Alameda Marina Shoreline Improvement Project- Marine Mammal Monitoring 2021-2022 Annual Report



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Introduction

The Alameda Marina Shoreline Improvement Project (Project) is located on a 20.9-acre area along the Oakland Estuary (Estuary) in the City of Alameda, California (Figure 1). The aim of the Project is to update existing marina facilities, create a new waterfront park, and improve seismic and climate resiliency. Project activities include riprap removal and placement, seawall maintenance, wharf refurbishment, outfall installation, marina reconfiguration, and a boat hoist installation and removal, and other activities associated with mobilization and demobilization. In-water pile driving, both with impact and vibratory hammers, and pile removal are integral to many phases of construction.

The Marine Mammal Protection Act (MMPA) prohibits the "take" of marine mammals including harassment. Sections 101(a)(5)(A) and (D) of the MMPA (16 U.S.C. 1361 et seq.) allow, upon request, the incidental taking of small numbers of marine mammals by parties who engage in a specified activity within a specified region, if the taking is limited to harassment. Authorizations for incidental take are only granted if National Marine Fisheries Service (NMFS) finds that the take will have negligible impact on the species and will not have unmanageable adverse impact on the greater population of the species. Six species of marine mammals were included for Level B incidental harassment authorizations (IHAs): Common bottlenose dolphin (*Tursiops truncates*), harbor porpoise (*Phocoena phocoena*), California sea lion (*Zalophus californianus*), Northern fur seal (*Callorhinus ursinus*), Northern elephant seal (*Mirounga angustirostris*), and harbor seal (*Phoca vitulina*).

Marine mammal monitoring was conducted by NMFS-approved marine mammal observers (MMOs) for all in-water pile driving and pile removal. This monitoring was conducted in coordination with a hydroacoustic monitoring team (see attached hydroacoustic report).

The objectives of marine mammal monitoring were as follows:

- Mitigate impacts on marine mammals by monitoring the presence of these species within
 the project area and requesting shut-down of hammer operation when marine mammals
 were seen within specified safety zones representing distances close enough to potentially
 cause physical injury.
- Document the number of animals of each species present in the vicinity of sound transmissions.
- Evaluate the reactions of marine mammals to the sound transmissions at different distances from construction.





Figure 1 - Aerial map of Alameda Marina Project (Haase 2019)



Methods

Monitoring Zones

Predetermined Level A Marine Mammal Exclusion Zones (MMEZs) and Level B Marine Mammal Monitoring Zones (MMZs) were prescribed by the marine mammal monitoring plan for this project (Haase, 2019). These zones were employed for the entirety of monitoring unless modification was deemed necessary given hydroacoustic data. In all cases, these zones were more conservative than those initially prescribed (i.e., larger in radius). Tables 1 and 2 outline the Level A MMEZs and the Level B MMZs employed during monitoring.

Table 1 - Distances in meters to Level A and Level B harassment threshold criteria for vibratory pile driving.

		Level A/PTS S	hutdown Zone	Level B (120 dB
Pile Description	Maximum Piles Installed per Day	Porpoise (HF)	Dolphin (MF), Phocid (PW), & Otariid (OW)	RMS) Behavioral Monitoring Zone for All Species
36-in Steel Pipe Pile	2	25	10	21,544
30-in Steel Pipe Pile	1	25	10	21,544
W 40x99 Wide Flange Beam	4	10	10	2,154
PZC 13, PZ 27, and PZ 35 Steel Sheet Pile	20	10	10	4,642
16-in Timber Pile Removal	10	10	10	1,359
12-in Concrete Pile Removal	10	10	10	2,154



Table 2 - Distances in meters to Level A and Level B harassment threshold criteria for impact pile driving.

			Level A/	PTS Shutdo	wn Zone	Level B
Pile Description	Attenuation	Number Piles Installed per Day	Porpoise (HF)	Dolphin (MF) & Otariid (OW)	Phocid (PW)	(160 dB RMS) Behavioral Monitoring Zone for All Species
36-in Steel Pipe	Attenuated	1	260	10	120	541
Pile	Attenuated	2	400	25	190	341
30-in Steel Pipe Pile	Attenuated	1	140	25	70	341
W 40x99 Wide Flange Beam	Attenuated	4	300	25	140	631
24-in Square Concrete Pile	Unattenuated	4	140	25	70	117
16-in Square Concrete Pile	Unattenuated	4	30	25	25	25
14-in Square Concrete Pile	Unattenuated	4	30	25	25	25

General Approach

Impact driving and vibratory driving were monitored by three MMOs. The lead observer (MMO 1) was stationed at the active pile driving rig or at the best vantage point practicable to monitor the MMEZs for marine mammals and implement shutdown and delay procedures when applicable through communication with the crane and hammer operators (Figure 2). MMO 1 was in constant radio contact with the second MMO (MMO 2) and third MMO (MMO 3) for the purposes of tracking and monitoring observed marine mammals. MMO 1 monitoring was predominately conducted from the Promenade Wharf (~5m elevation, Figure 3), with some monitoring conducted from the balcony of Building 14 (~15m elevation). These monitoring stations provided complete visual coverage of all MMEZs. Portions of the MMZs within Alameda Marina were obscured from MMO 1 by vessels parked in the surrounding boat slips. MMO 2 and MMO 3 were able to provide supplemental coverage of the obscured MMZs from their respective monitoring stations.

The second MMO (MMO 2) was positioned at the terminus of Pier 1 on a platform approximately .3 meters above water level and, depending on the location of construction activity, 170m-200m from the work area. This position provided and unobstructed view of the estuary channel between the marina and the Coast Guard island, all Level A MMEZs and most Level B MMZs. As with MMO 1, MMZs within Alameda Marina were obstructed from view to MMO 2 due to parked vessels, however MMO 1 and MMO 3 provided supplemental visual coverage of MMZs within the marina.



