) killer whales were sighted. Sightings occurred approximately 600 meters to 5,600 meters from in-water work during periods of inactivity and no Level A or B takes were needed. Behaviors ranged from traveling, swimming, playing, diving, and slapping the surface of the water. The pods of six (6) that was recorded in October, was composed of three (3) males, two (2) females, and one (1) juvenile. One (1) of the males was positively identified by his characteristic collapsed dorsal fin as Northern Resident B-13, Yuculta.

On January 27, 2022, a pod consisting of one (1) male, two (2) females, and two (2) calves travelled south along the Gravina Island shoreline approximately 500 meters to 3,400 meters from in-water work. The pod was within the Level B zone during a period of vibratory hammer installation, and five (5) Level B takes were recorded.

On February 14, 2022, a pod of five (5) killer whales was sighted at approximately 400 meters to 3,800 meters from in-water work as they travelled north through Tongass Narrows. The pod consisted of one (1) male, two (2) females, and two (2) calves. Due to their presence during a period of active drilling, five (5) Level B takes were recorded and an additional seven (7) extrapolated takes were added due to limited visibility.

On February 24, 2022, a pod of four (4) killer whales were present in Tongass Narrows for approximately an hour. The pod travelled through the action area from 250 meters to 5,000 meters from in-water work resulting in 4 Level B takes and an additional five (5) extrapolated takes due to limited visibility. The Lead PSO determined that the pod was comprised of one (1) juvenile (sex undetermined), one (1) male, and two (2) females. Table 9 summarizes sightings of killer whales per month.

Table 9.Tongass Narrows Ferry Berth Improvements: Killer Whale Sightings and Takes Per Month Under the Phase 1 Renewal IHA (May 2021 to February 2022)

Month	Days Sighted	Sighting Events	Individuals Sighted	Sightings with Mitigation Measures	Distance Range from In-water work	Level B Takes	Extrapolated Level B Takes
May 2021 *(18 days; 83 hrs 36 mins)*	2	3	10	0	800m-6,300m	10	0
June 2021 *(14 days; 71 hrs 20 mins)*	1	3	4	0	1,000m-5,600m	0	0
July 2021 *(9 days; 26 hrs 27 mins)*	-	-	-	-	-	-	-
August 2021 *(16 days; 36 hrs 58 mins)*	-	-	-	-	-	-	-
September *(7 days; 39 hrs 26 mins)*	1	2	5	0	800m-3,400m	0	0
October 2021 *(13 days; 45 hrs 1 min)*	1	3	6	0	500m-5,600m	0	0
November 2021 *(0 days; 0 hrs 0 mins)*		-	-	-	-	-	-
December 2021 *(1 day; 2 hrs 6 mins)*	-	-	-	-	-	-	-
January 2022 *(7 days; 19 hrs 27 mins)*	1	2	5	0	500m-3,400m	5	0
February 2022 *(13 days; 85 hrs 13 mins)*	2	5	9	0	250m-5,000m	9	12
Total	**8**	**18**	**39**	**0**	**250m-6,300m**	**24**	**12**

3.3.6 Humpback Whales

Twenty-six (26) humpback whale sighting events occurred on 11 days of in-water work, and a total of 26 individuals were documented. The sex and age of 24 of the 26 recorded individuals was unable to be determined (Table 10). Based on results published in Wade et al. 2016 and as directed by NMFS, it was assumed that one (1) out of every 16 humpback whales recorded as a Level B take would be from the endangered Mexico Distinct Population Segment (DPS) (NMFS 2019). As a result, the nine (9) Level B takes of humpback whales recorded from May 2021 to February 2022 are assumed to be from the Hawaii DPS.[4] When the Phase 1 Renewal IHA expired, 96.2 percent of the authorized level B takes of Hawaii DPS humpback whales remained. All 15 of the authorized level B takes for Mexico DPS humpback whales remained upon expiration of the Phase 1 Renewal IHA. Details regarding the sightings follows.

[4] *6 Level B Takes of humpback whales occurred under the initial IHA (Link to Report: https://media.fisheries.noaa.gov/2022-02/AKDOTTongass_2019IHA_Mon%20Report_OPR1.pdf).*

On five days in May 2021, lone individuals and pairs of humpback whales were observed travelling, swimming, diving, chuffing, foraging, milling, and breaching in Tongass Narrows. Sightings were recorded 350 meters to 8,700 meters from in-water work. On May 19, 2021, a mom and calf were positively identified by the Peninsula Point PSO. The age and sex of the other individuals sighted in May 2021 was unable to be determined. Six (6) Level B takes were recorded.

On June 24, 2021, four separate pods of humpback whales were sighted in the action area. Three of the pods were made up of pairs, and one pod consisted of four individuals. PSOs recorded the whales playing, travelling, slapping, chuffing, milling, breaching, diving, and foraging 600 meters to 8,500 meters from in-water work. One pair was positively identified as a mom and calf. The age and sex of the other individuals sighted in June were unable to be determined. No Level B takes occurred.

On July 1, 2021, a pair of humpback whales were documented travelling, chuffing, and diving 300 meters from in-water work. The pair surfaced in the Level B zone immediately after the vibratory hammer stopped. The pair were assumed to be in the Level B zone when in-water work was occurring and resulted in two Level B takes. The age and sex of the pair were unable to be determined.

In August 2021, three solo humpback whales were sighted on two days. The whales were recorded travelling, chuffing, foraging, swimming, and diving 500 meters to 6,000 meters from in-water work. The individuals were not in the harassment zone during in-water work and no Level B takes or Level A takes occurred. The age and sex of the pair were unable to be determined.

On October 4, 2021, a lone individual was recorded swimming south approximately 5,400 meters to 5,500 meters from in-water work. Due to the whale's distance and presence in the Level B zone within a minute of the vibratory hammer shutting off, one Level B take was recorded. Another solo whale was sighted on October 5, 2021, by all three PSOs. It was identified swimming, travelling, diving, and foraging approximately 500 meters to 4,000 meters from the work site. No in-water work was occurring when this whale was observed, and no Level A or B takes were recorded. The two whales' sex and age were unable to be able to be determined.

From May 2021 through February 2022, no extrapolated takes, Level A takes, or mitigation measures were needed. Table 10 summarizes all humpback whale sightings.

TABLE 10. Tongass Narrows Ferry Berth Improvements: Humpback Whale Sightings and Takes Per Month Under the Phase 1 Renewal IHA (May 2021 to February 2022)

Month	Days Sighted	Sighting Events	Individuals Sighted	Sightings with Mitigation Measures	Distance Range from In-water work	Level B Takes	Extrapolated Level B Takes
May 2021 *(18 days; 83 hrs 36 mins)*	5	13	9	0	350m-8,700m	6	0
June 2021 *(14 days; 71 hrs 20 mins)*	1	4	10	0	600m-8,500m	0	0
July 2021 *(9 days; 26 hrs 27 mins)*	1	1	2	-	300m	2	0
August 2021 *(16 days; 36 hrs 58 mins)*	2	4	3	-	500m-6,000m	0	0
September *(7 days; 39 hrs 26 mins)*	-	-	-	-	-	-	-
October 2021 *(13 days; 45 hrs 1 min)*	2	4	2	0	500m-5,500m	1	0
November 2021 *(0 days; 0 hrs 0 mins)*		-	-	-	-	-	-
December 2021 *(1 day; 2 hrs 6 mins)*	-	-	-	-	-	-	-
January 2022 *(7 days; 19 hrs 27 mins)*	-	-	-	-	-	-	-
February 2022 (13 days; 85 hrs 13 mins)	0	0	0	0	0	0	0
Total	**11**	**26**	**26**	**0**	**350m-8,700m**	**9[4]**	**0**

4 SUMMARY

Three-hundred and forty-two (342) marine mammals were sighted on 83 of the 98 days of monitoring efforts under the Phase 1 Renewal IHA for the Tongass Narrows Ferry Berth Improvements effort. Four species of marine mammals (Steller sea lions, harbor seals, killer whales, and humpback whales) were sighted. Level B take was authorized for eight species of marine mammals; however, only four species (Steller sea lion, harbor seals, killer whales, and humpback whales) utilized 1.58 percent of the allotted Level B takes. No Level A takes of any species occurred, as shown in Table 12. No mitigation measures due to a marine mammal's proximity to in-water work (shutdowns) were needed.

During February 2022, takes were extrapolated due to weather-related reduced visibility and the inability to see 18.5 percent (behind Pennock Island) of the Level B zone during tension anchor installation from PSO locations (Table 11).

Table 11. Tongass Narrows Ferry Berth Improvements: Extrapolated Takes by Date and Species (May 2021 to February 2022)[5]

Date	Species	# of Individuals Sighted in Level B Zone During Active Work	Visible Portion of the Level B Zone	Number of Extrapolated Level B Takes*
2/8/2022	Steller sea lion	1	75%	2
2/14/2022	Killer whale	5	81.5%	7
2/16/2022	Steller sea lion	1	50%	2
2/16/2022	Harbor seal	1	50%	2
2/17/2022	Steller sea lion	1	81.5%	2
2/17/2022	Harbor seal	2	81.5%	3
2/20/2022	Harbor seal	1	81.5%	2
2/23/2022	Steller sea lion	2	50%	4
2/24/2022	Steller sea lion	1	81.5%	2
2/24/2022	Killer whale	4	81.5%	5

TABLE 12. Tongass Narrows Ferry Berth Improvements: Total Level A and Level B Takes Per Species During Construction Under the Phase 1 Renewal IHA (May 2021 to February 2022)

	Level B			Level A		
Species	**Actual**	**Allowed**	**Remain**	**Actual**	**Allowed**	**Remain**
Steller sea lion	32	1,800	1,768	0	0	0
Harbor seal	29	765	736	0	18	18
Harbor porpoise	0	109	109	0	15	15
Dall's porpoise	0	317	317	0	15	15
Pacific white-sided dolphin	0	92	92	0	0	0
Killer whale	36	144	108	0	0	0
Humpback whale (Hawaii DPS)*	9	238	229	0	0	0
Humpback whale (Mexico DPS)	0	15	15	0	0	0
Minke whale	0	7	7	0	0	0
TOTAL	**55**	**3,487**	**3,432**	**0**	**48**	**48**

Note: No Level A takes occurred

[5] *# of individuals per species sighted in visible portion of Level B zone during active periods of in-water work ÷ percent of Level B zone that is visible= extrapolated takes*

5 REFERENCES

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Attachment A. Marine Mammal Monitoring and Mitigation Plan

dawson

MARINE MAMMAL MONITORING PLAN

For

KTN: Revilla & Gravina Airport Ferry Facility Improvements

PO Box 30920, Bellingham WA 98228

Phone 360.756.1000

Table of Contents

Plan Approval

This Marine Mammal Monitoring Plan is a living document that can be amended to reflect changes in conditions that develop as the project progresses. All changes will be submitted to the DOT&PF Project Engineer for review and approval.

All work will be done in compliance with the applicable local, state and federal permits.

I acknowledge the contents of this Marine Mammal Monitoring Plan and understand the work practices to be enforced on this project.

Lead Marine Mammal Monitor: _____ Date: _____

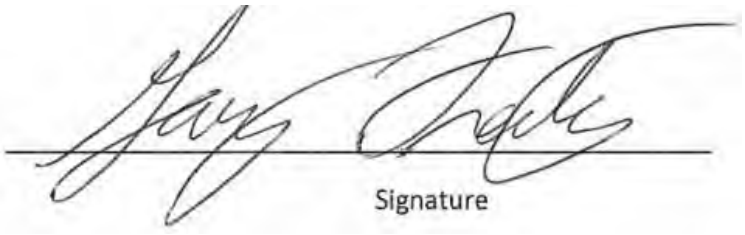
David Reynolds Signature

Project Superintendent: _____ Date: _____

Jim Rogers Signature

Project Manager: _____ Date: _____

Dirk deGroot Signature

Expert Reviewer:  Date: 9/8/20

Gary Freitag Signature

1 INTRODUCTION

The purpose of this Marine Mammal Monitoring and Mitigation Plan is to describe monitoring procedures for affected marine species and mitigation actions that will be implemented by Dawson Construction (Dawson) during pile installation and removal associated with the KTN: Revilla & Gravina Airport Ferry Facility Improvements (Project).

This Marine Mammal Monitoring and Mitigation Plan was prepared in accordance with the following specification requirements and supplemental information:

- AK DOT Standard Specs for Highway Construction - 2017
- SECTION 654 Marine Mammal Monitoring
- Appendix B-5: Incidental Harassment Authorization
- Appendix B-6: NMFS Biological Opinion
- Appendix B-7: Marine Mammal Monitoring Plan

The overall goal of the Marine Mammal Monitoring and Mitigation Plan is to comply with the Marine Mammal Protection Act and Endangers Species Act during in-water pile installation and removal.

This document establishes the requirements for monitoring and documenting all marine mammals potentially exposed to noise at or above established thresholds to minimizing impacts to marine mammals through the required mitigation measures.

1.1 Project Description

The project consists of four distinct in-water marine components requiring pile installation and or extraction; the approximate work windows for each are as follows:

1. New Revilla Dock Construction: Winter 2020 through Summer 2021
2. New Gravina Dock Construction: Spring 2021 through Summer 2021
3. Existing Gravina Dock Rehabilitation: Summer 2021 through Winter 2021
4. Existing Revilla Dock Rehabilitation: Winter 2021

The Project will involve removal of some of the existing piles and structure, and the installation of new piles and structure in the marine environment. Proposed activities include drilling of rock sockets into bedrock for steel pipe piles, vibratory removal of steel pipe piles, vibratory and impact installation of steel pipe piles. See Table 1.1 for a breakdown of the activities for each phase.

	24" Pile	30" Pile	Vibratory (extraction)	Vibratory (installation)	Impact	Socketing	Drilling
Revilla - New							
Trestle	X			X	X		
Restraint Dolphin		X		X	X		X
Stern Dolphin		X		X	X		X
Floating Fender Dolphin	X			X	X		X
Gravina - New							
Trestle	X			X	X	X	
Restraint Dolphin	X			X	X	X	X
Stern Dolphin	X			X	X	X	X
Floating Fender Dolphin	X			X	X	X	X
Revilla - Rehabilitation							
Floating Fender Dolphin	X		X	X	X		
Gravina - Rehabilitation							
Floating Fender Dolphin	X		X	X	X	X	X
4-Pile Dolphin	X		X	X	X	X	X

Table 1.1: Breakdown of pile driving activities per phase of work.

The Project has the potential to generate elevated levels of underwater and in-air noise that could exceed the Level A (injury) and Level B (disturbance) harassment thresholds in the Project specifications.

1.2 Protected Marine Mammals

The marine mammals identified in Table 1.2 have been identified in the project specifications as authorized takes.