A third MMO (MMO 3) was used to assist with observation of the Level B MMZs for vibratory driving and for supplemental MMEZ and MMZ coverage during impact driving. During vibratory driving, MMO 3 was positioned at the terminus of pier 7 on a platform approximately .3 m above water level, with an unobstructed view of the estuary channel. Depending on the location of driving, this monitoring position was 250m - 290m from the driving locations. From this position, MMO 3 was also able to monitor areas of the marina that were obstructed from view to the other MMOs by vessels parked in slips.

During vibratory driving and impact driving of steel piles, the use of three MMOs, rather than two (as recommended in the IHA) was found to allow for greater visual coverage of the MMZs. This was especially true for MMZs within the marina, as vessels parked in slips created numerous visual obstacles, making it difficult to effectively evaluate MMZs within the marina for mammal presence. Further, the monitoring station suggested for MMO 2 in the IHA (barge docked at pier 5) was no longer present and the vessel replacing it was not accessible to the monitoring team.



Figure 2 - MMO stations for pile driving activities



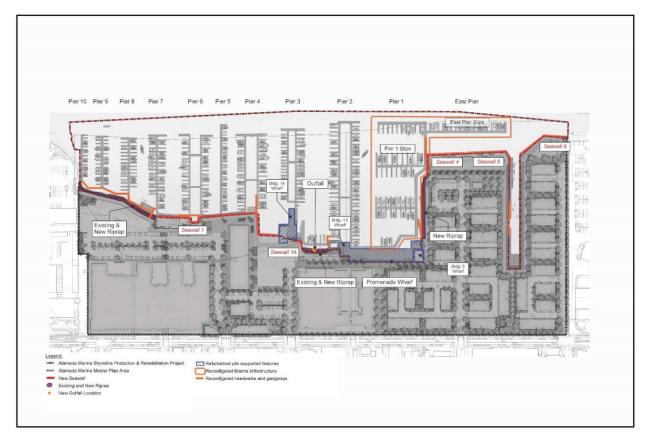


Figure 3 - Project landmarks and construction/monitoring locations (Illingworth and Rodkin, 2020).

Monitoring was conducted daily for all pile driving activities and commenced, at minimum, 30 minutes prior to the on-set of pile driving activities through 30 minutes post-completion of pile driving activity. Pile driving did not commence until MMO 1 declared the MMEZs clear of all marine mammals. Observations were made using binoculars (10x42 or similar), spotting scopes, and the naked eye during daylight hours.

When a marine mammal was observed entering or within an MMEZ, pile driving was halted until the animal left voluntarily and was visually confirmed outside of the MMEZ. MMOs were instructed to call for a shut-down when a marine mammal was seen inside the MMEZ or close enough to the MMEZ that given measurement-error could be within the MMEZ. Shut-down was also considered when animals were outside the MMEZ, but it appeared likely that the direction of travel of the animal would result in it being within the MMEZ shortly. If the animal could not be visually confirmed outside of the shutdown zone, work was allowed to recommence after 15 minutes had passed without subsequent detections of marine mammals in the MMEZ.

Each MMO recorded data on all mammal observations continuously throughout the monitoring day on standardized datasheets. Datasheets included observer on duty and weather conditions (wind speed, cloud cover, precipitation, visibility, etc.). For each sighting the time, species, group size, surface behavior and orientation were recorded.



Distances to sightings were determined using range finders or estimated using known distances from nearby landmarks. This was then used to evaluate whether a sighting was within an MMZ or MMEZ.

Several measures were taken to prevent overcounting mammals within the MMZs. All practicable measures were taken to identify distinctive features (e.g. color, age class, sexual dimorphism, scarring) of each marine mammal sighted. These features were communicated contemporaneously to the entire MMO team via radio during monitoring and recorded in datasheets. Further, MMOs communicated via radio in the field to alert adjacent MMOs of a mammal transiting into their field of view. This helped to prevent double counting of mammals between monitors. A mammal with no discernable distinctive characteristics was automatically categorized as a unique individual if no mammal sightings of that same species had been recorded in the prior 15 minutes.

Pile Driving Protocol

A soft start technique was employed during impact pile driving. At the beginning of each driving day, 1-3 reduced energy "dead blow" strikes were used followed by a 30 second pause in hammer operation. This process was repeated two more times before full strength hammer blows were allowed. This soft-start procedure was repeated throughout the day prior to any new driving following a 30 minute or greater period of inactivity.

Steel pipe piles and wide-flange beam piles were outfitted with bubble curtains to conform to the following standards:

- 1. The bubble curtain must distribute air bubbles around 100 percent of the piling perimeter for the full depth of the water column.
- 2. The lowest bubble ring must be in contact with the mudline for the full circumference of the ring, and the weights attached to the bottom ring shall ensure 100 percent mudline contact. No parts of the ring or other objects shall prevent full mudline contact.
- 3. Air flow to the bubblers must be balanced around the circumference of the pile.

Monitoring Summary

Construction Summary

In total, 29 days of pile driving/removal were monitored by the MMO team. During this monitoring period one (1) 30" steel pipe piles and three(3) wide-flange beams were installed using a vibratory hammer. Further, 11 square concrete piles (16"), 4 octagonal concrete piles (24"), and 50 wide-flanged steel beams were installed with an impact hammer. A daily breakdown of pile driving/removal can be found in Tables 5-10.

Environmental Conditions

Weather conditions during monitoring were favorable for detection and tracking of marine mammals (Table 11). Winds generally did not exceed 15mph, and Beaufort Sea states ranged from 0-2.



Mammal Observations Within MMZs

Cumulatively, 99 marine mammals were observed by the MMO team during monitoring (Tables 12-20). These represented two species of marine mammals. Harbor seals were the most frequently sighted with occasional California sea lion sightings. No cetaceans (e.g. harbor porpoise) were observed. Of these, 20 were observed within MMZs during pile driving/removal (Table 6).

It is possible that the total recorded count of observed marine mammals is higher than the actual number of individual animals. Identification of distinctive features on many animals was difficult given the brief periods of time many of them surfaced. Additionally, several instances of recorded sightings, greater than 15 minutes apart, were made for animals with no discernable distinctive features surfacing in the same general area.