	PHASE I			PHASE II		
Species	**Allowable Exposure to Level B Harrassment**	**Allowable Exposure to Level A Harrassment**	**Total Exposures**	**Allowable Exposure to Level B Harrassment**	**Allowable Exposure to Level A Harrassment**	**Total Exposures**
Steller sea lion	1800	0	1800	450	0	450
Harbor seal	765	18	783	162	9	171
Harbor porpoise	109	15	124	30	10	40
Dall's porpoise	317	15	332	45	15	60
Pacific white-sided dolphin	92	0	92	92	0	92
Killer whale	144	0	144	60	0	60
Humpback whale - Hawaii DPS	238	0	238	15	0	15
Humpback whale - Mexico DPS	15	0	15	1	0	1
Minke whale	7	0	7	3	0	3

Table 1.2: Authorized take numbers by species and stock per phase. Dawson will work with the PSO Coordinator and MMOs to keep track of take numbers and coordinate with other projects.

The taking, by Level A harassment, Level B harassment, serious injury or death of marine mammal species not identified in Table 1.2 is prohibited. In the event a species for which authorization has not been granted, or a species for which authorization has been granted but the authorization takes are met, is observed approaching or within the monitoring zone, pile driving and removal activities will be shut down immediately.

2 MARINE MAMMEL MONITORING AND MITIGATING MEASURES

The complete list of required avoidance, minimization, and mitigation measures can be found in the Project IHAs and NMFS Biological Opinion. Avoidance and minimization measures described here include establishment of Level A and Level B harassment zones, marine mammal monitoring, and specific mitigation measures that will be implemented during in-water pile installation and removal.

2.1 Level A and Level B Harassment Zones

During in-water pile installation, removal, or drilling, Dawson will monitor for all marine mammals within or approaching the Level A and Level B harassment zones. Monitoring all harassment zones, including the outer margins, enables trained Marine Mammal Observers (MMOs) to be aware of and communicate the presence of marine mammals in the Project area and thus prepare for potential shutdown of activity and documentation of exposures (takes).

Distances to the Level A and Level be harassment zones are defined by the IHA and BO in the contract specifications Single hammer Level A and Level B zones are identified in Table 2.1, below.

Activity	Pile Size (inches)	Minutes or Strikes per Pile	Piles Installed or Removed per Day	Level B Harrassment Zone (m)	Level A Shutdown Zone (m)				
					LF	MF	HF	PW	OW
Vibratory Installation	30	30 min	3	6,310	50				
	24, 18	30 min	3	5,420					
	Sheet pile	15 min	10	4,650					
Vibratory Extraction	24, 18	30 min	5	5,420					
Drilling Rock Sockets and Tension Anchors	30	180 min	3	12,030	70	50	60	50	
	24, 18	120 min	3		60	50			
Impact Installation	30	50 strikes	3	2,160	250	50	250	150	50
			2		200		200	100	
			1		100		150	100	
		200 strikes	3		550		650	300	
			2		400		500	250	
			1		300		300	150	
	24	50 strikes	3	1,000	150		150	100	
			2		100		150	50	
			1		100		100	50	
		200 strikes	3		300		350	200	
			2		250		300	150	
			1		150		200	100	
	18	50 strikes	3		150		150	100	
			2		100		150	50	
			1		100		100	50	

Table 2.1: Level B Harassment Zones for All Species and maximum Level A shutdown zones during Single Hammer Operations as defined by the IHA.

Using Attachment 1: Simultaneous Sound Level Worksheets – Phase 1, in the biological opinion, combined sound levels generated during pile installation and removal for simultaneous vibratory/impact and drilling can be estimated. The remaining Simultaneous Sound Level Worksheets, found in Attachment 1, can be found in Appendix C.

Table 2.2 will be used if two piles are installed/removed simultaneously. NA is marked when combinations of equipment not possible given construction plans for each component.

Method			Vibratory					Drilling		Impact		
	Pile Diameter		Sheet	18	20	24	30	24	30	18/20	24	30
		SSL	160	161	161	161	162	166	166	190	190	195
Vibratory	Sheet	160	163	164	164	164	164	167	167	No Addition (Level B = Vibratory, Level A = Impact)		
	18	161	164	NA		164	165	167	167			
	20	161	164			164	165	167	167			
	24	161	164	164	164	164	165	167	167			
	30	162	164	165	165	165	165	167	167			
Drilling	24	166	167	167	167	167	167	169	169			
	30	166	167	167	167	167	167	169	169			
Impact	18/20	190	No Addition (Level B = Vibratory, Level A = Impact)							No Addition		
	24	190										
	30	195										

Table 2.2: Combined sound levels generated during pile installation for a combination of two pieces of equipment: impact hammer, vibratory hammer and down-hole drill. It is anticipated that there will be simultaneous drilling/vibratory driving and drilling/impact driving during the project; these areas are highlighted accordingly.

From IHA Table 4, the Level B Harassment Isopleth can be calculated for the 167 SSL (dB) for simultaneous vibratory pile installation and drilling, as seen in Table 2.3, below.

Combined SSL (dB)	Distance to Level B Harassment Isopleth (m)
163	7356
164	8577
165	10000
166	11659
167	13594
168	15849
169	18478
170	21544

Table 2.3: Level B harassment monitoring zones for combinations of two and three piles of different sizes, types and installation methods.

Shutdown zones have been defined for the Project to reduce the number of Level A zones and simplify implementation at the Project site by MMOs, and to further reduce the likelihood of Level A take. Like Level A zones, shutdown zones may differ by pile installation method and species functional hearing group. Every effort will be made to shut down before marine mammals enter the shutdown zones.

All movements of marine mammals into and out of the Level A zones will be documented to make this determination. See table 2.1 for the maximum level A shutdown distance per the 4MP.

In addition, a 10-meter shutdown zone will be implemented for all species and all activity types to prevent direct contact of marine mammals with construction equipment. On days when combinations of one down-hole drill with a vibratory hammer, two down-hole drills, or two down-hole drills with a vibratory hammer are used simultaneously, a 100-meter shutdown zone will be implemented for each vibratory hammer and each down-hole drill.

2.2 Marine Mammal Monitoring Measures

To minimize potential impacts of Project activities on marine mammals, MMOs (referred to as Protected Species Observers or PSOs in contract documents) will be present during all pile installation and removal using impact and vibratory methods and rock socket drilling.

MMOs' will act in accordance with the rules stipulated in the Project IHA, however the general requirements are as follows:

1. The MMOs' ***ONLY*** responsibilities will be to search for, monitor, document, and track marine mammals (i.e. not welding or putting together forms).
2. A designated Lead MMO will always be on site and will remain responsible for implementing the Monitoring Plan for in-water pile installation and removal for the Project.
3. Marine mammal monitoring must take place from 30 minutes prior to initiation of pile driving, removal, and drilling through 30 minutes post-completion of this activity.
4. Pile installation and removal will only occur during daylight hours.
5. MMOs' will not perform duties for more than 12 hours in a 24-hour period.
6. If waters exceed a sea state that restricts the MMOs' ability to make observations within the *Level A* harassment zones (e.g. excessive wind or fog), pile installation and removal will be shut down and only re-initiated once Level A harassment zones are visible.
7. If conditions such as low light, high sea state, fog, ice, rain, glare, or other conditions prevent effective marine mammal monitoring of the entire *Level B* harassment zone in-water pile installation and removal may be continued if MMOs continue to monitor the visible portion of the Level B harassment zone throughout the duration of pile installation and removal.

MMOs will understand their roles and responsibilities before beginning observations. A clear authorization and communication system will be in place to ensure that MMOs and construction crew members understand their respective roles and responsibilities.

2.2.1 Positioning

Observation points are available from the Tongass Highway and Gravina Airport Access Road where it is possible to observe the entire width of Tongass Narrows with unaided eyes.

Per the IHA, there must be a minimum of two observers at each active driving site to actively observe monitoring and shutdown zones during all pile driving, pile removal, and drilling. MMOs will be positioned at the best practical vantage points; the MMOs' will be located:

1. The Lead MMOs will be located on the pile installation/removal rig and be able to observe the entire shutdown zone under normal conditions and communicate with construction personnel about shutdowns and take management.
2. One MMO will be stationed along the Tongass Narrows as the best practical vantage point to observe the monitoring zone required by the activities performed.