Visual coverage of MMZs during impact driving is estimated to be at or near 100% given that the MMEZs and MMZs for all species could be tracked within Alameda Marina or immediately outside by the monitoring team. For vibratory driving of pipe and wide-flange beams, the MMZs are effectively identical; visual coverage of the vibratory MMZs was approximately 80% given that the MMZs extended beyond the coast guard island in some cases and out of view of the monitors. Therefore, we estimate that the total number of Level B takes for this year is 1.2x the recorded count for vibratory driving and 1x for impact driving. Applying these coefficients to the observed mammal counts does not increase our assumed Level B take, as no mammals were observed within MMZs while the vibratory hammer was active.

Orientation And Behavior of Marine Mammals

Most marine mammals observed within MMZs and MMEZs were either in transit or resting in place. Of the 21 mammal sightings in MMZs during pile driving/removal, only six were observed at the transition from hammer inactivity to hammer activation. Four of these animals demonstrated any change of behavior once the hammer was activated (resting to diving) while the remaining two demonstrated no change in behavior. Most of the sightings within the MMZ occurred while the impact or vibratory hammers were fully active or fully inactive, making it hard to evaluate whether animals were reacting to the sounds generated by construction. No marine mammals demonstrated obvious signs of distress (e.g. erratic motion, flailing) and direction of travel did not appear to be influenced by pile driving operation.

No groups or pods of mammals of three individuals or greater were observed during monitoring. Most mammals were solitary, but pairs of harbor seals were occasionally observed foraging together.

Shut-Downs for Marine Mammal Mitigation

Pile driving operations were requested to be suspended on two occasions related to the presence of marine mammals (Table 5). These suspensions were all in the form of a hammer activation delay. No instances of immediate hammer shutdown were necessary during the monitoring period. All requested suspensions were due to animals present in or in close proximity to MMEZs. All suspensions were for harbor seals.



Table 3 - Cases where pile driving suspensions were requested due to marine mammal occurrence.

Date	Time	Resume Driving	Hammer Type	Pile Type	Delay or Shutdown?	Reason for Request	Comments
12/15/21	10:47	11:02	Impact	Wide Flange- Beam	Delay	Proximity of Harbor Seal <130m	Driving had briefly paused for adjustments when seal first spotted. Pile driving resumed after 15 minutes of no further sightings.
1/5/22	08:29	08:44	Impact	Wide Flange- Beam	Delay	Proximity of Harbor Seal <130m	Pile driving resumed after 15 minutes of no further sightings.

Conclusions and Recommendations

The species encountered during monitoring were consistent with what would be expected in the region. Harbor seals are considered the most common marine mammals in the estuary channel near the marina. The sightings of California sea lions near the project are also in line with expectations.

No Level A take was recorded for the entirety of the monitoring period and Level B harassment of marine mammals was well within the limits set forth within the IHA for Year 2. Delays of pile driving/removal activities proved effective in preventing five instances of Level A take for 4 harbor seals.



Table 4 - Mammals observed within MMZs grouped by operational status and type of pile driving. These results reflect data unadjusted by the correction factor of 1.2x.

Species	No Driving or outside of MMZ	Vibratory Pipe Pile Install	Impact Wide- Flange Beams Install	Vibratory Wide- Flange Beams Install	Impact 16- inch Concrete Install	Impact 24- inch Concrete Install	Total Observed	Level B Take Observed
Harbor Seals	66	0	18	0	0	0	84	18
California Sea Lion	13	0	2	0	0	0	15	2
Unknown Pinniped	3	0	0	0	0	0	3	0
Total	82	0	20	0	0	0	99	20



Table 5 - In-water pile driving activity during each monitoring day

Date	Monitoring Begin	Monitoring End	Vibratory or Impact Hammer	Pile Type	# of Piles driven	Pile driving start	Pile Driving stop	Pile Driving Location	
						09:41	10:03		
8/6/2021	07:30	17:17	Immont	Concrete 16-	4	12:16	12:53	Promenade	
8/0/2021	07:30	17:17	mpact	Impact	inch	4	14:35	15:03	Wharf
						16:15	16:47		
						10:52	11:05		
8/9/2021	07:30	16:31	Impact	Concrete 16-	4	11:48	12:05	Promenade	
0/9/2021	07.30	10.51	Impact	inch	4	14:31	14:43	Wharf	
						15:40	16:01		
8/10/2021	07:27	13:34	Impact	Concrete 16- inch	1	10:53	11:00	Promenade Wharf	
0/11/2021	00.40	12.00	Towns	Concrete 16-	2	10:22	10:55	Promenade	
8/11/2021	08:49	13:09	Impact	inch	2	11:55	12:39	Wharf	
12/1/2021	07:35	10:35	Vibratory	30" Steel Pipe Pile	1	08:59	10:05	New Boat Hoist / Elevator	
						09:05	09:43	New Boat	
12/7/2021	07:41	14:42	Impact	Concrete 24- inch	3	11:06	11:26	Hoist /	
			_	IIICII		13:48	14:12	Elevator	
12/8/2021	07:41	09:58	Impact	Concrete 24- inch	1	08:59	09:28	New Boat Hoist / Elevator	
12/9/2021	07:41	15:18	Vibratory	Wide Flange Beam	1	14:17	14:48	Seawall 1	
12/10/2021	07:41	15:44	Vibratory and Impact	Wide Flange Beam	3	09:21 (Vib) 11:22(Vib) 13:07 (Vib) 14:18 (Imp) 14:35 (Imp) 14:59 (Imp) 15:24 (Imp)	09:27 (Vib) 11:43 (Vib) 13:27 (Vib) 14:31 (Imp) 14:43 (Imp) 15:13 (Imp) 15:30 (Imp)	Seawall 1	