3. When combinations of hammers and drills are used, creating a Level B harassment zone greater than 12,023 meters, one additional MMO will be positioned on the northernmost land-based location to the Tongass Narrows. This MMO will monitor the Clarence Straight, watching for marine mammals that could swim through the ensonified area. This MMO will be joined by the MMO identified in (2), who will watch for marine mammals that could approach or enter Tongass Narrows.

All MMOs will be in constant radio contact with one another, and the lead MMO will be in contact with the construction team to request a work stoppage, if necessary.

MMOs stationed along the road system will watch for marine mammals entering and leaving Tongass Narrows. MMOs will monitor for marine mammals approaching the Level B harassment zones from the north or south and will alert the lead MMO of the number and species sighted, so that no unexpected marine mammals approach the construction site.

See Appendix A: MMO Locations for location of Lead MMO and MMO during operations on Revilla and Gravina.

2.2.2 Daily Monitoring Protocol

At the start of each day, Dawson will hold a briefing with the Lead MMO to outline the activities planned for that day. The MMOs will begin observations 30 minutes prior to the start of pile installation and removal (includes the start of the day and any break in activity longer than 30 minutes) and at least 30 minutes following completion of pile installation and removal.

Before departing, each MMO will be given the equipment identified in Section 4.3 Equipment.

Once the Lead MMO confirms, by radio or phone, that the remote MMO(s) are in place, and have been monitoring for at least 30 minutes, pile installation or removal operations may begin.

The MMOs will use a rangefinder to verify distance and a GPS or compass to verify heading when a marine mammal is observed; a full list of equipment required can be found in *Section 4.3 Equipment.*

Each MMO will record on their daily reports the information identified in *DATA COLLECTION*.

Each MMO will work between 6 and 12 hours in a given 24-hour period, and will be onsite up to 6 days per week. The pile driving is expected to be intermittent, allowing the PSO to take breaks during their shift.

Appendix B: Example Data Forms includes the daily reporting forms each MMO will record this information on.

2.2.3 Extrapolation of Takes

When the Level B harassment zones extends into Clarence Strait or the entire monitoring zone is not visible, extrapolation methods may be used to estimate take of marine mammals. Estimated numbers of individuals will be extrapolated by dividing the number of observed individuals by the percentage of the monitoring zone in that was visible.

Example:
If wind and sea state increase, causing visibility to diminish to a point that only 50 percent of the Clarence Strait portion of the monitoring zone is visible, and two humpback whales are observed entering that portion of the Level B zone, the MMO will estimate that four humpback whales are present in the Level B zone in Clarence Strait (2 whales observed in Level B zone ÷ 50 percent of zone visible = 4 whales estimated to be within Level B zone).

No more than four humpback whales are expected to occur in Clarence Strait in a day. Therefore, unless direct counts exceed four individuals, four is the maximum number of humpback whales assumed to be present in Clarence Strait when extrapolation methods are used.

2.3 Mitigation Measures for In-Water Pile Installation and Removal

Avoidance and minimization measures described here include soft starts, establishment of Level A and Level B harassment zones, and marine mammal monitoring. To minimize the effects of in-water pile installation and removal on marine mammals, the following measures will be observed:

2.3.1 General Requirements

- Pile installation, proofing, and removal will occur only during daylight hours, when visual monitoring of marine mammals can be conducted.
- If a marine mammal approaches within 10 meters of a Project vessel (e.g., barge, tugboat), the vessel shall reduce speed to the minimum level required to maintain safe steerage and working conditions until the marine mammal is at least 10 meters away from the vessel.

2.3.2 Soft Start Techniques

- Dawson will use soft start techniques when impact pile driving. Soft start will be accomplished by providing an initial set of three strikes at reduced energy, followed by one-minute waiting period, then two subsequent reduced energy strike sets. Soft start will be implemented at the beginning of each day and any time following cessation of impact pile driving for a period of thirty minutes or longer.
- Soft start will only be initiated after the Level A harassment zone is determined clear; if a marine mammal is present in the Level B harassment zone, soft start may begin, and a Level B harassment take will be recorded.
- Optional: to avoid a Level B take, ramping up will begin only after the MMO has determined, through sighting or if 15 minutes (30 minutes for humpback whale) has passed without a re-sighting, that the animal has moved outside the Level B harassment zone.

2.3.3 Level A and Level B Harassment Zones

- Shutting down pile installation or removal when a marine mammal is approaching or observed within a defined Level A or Level B harassment zone will be used to avoid take.
- If a marine mammal authorized for Level B take is present in the Level B harassment zone, in-water pile installation and removal may continue, and a Level B take will be recorded. Pile installation and rock socket drilling may occur when these species are in the Level B harassment zone, whether they entered the Level B zone from the Level A zone (if relevant), or from outside the Project area.

- If Level A or Level B take for a species reaches the authorized limit, pile installation will be stopped as individuals of this species approach the relevant zones, to avoid additional take of this species.
- For those marine mammal species for which Level B take has not been requested, in-water pile installation and removal and drilling will shut down before they enter the Level B harassment zone to avoid unauthorized Level B take.
- If a marine mammal is entering or is observed within an established shutdown zone, pile installation and removal must be halted or delayed. Pile driving may not commence or resume until either the animal has voluntarily left and been visually confirmed beyond the shutdown zone; or 15 minutes (30 minutes for humpback whales) have passed without subsequent detections of the animal.

3 MARINE MAMMAL OBSERVER QUALIFICATIONS

All MMOs will undergo project-specific training in monitoring, data collection, and mitigation procedures specific to the Project. This training will also include communication protocols.

All MMOs must be capable of spotting and identifying marine mammals and documenting applicable data during all types of weather, including rain, sleet, snow, and wind.

At a minimum, all MMOs will have or meet the following qualifications:

- MMOs will be independent observers not engaged in construction activities.
- MMOs' visual acuity (correction is permissible) will be sufficient to allow detection and identification of marine mammals at the water's surface; use of binoculars may be necessary to correctly identify a sighting to species.
- MMOs will demonstrate ability to conduct field observations and collect data according to assigned protocols (this may include academic training and/or previous field experience).
- MMOs will have documented marine mammal monitoring experience or training, or an undergraduate degree in biological science or a related field. Project-specific training for this Project will meet the training requirement if the MMO has experience identifying marine mammals to species.
- MMOs will have sufficient training, orientation, or experience with construction operations to provide for personal safety during observations.
- MMOs will have the ability to communicate orally, by radio or in person, with project personnel about marine mammals observed in the area.
- MMOs will have the ability to collect the required marine mammal observation data as detailed in *DATA COLLECTION*.

A designated Lead MMO will always be on site and will remain responsible for implementing the Marine Mammal Monitoring Plan for in-water pile installation and removal for the Project. The lead observer must have education and experience that demonstrates qualifications to serve as the lead, including the following:

- Education in wildlife observation techniques from a university, college, or other formal education program.
- Writing skills sufficient to prepare daily activity logs and monthly and final reports
- Previous professional marine mammal observation experience during construction.

3.1 Resumes

Gray Freitag (https://sites.google.com/a/alaska.edu/gary-freitag/), Professor of Oceanography and Marine Advisory Agent will oversee the development and implementation of the Marine Mammal Monitoring program.

Primary Lead MMO: David Reynolds
Alternate Lead MMO: Ashley Ruis

MMO-A: Tristan Moyer
MMO-B: Rakefet Vanderman Klein
MMO-C: Scott Walker (Alt. Lead in training)

A minimum of 30-days prior to start of work Dawson will furnish the Engineer with the name of the proposed marine mammal monitors and the monitors' Curriculum Vitae (CVs). No in-water work shall occur until Dawson has received approval of the marine mammal monitors' CVs by the Engineer.