***Red highlighted cells represent "retaps" of previously driven piles.



Table 6 - In-water pile driving activity during each monitoring day pt. 2

Date	Monitoring Begin	Monitoring End	Vibratory or Impact Hammer	Pile Type	# of Piles driven	Pile driving start	Pile Driving stop	Pile Driving Location								
						10:16	10:24									
10/11/2021	00.47	11.50	Towns	Wide Flange	4	10:39	10:47	C 11 1								
12/11/2021	09:47	11:52	Impact	Beam	4	10:59	11:04	Seawall 1								
						11:12	11:22									
						08:57	09:17									
				W. 4. El		09:45	10:11									
12/15/2021	07:45	16:10	Impact	Wide Flange	5	10:43	11:15	Seawall 1								
			_	Beam		14:25	14:43									
						15:26	15:40									
					08:34	08:44										
				Wide Flores		09:20	09:27									
						09:48	10:15									
						10:42	10:49									
		7:38 15:58				10:55	10:58									
12/17/2021	07:38		15:58	15:58	15:58	15:58	15:58	15:58	15:58	15:58	Impact	Wide Flange Beam	6	11:03	11:07	Seawall 1
			_	Beam		11:12	11:15									
						11:20	11:36									
						13:55	14:07									
						14:33	14:44									
						15:14	15:25									
						08:30	08:40									
						10:00	10:11									
						10:28	10:38									
				XX/: 1 F1		11:06	11:15									
12/20/2021	07:38	14:13	Impact	Wide Flange	4	11:33	11:40	Seawall 1								
				Beam		11:42	11:48									
						11:51	11:56									
										13:01	13:08	1				
							13:13	13:19								



Table 7 - In-water pile driving activity during each monitoring day pt. $\bf 3$

Date	Monitoring Begin	Monitoring End	Vibratory or Impact Hammer	Pile Type	# of Piles driven	Pile driving start	Pile Driving stop	Pile Driving Location					
12/20/2021	07.29	14.12	Immont	Wide Flange	4	13:22	13:33	Cassuall 1					
12/20/2021	07:38	14:13	Impact	Beam	4	13:35	13:43	Seawall 1					
								08:31	08:41				
						08:59	09:09						
						09:43	09:54						
12/21/2021	07:38	11:52	Impact	Wide Flange	4	10:13	10:22	Seawall 1					
12/21/2021	07.38	11:32	mpact	Beam	7	10:42	10:49	Scawaii i					
						10:55	11:00						
		<u> </u>				11:05	11:09						
						11:17	11:22						
						08:32	08:50						
						09:31	09:42						
						10:08	10:17						
		07:45 14:20									10:36	10:46	
1/3/2022	07:45		Impact	Impact Wide Flange Beam		11:19	11:29	Seawall 1					
1/3/2022	07.43		Impact			11:45	11:50						
						11:56	12:03						
						13:19	13:19						
						13:22	13:30						
						13:45	13:50						
						08:44	08:53						
						09:26	09:37						
						10:16	10:28	Seawall 1					
1/5/2022	07:54	14:29	Impact	Wide Flange	4	11:08	11:29						
1/3/2022	07.54	17.27	Impact	Beam	-	13:19	13:24						
						13:28	13:37						
						13:40	13:47						
						13:53	13:59						



Table 8 - In-water pile driving activity during each monitoring day pt. 4

Date	Monitoring Begin	Monitoring End	Vibratory or Impact Hammer	Pile Type	# of new Piles driven	Pile driving start	Pile Driving stop	Pile Driving Location									
						08:54	09:11										
						10:19	10:33										
1/6/2022	07:54	16.21	Immost	Wide Flange	6	11:39	11:53	Seawall 1									
1/0/2022	07:34	16:31	Impact	Beam	0	14:09	14:19	Seawaii 1									
						14:56	15:05										
						15:51	16:01										
		09:59					08:24	08:54									
			Impact	Wide Flange Beam	2	08:56	09:05	Seawall 1									
1/10/2022	07:54					09:08	09:14										
						09:16	09:20										
																09:23	09:29
1/11/2022	07.54	12.25	Immont	Wide Flange	2	10:28	10:45	C a a a 11 1									
1/11/2022	07:54	12:25	Impact	Beam	2	11:43	11:55	Seawall 1									
						08:44	08:53										
						09:26	09:37										
						10:16	10:28										
1/5/2022	07:54	14:29	Impact	Wide Flange	4	11:08	11:29	Seawall 1									
1/3/2022	07.34	07:54 14:29	impact	Beam	'	13:19	13:24										
						13:28	13:37										
											13:40	13:47	4				
						13:53	13:59										



Table 9 - In-water pile driving activity during each monitoring day pt. $\mathbf{5}$

Date	Monitoring Begin	Monitoring End	Vibratory or Impact Hammer	Pile Type	# of Piles driven	Pile driving start	Pile Driving stop	Pile Driving Location
						08:33	08:45	
						09:14	09:20	
						09:55	10:02	
						10:44	10:49	
						11:16	11:27	
1/12/2022	07:54	15:06	Impact	Wide Flange	6	11:58	12:06	Seawall 1
1,12,2022	07.5	12.00	impact	Beam	Ü	13:58	14:01	Souwan
						14:10	14:14	
						14:17	14:20	
						14:22	14:25	
						14:28	14:30	
							14:33	14:36
			:09 Impact		Wide Flange Beam 4	11:26	11:33	Seawall 1
						11:54	11:57	
						13:12	13:20	
1/13/2022	08:15	15:09				13:42	13:49	
1, 10, 2022	00.12	10.05		Beam		14:07	14:11	
						14:16	14:18	
						14:23	14:30	
						14:34	14:39	
						13:11	13:19	
						13:40	13:49	
						14:19	14:29	
1/14/2022	07:54	16:21	Impact	Wide Flange	4	14:52	15:00	Seawall 1
1/11/2022	07.54	10.21	impact	Beam	т	15:26	15:29	
						15:34	15:36	
						15:42	15:45	
						15:48	15:51	