Resumes may be found in Appendix D; additional resumes will be submitted as an addendum to this plan.

4 DATA COLLECTION

4.1 Environmental Conditions and Construction Activity

MMOs will use the environmental conditions and construction activities log to document environmental conditions, types of construction activities, and other human activity in the area (Appendix B). Environmental conditions will be recorded in the following increments:

- At the beginning and end of every monitoring period
- At every half hour
- As conditions change

Data collected will include the following:

- MMO name
- Location of the observation station
- Time and date of the observation
- Weather conditions
- Air temperature
- Sea state
- Cloud cover
- Visibility
- Glare
- Tide
- Ice coverage (if applicable)

MMOs will record the time that observations begin and end as well as the durations of shutdowns. MMOs will document the reason for stopping work, time of shutdown, and type of pile installation or other in-water work taking place.

MMOs will document other, non-project-related activities that could disturb marine mammals in the area, such as the presence of large and small vessels. Additionally, all communications between MMOs and the construction crew will be documented.

Data concerning environmental conditions, marine mammal sightings, and mitigation measures will be entered into a spreadsheet. Each data entry will be checked for quality assurance and quality control. This data will, upon request, be submitted to NMFS along with the final monitoring report.

4.2 Sightings

Each marine mammal observation will be documented on a Marine Mammal Sighting Form consisting of a data page/table and a schematic map of the location of the observed animal (Appendix B).

The following information will be recorded (summarized in Appendix B):

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, vibratory, or drilling).
3. Weather parameters and water condition 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 the time of the sighting.
5. Age and sex, if possible, of all marine mammals observed.
6. MMOs 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 the time of sighting).
8. Description of any marine mammal behavior patterns during observation, including direction of the travel.
9. Number of individuals of each species detected within the monitoring zone, and estimates of number of marine mammals taken, by species.
10. Detailed information about any implementation of any mitigation triggered (e.g. shutdowns or delays), a description of specific actions that ensued, and resulting change of behavior of the animals, if any.
11. Description of attempts to distinguish between the number of individual animals taken and the number of incidents of take, such as ability or track groups or individuals.
12. Takes by Level B harassment must be recorded by MMOs and extrapolated based upon the number of observed takes and the percentage of the Level B harassment zone that was not visible.

Additionally, MMOs will record whether no take occurred, or a Level A and/or Level B take occurred, including the number of marine mammals, species taken and recorded as it occurs.

Appendix B: Example Data Forms includes the daily reporting forms each MMO will record this information.

4.3 Equipment

The following equipment and information will be required on site for marine mammal monitoring:

- Portable radios for the MMOs to communicate with the Construction Contractor point of contact and other MMOs; or cellular phones and phone numbers for all MMOs and the Construction Contractor point of contact
- Daily tide tables
- Hand-held binoculars (7X or better) with built-in rangefinder or reticles
- Rangefinder
- Paper data forms or electronic data collection system (e.g., Toughbook or iPad) and back-up paper forms
- Large (11- by 17-inch or similar) waterproof maps of the Project area and monitoring Zones

4.4 Quality Assurance and Quality Control

Electronic data collection or paper data sheets will be QA/QC'd by the Lead MMO at the end of each monitoring day. No cells or information will be left blank. If information is not available or not applicable, the field will be populated with an "NA" or dash. The data will also be QA/QC'd once it is entered electronically.

4.5 Marine Mammal Monitoring Data Management

All marine mammal monitoring data will be entered into and stored in an electronic database or spreadsheet. The database or spreadsheet will be set up and structured for easy access and management of data and will be used to develop the marine mammal monitoring report. An electronic copy of the data spreadsheet will be available to NMFS upon request.

5 REPORTING

5.1 Notification of Intent to Commence Construction

Dawson will inform the NMFS Office of Protected Resources and the NMFS Alaska Region Protected Resources Division one week prior to commencing pile installation and removal (Julie Scheurer, 907-586-7111, Julie.Scheurer@noaa.gov).

5.2 Reporting

During construction, MMOs will maintain daily activity logs that include the following information:

1. Time that each monitoring period begins and ends
2. Prevailing environmental conditions
3. In-water construction activities occurring during each monitoring period (including number, type, and size of piles)
4. Indication of whether marine mammals were sighted

During construction, Dawson will submit brief monthly reports, which summarize MMO observations and recorded takes, to the Engineer. These reports will be submitted by DOT & PF Environmental Analysist to NMFS Alaska Region Protected Resources Division. The reporting period for each monthly MMO report will be the entire calendar month, and reports will be submitted by close of business on the tenth day of the month following the end of the reporting period (e.g., the monthly report covering September 1–30, 2020, would be submitted to NMFS by close of business on October 10, 2020). The monthly reports will be submitted by DOT&PF via email to Julie.Scheurer@noaa.gov.

To the extent practicable, the MMOs will record behavioral observations summarized in Appendix B.

5.3 Notification of Injured or Dead Marine Mammals

In the unanticipated event that the specified activity (pile installation and removal) clearly causes the take of a marine mammal for which authorization has not been granted, such as a serious injury or mortality, DOT&PF will immediately cease pile installation and removal and report the incident to the following offices:

- NMFS Office of Protected Resources (301-427-8401)
- NMFS Alaska Region Protected Resources Division (907-271-5006)
- NMFS Alaska Regional Stranding Coordinator (907-271-3448) or hotline (877-925-7773).

The report will include the following information:

- Time, date, and location (latitude/longitude) of the incident
- Detailed description of the incident
- Description of vessel involved (if applicable), including the name, type of vessel, and
- vessel speed before and during the incident
- Status of all sound source use in the 24 hours preceding the incident
- Environmental conditions (wind speed and direction, wave height, cloud cover, and visibility)
- Description of marine mammal observations in the 24 hours preceding the incident
- Species identification, description, condition, and fate of animal(s) involved
- Photographs or video footage of animals or equipment (if available)

Pile installation and removal shall not resume until NMFS is able to review the circumstances of the prohibited take. NMFS shall work with DOT&PF to determine what is necessary to minimize the likelihood of further prohibited take and ensure MMPA compliance. Dawson will not resume pile installation and removal until notified by DOT&PF.

If DOT&PF discovers an injured or dead marine mammal and the Lead MMO determines that the cause of the injury or death is unrelated to the Project, DOT&PF will immediately report the incident to:

- Alaska Regional Stranding hotline (877-925-7773)

The report will include any applicable information listed above. Activities may continue while NMFS reviews the circumstances of the incident. NMFS will work with DOT&PF to determine whether modifications to the activities are appropriate.

6 Appendix A: Marine Mammal Monitor Locations

6.1 Phase 1 - Revilla: Single Hammer - Vibratory

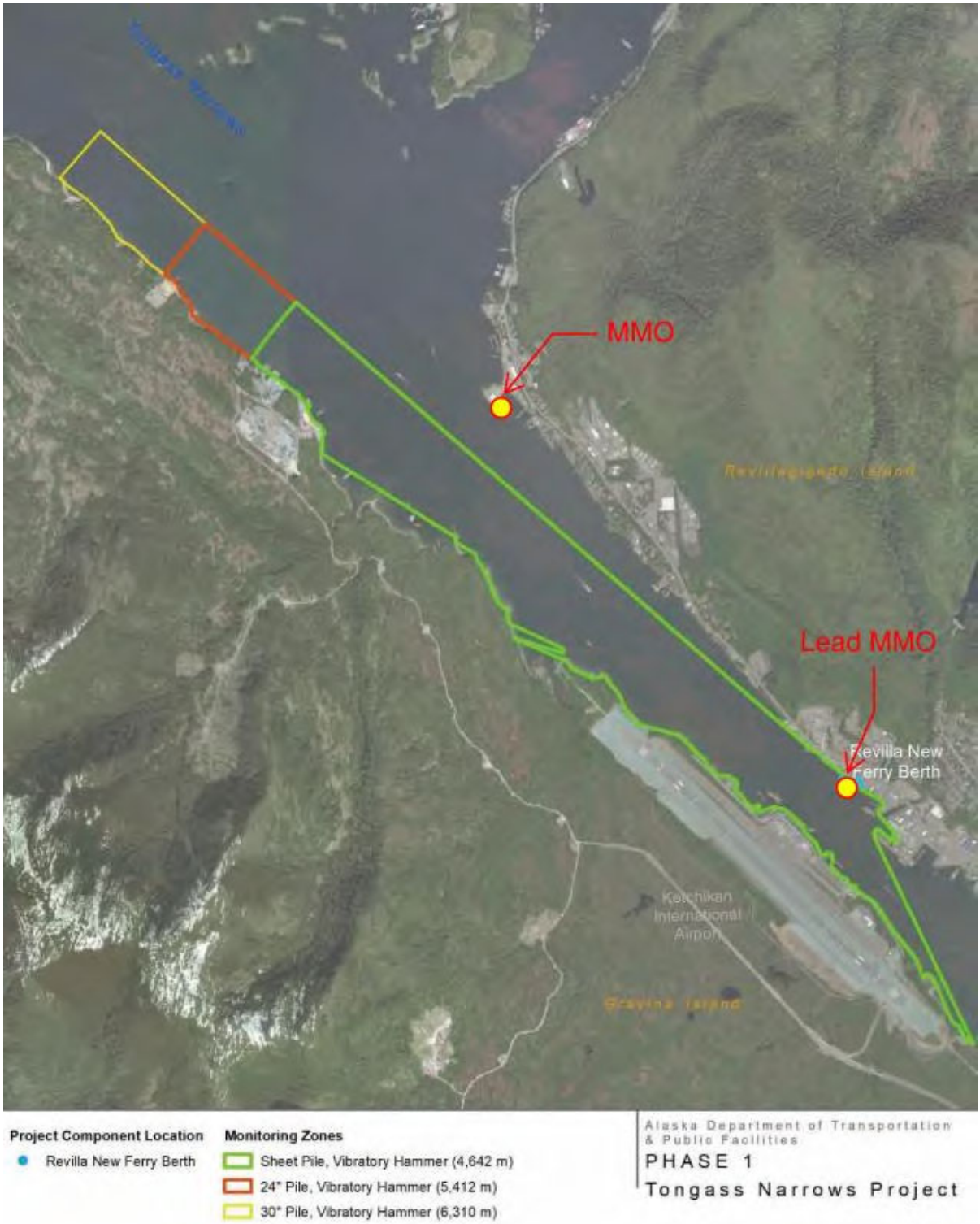


Figure 5.1: Marine Mammal Monitor locations during Revilla vibratory hammer work. One MMO on the rig; one MMO at the Peninsula Point (eastern edge of the TEMSCO float plane hangar).

6.2 Phase 1 - Revilla: Single Hammer - Impact

Figure 5.2: Marine Mammal Monitor locations during Revilla impact hammer work. One MMO on the rig; one MMO on the north end of the jobsite.

6.3 Phase 1 - Revilla: Single Hammer + Drill

Figure 5.3: Marine Mammal Monitor locations during Revilla simultaneous drilling/hammer work. One MMO on the rig; two MMOs at South Point Higgins, one looking south into Tongass Narrows and the other into Clarence Strait.

6.4 Phase 1 - Revilla + Gravina: Single Hammer (Gravina) + Single Drill (Revilla)

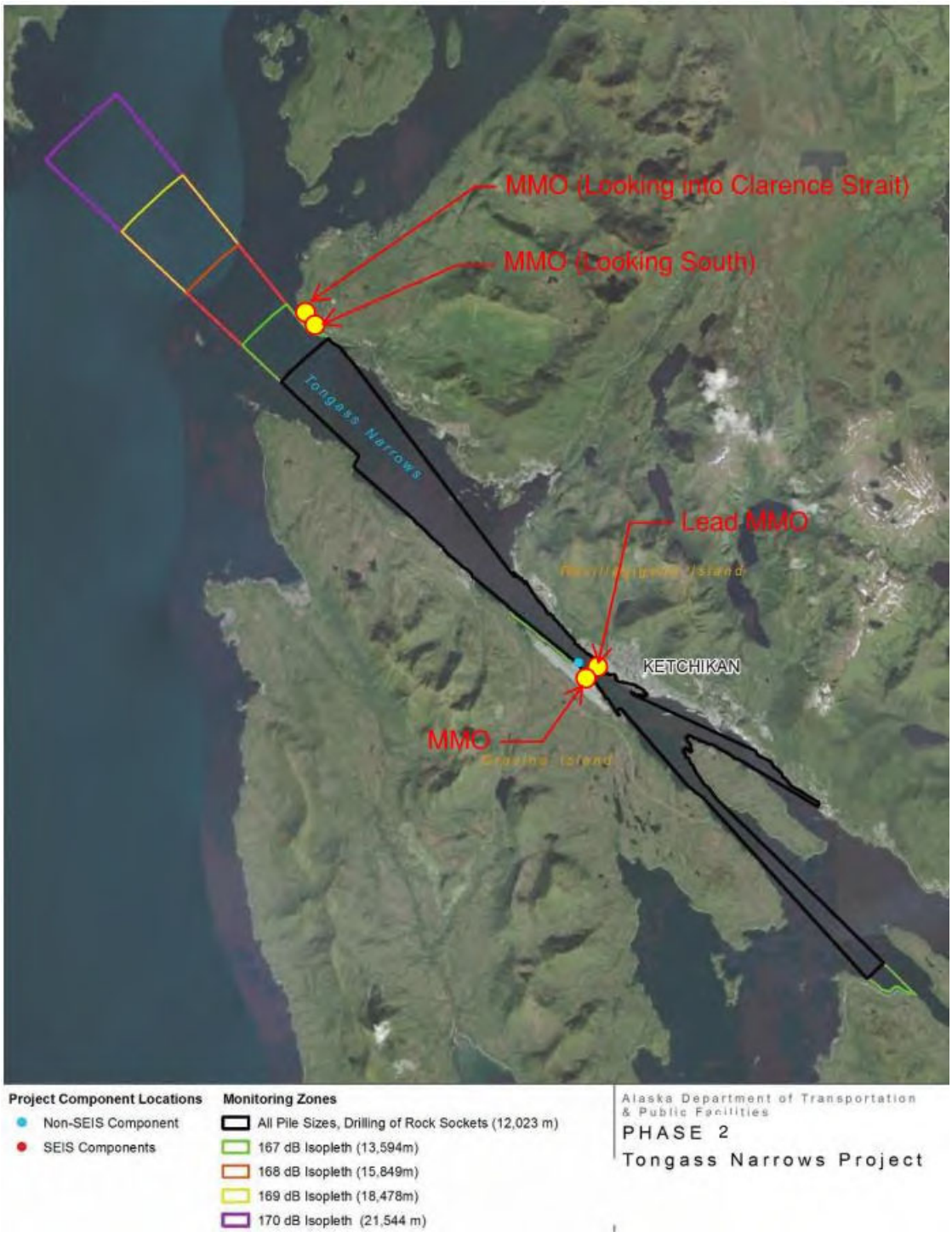


Figure 5.4: Marine Mammal Monitor locations during Revilla + Gravina simultaneous drilling/hammer work. One MMO on each rig; two MMOs at South Point Higgins, one looking into Tongass Narrows and the other Clarence Strait.