Table 10 - In-water pile driving activity during each monitoring day pt. 6

Date	Monitoring Begin	Monitoring End	Vibratory or Impact Hammer	Pile Type	# of Piles driven	Pile driving start	Pile Driving stop	Pile Driving Location																												
1/18/2022	07:51	11:52	Impact	Wide Flange	2	10:23	10:34	Seawall 1																												
1/18/2022	07:31	11:32	Impact	Beam	2	11:05	11:22	Seawan 1																												
				XX 1 T1		08:28	08:37																													
1/26/2022	07:47	10:29	Impact	Wide Flange Beam	3	09:18	09:29	Seawall 1a																												
				Bealli		09:48	09:59																													
						08:34	08:44																													
1 /07 /2022	07.46	00.42	T	Wide Flange	0	08:50	08:53	G 11 1																												
1/27/2022	07:46	09:42	Impact	Beam	0	08:57	09:00	Seawall 1a																												
						09:02	09:12																													
						08:23	09:01																													
				XX7: 1 F1		09:05	09:08																													
1/28/2022	07:46	10:31	Impact	Wide Flange Beam	1	09:12	09:16	Seawall 1a																												
						09:22	09:28																													
						09:53	10:01																													
						08:52	09:12																													
						09:36	09:45																													
1/31/2022	07.46	11.14	Immost	Wide Flange	3	10:16	10:36	Seawall 1a																												
1/31/2022	07:40	07:46 11:14	Impact	Beam	3	10:42	10:44	Seawan 1a																												
						10:49	10:52																													
						10:56	11:01																													
						11:37	11:48																													
2/2/2022	07:41	15:21	Impact	Wide Flange	4	13:09	13:19	Seawall 1a																												
2/2/2022	07.41	13.21	Impact	Beam	4	13:40	13:58	Seawaii 1a																												
					14:20	14:51																														
						08:26	08:38																													
				Wide Flores		09:55	09:59	Seawall 1a																												
2/3/2022	07:41	07:41 15:21 Impact	Impact	Wide Flange	ge 1	10:04	10:17																													
				Impact	Impact	Impact	Impact	Impact	Impact	Impact	Impact	impact	Impact	Impact	Impact	Impact	Impact	Impact	Impact	Impact	Impact	Impact	Impact	Impact	Impact	Impact	Impact	Impact	Impact	Impact	Beam	Beam	Beam	Beam		10:22
						10:29	10:33																													



Table 11 - Environmental Conditions recorded at the beginning of each monitoring day

Date	Wind Speed (mph)	Beaufort	Visibility (%)	Cloud Cover (%)	Precipitation	Comments
8/6/2021	0-5	0-1	100	0	No	
8/9/2021	0-5	0-1	100	50	No	
8/10/2021	0-5	0-1	100	25	No	
8/11/2021	0-5	0-1	100	0	No	
12/1/2021	0-5	0-1	100	0	No	
12/7/2021	0-5	0-1	100	50	No	
12/8/2021	0-5	0-1	100	100	No	
12/9/2021	10-15	3-4	100	25	No	
12/10/2021	0-5	0-1	100	0	No	
12/11/2021	0-5	1-2	100	25	No	
12/15/2021	0-5	1-2	100	0	No	
12/17/2021	0-5	0-1	100	0	No	
12/20/2021	0-5	1-2	100	100	No	
12/21/2021	0-5	0-1	100	100	No	
1/3/2021	5-10	1-2	100	100	No	
1/5/2022	0-5	0-1	100	100	No	
1/6/2022	0-5	0-1	100	100	No	
1/10/2022	0-5	0-1	100	0	No	
1/11/2022	0-5	0-1	100	50	No	
1/12/2022	0-5	0-1	100	25	No	
1/13/2022	0-5	0-1	100	100	No	
1/14/2022	0-5	1-2	50-100	25	No	Fog cleared around 08:30 to 100% vis with mostly clear skies
1/17/2022	0-5	0-1	100	100	No	
1/26/2022	0-5	0-1	100	100	No	
1/27/2022	0-5	0-1	100	0	No	
1/28/2022	0-5	0-1	100	0	No	
1/31/2022	0-5	0-1	100	25	No	
2/2/2022	15-20	2-3	100	0	No	
2/3/2022	0-5	0-1	100	0	No	



 $\begin{tabular}{ll} Table 12 - Marine Mammal Sightings grouped by monitoring day pt. 1 \end{tabular} \\$

Date	First Sighted	Last Sighted	Species	Age Class	Sex	Initial Direction of Travel (Degrees)	Minutes Observed in Level B w/Hammer Active	Closest Distance from Work (Meters)	Behavior
8/9/2021	07:30	08:45	Harbor Seal	Adult	Unknown	0	0	70	Resting on Pier 1 complex. Dove while pile driving crew set up on wharf.
	08:58	08:58	California Sea Lion	Adult	Male	138	0	600	Transiting southeast
12/1/2021	10:13	10:20	California Sea Lion	Sub- adult	Unknown	0	0	625	Slow travel north
	10:23	10:25	Unknown Pinniped	Adult	Unknown	0	0	1000	Slow travel north. Possibly CASL from 10:20
	08:02	08:02	Harbor Seal	Adult	Unknown	90	0	250	Transiting east
	08:22	08:25	Harbor Seal	Adult	Unknown	270	0	350	Transiting west
	08:49	08:59	Harbor Seal	Adult	Unknown	270	0	350	Slow travel west
12/7/2021	08:50	09:23	Harbor Seal	Juvenile	Unknown	270	0	130	Slow travel west, then east
	09:49	10:18	Harbor Seal	Adult	Unknown	90	0	430	foraging
	10:50	10:50	Harbor Seal	Adult	Unknown	0	0	250	Transiting north
	13:35	13:39	California Sea Lion	Sub- adult	Unknown	180	0	125	Resting at surface
12/8/2021	08:30	09:00	Harbor Seal	Sub- adult	Unknown	270	0	180	Slow travel west