6.5 Phase 2 - Gravina: Single Hammer - Vibratory

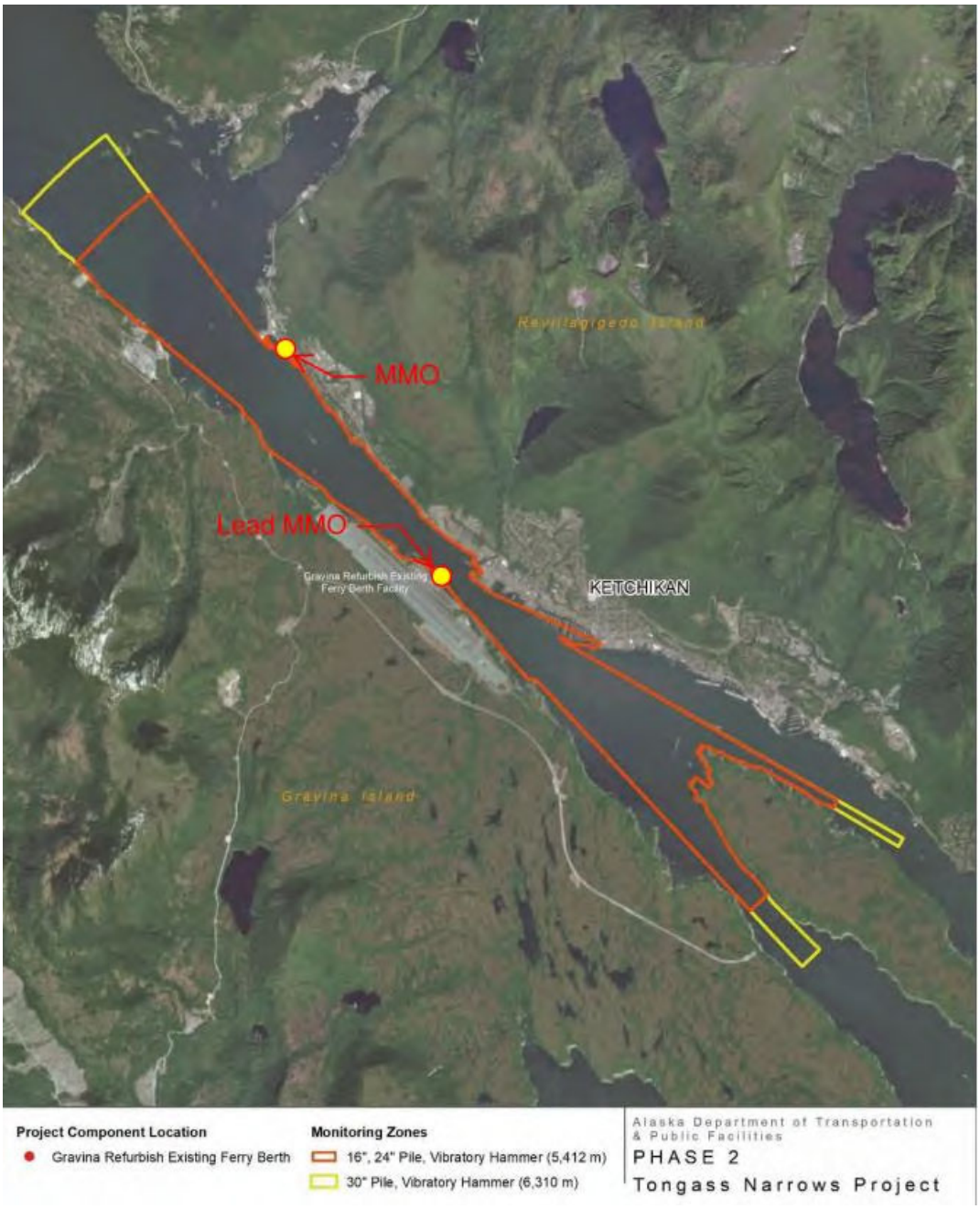


Figure 5.5: Marine Mammal Monitor locations during Gravina vibratory work. One MMO on the rig; one MMO at the Peninsula Point (eastern edge of the TEMSCO float plane hangar).

6.6 Phase 2 - Gravina: Single Hammer – Impact

Figure 5.6: Marine Mammal Monitor locations during Gravina impact work. One MMO on the rig; one MMO at north end of the project site (Revilla side).

6.7 Phase 2 - Gravina: Single Hammer + Drill

Figure 5.7: Marine Mammal Monitor locations during Gravina drilling work. One MMO on the rig; one MMO at the Peninsula Point (eastern edge of the TEMSCO float plane hangar).

7 Appendix B: Example Data Forms

Marine Mammal Sighting Form

Project: **Location:** **Sighting #:**
(1st sighting of the day is Sighting#: 1)

Date: **Observer(s):**

Time *(military)*		**Species** *(circle)*	**Distance** *(animal to activity)*		**Number of Animals**		**Number of Animals in Each Class** *(if possible)*			
Initial Sighting Time		Steller Sea Lion	Initial Distance		Min Count		Adults		Calves/ Pups	
Final Sighting Time		Harbor Seal								
Time Entered H-Zone B		Harbor Porpoise	Closest Distance		Max Count		Juveniles		Unkn. Age	
Time Exited H-Zone B		Dall's Porpoise								
Time Entered H-Zone A		Killer Whale	Final Distance		Best Count		Male		Female	
Time Exited H-Zone A		Humpback								
		Fin Whale					Unknown Sex			
		Gray Whale								
		Minke Whale								
		other: _____								

Behavior of Marine Mammal check all observed behaviors; place a 1 next to primary, 2 next to secondary activity):
Indicate any changes in behavior in the Additional Information section

__ Travel	__ Fight	__ Mill	Other:_____
__ Disoriented	__ Play	__ Dive	
__ Slap	__ Spyhop	__ Unknown	
__ Feeding Observed	__ Swimming Toward	__ Swimming Away from Site	

Group Cohesion (Orientation of animals within the group and the approx. distance between animals) :

Project Activities and Harassment Zone

Entered Harassment Zone A? Y or N **Entered Harassment Zone B?** Y or N

In-Water Work was occuring at initial sighting? Y or N **List In-water Activites**:_____

SHUT DOWN or **DELAYED** from _____ to _____ (time)

NO SHUT DOWN, *EXPLANATION REQUIRED*:

Describe Commerical Activities (# and type of vessels offloading at sea food processing dock, traveling by, refueling at dock):

Additional Information (include more detailed information on behavior):

Draw locations on hardcopy map

Daily Environmental Conditions, Construction, and Communication Activity Log

Page _____ of _____

Project:_____ Location:_____ Observer(s):_____ Date: _____

Environmental Conditions (Recorded every 30 minutes or as conditions change)									Construction and Communication Activities *(include all start up and shut-down activities and all communication to construction crew)*		
Time	Weather Conditions	Wind Speed	Wind Direction	Beaufort Sea State	Glare (%)	Visibility (m)	Cloud Cover (%)	Comments	Time	Type of Construction Activity *(Ramp up, Startup, shutdown, type of pile driving)*	Communication/Comments

Weather Conditions: (S) Sunny, (PC) Partly Cloudy, (L) Light Rain, (R) Steady Rain, (F) Fog, (OC)Overcast, (LS) Light Snow, (SN) Snow
Beaufort Scale: (0) Calm (1) ripples- up to 4 in (2) small wavelets- up to 8 in (3) large wavelets- up to 2 ft, (4) small waves- up to 3 ft (5) moderate waves- up to 6 ft (6) large waves- up to 9 ft