Table 13 - Marine Mammal Sightings grouped by monitoring day pt. 2

Date	First Sighted	Last Sighted	Species	Age Class	Sex	Initial Direction of Travel (Degrees)	Minutes Observed in Level B w/Hammer Active	Closest Distance from Work (Meters)	Behavior
	08:58	08:58	California Sea Lion	Adult	Male	138	0	600	Transiting southeast
12/9/2021	10:13	10:20	California Sea Lion	Sub- adult	Unknown	0	0	625	Slow travel north
	10:23	10:25	Unknown Pinniped	Adult	Unknown	0	0	1000	Slow travel north. Possibly CASL from 10:20
	07:51	07:55	Harbor Seal	Adult	Unknown	40	0	270	Slow travel east
	08:05	08:08	Harbor Seal	Adult	Unknown	90	0	190	Transiting east
	08:23	09:15	Harbor Seal	Juvenile	Unknown	125	0	30	Chasing/playing with injured bird
12/10/2021	09:27	10:00	Harbor Seal	Adult	Unknown	N/A	0	360	Resting on pier during diving. Appeared to have been basking while vibratory driving was underway. Unclear whether it was beneath the water's surface for any duration of vibratory driving.
	13:45	13:52	Harbor Seal	Adult	Unknown	45	0	350	slow travel northeast
	15:31	15:32	Harbor Seal	Adult	Unknown	135	0	330	Slow travel southeast
	15:45	15:47	Harbor Seal	Adult	Unknown	90	0	190	Resting at surface
12/11/2021	10:23	11:10	Harbor Seal	Adult	Unknown	325	15	200	Milling, multiple directions; dove after hammer activation @1039
12/11/2021	11:18	11:25	Harbor Seal	Adult	Unknown	90	4	350	Dove when impact began @11:22



Table 14 - Marine Mammal Sightings grouped by monitoring day pt. 3

Date	First Sighted	Last Sighted	Species	Age Class	Sex	Initial Direction of Travel (Degrees)	Minutes Observed in Level B w/Hammer Active	Closest Distance from Work (Meters)	Behavior
	09:10	09:25	California Sea Lion	Adult	Unknown	270	7	350	foraging
	10:12	14:30	Harbor Seal	Adult	Unknown	N/A	1	240	Hauled out on Pier 1 complex during all pile driving activities. Dove during pile driving at 14:30 and was not sighted again.
	10:30	10:34	California Sea Lion	Adult	Unknown	90	0	250	Playing with other sea lion at surface
	10:30	10:34	California Sea Lion	Adult	Unknown	90	0	250	Playing with other sea lion at surface
	10:47	10:47	Harbor Seal	Adult	Unknown	280	0	140	Slow swimming. Work delayed due to proximity to Level A (Table 5)
12/15/2021	11:10	11:16	Harbor Seal	Adult	Unknown	90	5	170	Fast swimming in multiple directions
12/15/2021	11:22	11:32	California Sea Lion	Adult	Female	270	0	180	Fast swimming at surface
	12:56	13:07	Harbor Seal	Adult	Unknown	225	0	230	Transiting southwest
	13:05	13:14	California Sea Lion	Adult	Female	270	0	192	Fast swimming
	13:50	13:50	Harbor Seal	Adult	Unknown	90	0	210	Slow swimming
	14:10	14:11	Harbor Seal	Adult	Unknown	280	0	130	Slow swimming
	15:09	15:36	Harbor Seal	Adult	Unknown	90	10	220	Milling and swimming
	15:13	15:13	Harbor Seal	Adult	Unknown	180	0	150	Slow swimming



 $Table\ 15 - Marine\ Mammal\ Sightings\ grouped\ by\ monitoring\ day\ pt.\ 4$

Date	First Sighted	Last Sighted	Species	Age Class	Sex	Initial Direction of Travel (Degrees)	Minutes Observed in Level B w/Hammer Active	Closest Distance from Work (Meters)	Behavior
	07:49	08:10	Harbor Seal	Adult	Unknown	310	0	150	Logging at surface and later swimming towards main channel
12/17/2021	10:33	10:33	California Sea Lion	Adult	Unknown	Unknown	0	300	
	10:37	11:12	Harbor Seal	Adult	Unknown	225	0	300	foraging
	07:45	08:17	Harbor Seal	Adult	Unknown	90	0	300	diving
	08:29	08:36	Harbor Seal	Adult	Unknown	120	6	220	Slow swimming
	08:40	08:40	California Sea Lion	Adult	Unknown	45	0	270	diving
	09:37	09:54	Harbor Seal	Adult	Unknown	120	0	220	Slow swimming
12/20/2021	10:05	10:10	California Sea Lion	Adult	Unknown	270	5	250	Logging and swimming
12/20/2021	10:16	10:17	Harbor Seal	Adult	Unknown	190	0	170	Slow swimming
	10:54	10:54	Harbor Seal	Adult	Unknown	Unknown	0	450	Logging and diving
	11:52	11:52	Harbor Seal	Adult	Unknown	190	1	190	Slow swimming
	12:55	13:23	Harbor Seal	Adult	Unknown	Unknown	7	350	Briefly surfacing before diving
	13:54	13:56	California Sea Lion	Adult	Unknown	270	0	300	Fast swimming



 $Table \ 16 - Marine \ Mammal \ Sightings \ grouped \ by \ monitoring \ day \ pt. \ 5$

Date	First Sighted	Last Sighted	Species	Age Class	Sex	Initial Direction of Travel (Degrees)	Minutes Observed in Level B w/Hammer Active	Closest Distance from Work (Meters)	Behavior
	07:49	07:49	Harbor Seal	Adult	Unknown	220	0	200	Slow swimming
12/21/2021	08:19	08:29	Harbor Seal	Adult	Unknown	190	0	170	Slow Swimming
12/21/2021	09:02	09:02	Harbor Seal	Adult	Unknown	84	1	200	Hauled out on pier. Dove into water while hammer running
	11:04	11:07	Harbor Seal	Adult	Unknown	190	2	230	Fast swimming
	08:30	15:55	Harbor Seal	Adult	Unknown	N/A	0	190	Individual hauled out on Pier 1 complex. Remained hauled out and out of the water for the entirety of the work day. Individual did not enter the water at any point during monitoring.
1/3/2022	08:30	15:55	Harbor Seal	Adult	Unknown	N/A	0	190	Individual hauled out on Pier 1 complex. Remained hauled out and out of the water for the entirety of the work day. Individual did not enter the water at any point during monitoring.
	08:30	15:55	Harbor Seal	Adult	Unknown	N/A	0	190	Individual hauled out on Pier 1 complex. Remained hauled out and out of the water for the entirety of the work day. Individual did not enter the water at any point during monitoring.
	08:30	15:55	Harbor Seal	Adult	Unknown	N/A	0	190	Individual hauled out on Pier 1 complex all day. Was not observed entering water.



 $\begin{tabular}{ll} Table 17 - Marine Mammal Sightings grouped by monitoring day pt. 6 \end{tabular} \\$

Date	First Sighted	Last Sighted	Species	Age Class	Sex	Initial Direction of Travel (Degrees)	Minutes Observed in Level B w/Hammer Active	Closest Distance from Work (Meters)	Behavior
	08:30	15:55	Harbor Seal	Adult	Unknown	N/A	0	190	Individual hauled out on Pier 1 complex. Remained hauled out and out of the water for the entirety of the work day. Individual did not enter the water at any point during monitoring.
1/3/2022	08:30	08:59	Harbor Seal	Adult	Unknown	290	1	240	Slow swimming
	09:22	09:27	Harbor Seal	Adult	Unknown	270	0	170	Slow swimming
	14:28	15:55	Harbor Seal	Adult	Unknown	N/A	0	190	Individual hauled out on Pier 1 complex. Remained hauled out and out of the water for the entirety of the observation period
	08:16	08:16	Harbor Seal	Adult	Unknown	270	0	225	briefly surfaced
1/5/2022	08:26	08:26	Harbor Seal	Adult	Unknown	300	0	220	
1/5/2022	08:28	08:29	Harbor Seal	Adult	Unknown	260	0	70	briefly surfaced
	08:36	08:36	Harbor Seal	Adult	Unknown	320	0	240	Slow swimming



 $\begin{tabular}{ll} Table 18-Marine Mammal Sightings grouped by monitoring day pt. 7 \end{tabular}$

Date	First Sighted	Last Sighted	Species	Age Class	Sex	Initial Direction of Travel (Degrees)	Minutes Observed in Level B w/Hammer Active	Closest Distance from Work (Meters)	Behavior
	08:14	08:14	Harbor Seal	Adult	Unknown	70	0	200	Lounging at surface then diving.
1/6/2022	08:24	08:35	Harbor Seal	Adult	Unknown	290	0	240	Swimming at surface and changing directions multiple times
1/0/2022	10:17	10:17	Harbor Seal	Adult	Unknown	100	0	100	Hauled out on pier 1, then diving
	11:45	11:45	Harbor Seal	Adult	Unknown	310	0	290	Slow swimming
	07:54	08:00	Harbor Seal	Adult	Unknown	Unknown	0	224	Dove into water
1/10/2022	08:06	08:06	Harbor Seal	Adult	Unknown	90	0	250	Swimming at surface
	08:32	08:32	Harbor Seal	Adult	Unknown	0	0	235	diving
	08:02	08:02	Harbor Seal	Adult	Unknown	Unknown	0	200	Hauled out on Pier
1/11/2022	09:02	09:02	Harbor Seal	Juvenile	Unknown	270	0	250	Fast swimming
1/11/2022	11:45	11:54	Harbor Seal	Adult	Unknown	Unknown	9	250	Resting at surface
	13:04	13:57	Harbor Seal	Adult	Unknown	Unknown	0	250	Foraging



Table 19 - Marine Mammal Sightings grouped by monitoring day pt. 8

Date	First Sighted	Last Sighted	Species	Age Class	Sex	Initial Direction of Travel (Degrees)	Minutes Observed in Level B w/Hammer Active	Closest Distance from Work (Meters)	Behavior
	08:11	13:47	Harbor Seal	Adult	Unknown	Unknown	52	245	Foraging continuously during observation period.
1/12/2022	08:18	08:19	Harbor Seal	Adult	Unknown	0	0	140	Slow swimming
1/12/2022	11:21	11:22	Harbor Seal	Adult	Unknown	0	1	310	Dove once hammer was activated
	14:34	14:34	Harbor Seal	Adult	Unknown	320	0	550	Surfaced and dove
	08:25	08:25	Harbor Seal	Adult	Unknown	66	0	375	surfacing
	09:34	09:34	Harbor Seal	Adult	Unknown	68	0	200	Slow swimming
	09:45	09:45	Harbor Seal	Adult	Unknown	38	0	245	Slow swimming
	10:30	10:30	Harbor Seal	Adult	Unknown	58	0	300	Slow swimming
1/13/2022	11:24	11:55	Harbor Seal	Adult	Unknown	48	1	173	logging
1/13/2022	11:39	11:39	Harbor Seal	Adult	Unknown	70	0	223	Slow swimming
	14:10	14:14	Harbor Seal	Adult	Unknown	Unknown	1	185	Logging
	14:25	14:26	Harbor Seal	Adult	Unknown	270	2	250	swimming
	14:21	14:21	Harbor Seal	Adult	Unknown	330	0	400	Briefly surfaced, then dove
	14:37	14:38	Harbor Seal	Adult	Unknown	Unknown	0	190	Logging and diving



Table 20 - Marine Mammal Sightings grouped by monitoring day pt. 9

Date	First Sighted	Last Sighted	Species	Age Class	Sex	Initial Direction of Travel (Degrees)	Minutes Observed in Level B w/Hammer Active	Closest Distance from Work (Meters)	Behavior
	11:47	11:47	Harbor Seal	Adult	Unknown	90	0	340	Slow swimming
1/14/2022	13:50	13:52	Harbor Seal	Adult	Unknown	45	0	600	Surfaced and dove
	14:47	15:14	Harbor Seal	Adult	Unknown	180	7	180	Changed direction and swam away from impact driving once the hammer initiated
	07:54	07:54	Harbor Seal	Adult	Unknown	90	0	300	Slow swimming
1/18/2022	08:05	08:12	Harbor Seal	Adult	Unknown	270	0	121	Surfaced and dove
	08:28	08:32	California Sea Lion	Adult	Unknown	290	0	360	Slow swimming
	07:53	08:07	Harbor Seal	Adult	Unknown	Unknown	0	137	Slow swimming
1/21/2022	08:05	08:07	Harbor Seal	Adult	Unknown	Unknown	0	137	Slow swimming
1/31/2022	09:32	09:32	Harbor Seal	Adult	Unknown	270	0	185	Slow swimming
	10:44	10:50	Harbor Seal	Adult	Unknown	180	0	314	Slow swimming