Data Attribute	Attribute Definition and Units Collected
Start and End time of monitoring period	Time that monitoring by MMOs/PSOs began and ended, without interruption.
Environmental Conditions	
Weather conditions	Dominant weather conditions, collected every 30 minutes: sunny (S), partly cloudy (PC), light rain (LR), steady rain (R), fog (F), overcast (OC), light snow (LS), snow (SN)
Wind speed	In knots

Data Attribute	Attribute Definition and Units Collected
Wind direction	From the north (N), northeast (NE), east (E), southeast (SE), south (S), southwest (SW), west (W), northwest (NW)
Wave height	Calm, ripples (up to 4 inches), small wavelets (up to 8 inches), large wavelets (up to 2 feet), small waves (up to 3 feet), moderate waves (up to 6 feet), large waves (up to 9 feet)
Cloud cover	Amount of cloud cover (0–100%)
Visibility	Maximum distance at which a marine mammal could be sighted
Glare	Amount of water obstructed by glare (0–100%) and direction of glare (from south, north, or another direction)
Tide	Predicted hourly data information gathered from National Oceanic and Atmospheric Administration will be available on site
Construction and Communication Activities	
Time of event	Time that construction activities and all communications between MMOs/PSOs and construction crews take place
Type of construction activity	Type of construction activity occurring, including ramp up, startup, shutdown, and type of pile installation technique
Communication	Information communicated between MMOs/PSOs and construction crew
Marine Mammal Sighting Data	
Time of initial and last sightings	Time the animals are initially and last sighted
Species	Species (use unidentified cetacean or pinniped if unknown); sex and age class, if possible
Number of individuals	Minimum and maximum number of animals counted; record the count the MMO believes to be the most accurate
Sex and age, if possible	Generally, numbers of females with pups or calves
Initial and final heading	Direction animals are headed when initially and last sighted
In-water construction activities at time of sighting	Types of construction activities occurring at time of sighting and any mitigation measures implemented
Distance from marine mammal to construction activities	Distance from marine mammal to construction activities when initially sighted, closest approach to activities, and at final sighting (include location relative to monitoring and shutdown zones)
Commercial activities at time of sighting	Description of nearby commercial or anthropogenic activities occurring at time of sighting not associated with the Project
Behavior	Behaviors observed, indicating the primary and secondary behaviors
Change in behavior	Changes in behavior; indicate and describe
Group cohesion	Orientation of animals within the group and the distance between animals

8 Appendix C: Simultaneous Sound Level Worksheets

Table 1. Combined Sound Levels Generated during Pile Installation and Removal for Combinations of Two Pieces of Equipment: Impact Hammer, Vibratory Hammer, and Down-hole Drill

Phase 1	Method			Vibratory					Drilling		Impact		
		Pile Diameter		Sheet	18	20	24	30	24	30	18/20	24	30
		SSL		160	161	161	161	162	166	166	190	190	195
	Vibratory	Sheet	160	163	164	164	164	164	167	167	No Addition (Level B = Vibratory, Level A = Impact)		
		18	161	164	NA		164	165	167	167			
		20	161	164			164	165	167	167			
		24	161	164	164	164	164	165	167	167			
		30	162	164	165	165	165	165	167	167			
	Drilling	24	166	167	167	167	167	167	169	169			
		30	166	167	167	167	167	167	169	169			
	Impact	18/20	190	No Addition (Level B = Vibratory, Level A = Impact)							No Addition		
		24	190										
		30	195										

Notes:
Use this sheet if two piles are installed/removed simultaneously.
NA = Combinations of equipment not possible given construction plans for each component.

The following tables are not expected to be needed, based on the construction schedules for the Island Shuttle Ferry Berths at Revilla, Gravina or the Gravina Airport Layup and Freight Facility.

Table 2. Combined Sound Levels Generated during Pile Installation and Removal for Combinations of Three Pieces of Equipment: Impact Hammer, Vibratory Hammer, and Down-hole Drill, when the Pile Installed at Revilla is 24 inches in Diameter

Phase 1	New Gravina Island Shuttle Ferry Berth												
Gravina Airport Layup and Freight	Method			Vibratory					Drilling		Impact		
		Pile Diameter		Sheet	18	20	24	30	24	30	18/20	24	30
		SSL		160	161	161	161	162	166	166	190	190	195
	Vibratory	18	161	166	NA		166	166	168	168	No Addition (Level B = Vibratory, Level A = Impact)		
		20	161	166			166	166	168	168			
		24	161	166	166	166	166	166	168	168			
		30	162	166	166	166	166	167	169	169			
	Drilling	24	166	168	168	168	169	168	170	170			
		30	166	168	168	168	169	168	170	170			
	Impact	18/20	190	No Addition (Level B = Vibratory, Level A = Impact)							No Addition		
		24	190										
		30	195										

Notes:
24-inch SSL = 161
Use this table when three piles are installed simultaneously, and the pile installed at Revilla is 24-in diameter.
NA = Combinations of equipment not possible given construction plans for each component.

Table 3. Combined Sound Levels Generated during Pile Installation and Removal for Combinations of Three Pieces of Equipment: Impact Hammer, Vibratory Hammer, and Down-hole Drill, when the Pile Installed at Revilla is 30 Inches in Diameter

Gravina Airport Layup and Freight	Method	Pile Diameter	SSL	Vibratory					Drilling		Impact		
				Sheet	18	20	24	30	24	30	18/20	24	30
				160	161	161	161	162	166	166	190	190	195
	Vibratory	18	161	**166**	NA		**166**	**167**	**169**	**169**	No Addition (Level B = Vibratory, Level A = Impact)		
		20	161	**166**			**166**	**167**	**169**	**169**			
		24	161	**166**	**166**	**166**	**166**	**167**	**169**	**169**			
		30	162	**166**	**167**	**167**	**167**	**167**	**169**	**169**			
	Drilling	24	166	**169**	**169**	**169**	**169**	**168**	**170**	**170**			
		30	166	**169**	**169**	**169**	**169**	**168**	**170**	**170**			
	Impact	18/20	190	No Addition (Level B = Vibratory, Level A = Impact)							No Addition		
		24	190										
		30	195										

Notes:
30-inch SSL = 162
Use this table when three piles are installed simultaneously, and the pile installed at Revilla is 30-in diameter.
NA = Combinations of equipment not possible given construction plans for each component.

Table 4. Combined Sound Levels Generated during Pile Installation and Removal for Combinations of Three Pieces of Equipment: Impact Hammer, Vibratory Hammer, and Down-hole Drill, when the Pile Installed at Revilla is Sheet Pile

Phase 1 — **New Gravina Island Shuttle Ferry Berth**

Gravina Airport Layup and Freight	Method	Pile Diameter	SSL	Vibratory					Drilling		Impact		
				Sheet	18	20	24	30	24	30	18/20	24	30
				160	161	161	161	162	166	166	190	190	195
	Vibratory	18	161	**166**	NA		**166**	**166**	**168**	**168**	No Addition (Level B = Vibratory, Level A = Impact)		
		20	161	**166**			**166**	**166**	**168**	**168**			
		24	161	**166**	**166**	**166**	**166**	**166**	**168**	**168**			
		30	162	**166**	**166**	**166**	**166**	**166**	**168**	**168**			
	Drilling	24	166	**168**	**168**	**168**	**168**	**168**	**170**	**170**			
		30	166	**168**	**168**	**168**	**168**	**168**	**170**	**170**			
	Impact	18/20	190	No Addition (Level B = Vibratory, Level A = Impact)							No Addition		
		24	190										
		30	195										

Notes:
Sheet pile SSL = 160
Use this table when three piles are installed simultaneously, and sheet piles are installed at Revilla.
NA = Combinations of equipment not possible given construction plans for each component.