Date 6/6/21	_Start/End Time	07301171	7_MMO_M.	rk Oates ob	serving Location	Promerade Whert						
	Veather (windspeed and direction, Beaufort, vis., cloud cover, precip.) 05 mgh 100% vis Clear Jumber and type of piles driven/removed? Vibratory or impact? Impact 16-ind concrete 1111											
Time of Observation	Species ¹	Age Class ²	Identifying Marks	Location (Level A or Level B zone, initial and closest distance to pile driving) ³	Direction of Travel	Behavior ⁴						
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¹ Species Abbreviati California Sea Lion = Pacific Harbor Seal = Northern Elephant S Harbor Porpoise = H Unknown seal, sea ii	: CASL = HASE Seal = NOES IAPO	² Species Age Clar CASL = juvenile, s male HASE ≈ juvenile, HAPO = calf, adu	subadult male, adult adult	³ Approximate distance from pile of from your location. If construction record distance from observer. In measurement (meters, feet, etc.)	n is not visible, dicate unit of	4Stationary at surface, swimming (slow or fast), transiting, foraging, resting, looking around. Note if mammal appears to be attentive to project activities, or displays any behavior changes related to project activities, and describe the project activity. Note any human-caused disturbances such as recreational boating or helicopters.						
Lieles aus dolphin a	omnise = UNK-D			1								

Date 8/9/21 Weather (windspee	_Start/End Time()	9301\63	MMO Mo	ork Oates ob	serving Location	Promenale What
				pet 16-inch conce		
Time of Observation	Species ¹	Age Class ²	Identifying Marks	Location (Level A or Level B zone, initial and closest distance to pile driving) ³	Direction of Travel	Behavior⁴
First: 0730	HASE	Adst	ŊA	Level B	Unt	Resting on Pier I dock. Dove during which in Level B
Last: 0845 First:			1			
Last: First:						
Last: First:						
Last: First:						
Last: First:						
Last: First:						
Last:						
First: Last:						
¹ Species Abbreviat California Sea Lion Pacific Harbor Seal Northern Elephant Harbor Porpoise = 1 Unknown seal, sea	= CASL = HASE Seal = NOES HAPO lion = UNK-P	² Species Age Class CASL = juvenile, s male HASE = juvenile, HAPO = calf, adu	ubadult male, adult adult	³ Approximate distance from pile from your location. If constructio record distance from observer. In measurement (meters, feet, etc.)	n is not visible, indicate unit of	⁴ Stationary at surface, swimming (slow or fast), transiting, foraging, resting, looking around. Note if mammal appears to be attentive to project activities, or displays any behavior changes related to project activities, and describe the project activity. Note any human-caused disturbances such as recreational boating or helicopters.

IF YOU DETECT AN ANIMAL: CALL IT OUT ON RADIO USING YOUR MMO #. GIVE ANIMAL'S POSITION AND DIRECTION OF TRAVEL. LEAD MONITOR - MARK CATES: 669-216-0341, "MM1" ON RADIO

leather (windspee	d and direction, E	Beaufort, vis., clo	MMO ML ud cover, precip.)	5=0, Llable 09	serving Locatio	1500 = 9007
umber and type o	f piles driven/rem	noved? Vibratory	or impact?	PLE VIBLEDRY		
Time of Observation	Species ¹	Age Class ²	ldentifying Marks	Location (Level A or Level B zone, initial and closest distance to pile driving) ³	Direction of	8ehavior⁴
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IF YOU DETECT AN ANIMAL: CALL IT OUT ON RADIO USING YOUR MMO #. GIVE ANIMAL'S POSITION AND DIRECTION OF TRAVEL. LEAD MONITOR - MARK OATES: 669-216-0341. "MM1" ON RADIO

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wamber and type o	f piles driven/ren	noved? Vibrator	y or impact?	1 violette	4	
Time of	Species ¹	Age Class ²	Identifying Marks	Location (Level A or Level B zone, initial and closest distance to pile driving) ³	Direction of Travel	Behavior ⁴
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Species Abbreviations: Ornia Sea Lion = CASL Harbor Seal = HASE Whant Seal = NOES WAPO WAPO WAPO		² Species Age Classes: CASL = juvenile, subadult male, adult male HASE = juvenile, adult HAPO = calf, adult		³ Approximate distance from pile driving if visible from your location. If construction is not visible, record distance from observer. Indicate unit of measurement (meters, feet, etc.).		⁴ Stationary at surface, swimming (slow or fast), transiting, foraging, resting, looking around. Note if mammal appears to be attentive to project activities, or displays any behavior changes related to project activities, and describe the project activity. Note any human-caused disturbances such as recreational boating or helicopters.

IF YOU DETECT AN ANIMAL: CALL IT OUT ON RADIO USING YOUR MMO # GIVE ANIMAL'S POSITION AND DIRECTION OF TRAVEL.

LEAD MONITOR - MARK OATES: 669-216-0341, "MM1" ON RADIO

Date $\frac{\sqrt{2}}{7}, \frac{7}{2}$ Weather (windspee	Start/End Time d and direction, I	Beaufort, vis., clo	ud cover, precip.)	S mph SIV w	serving Location	dy, 52 F, The Machine
Number and type o	f piles driven/ren	noved? Vibratory	or impact?	3 driven impact		
Time of Observation First: 8 50	Species ¹	Age Class ²	Identifying Marks	Location (Level A or Level B zone, initial and closest distance to pile driving) ³	Direction of Travel	Swingming size in second later !
Last: 8:57 First: 9:01 Last: 9:23	HASE	Juvenile Juvenile	year silver	Evel & 40 yas	10.50.	around stationary of sontie, journal
First: 1: 39	CASL	subjust male	NOMU &	trum pier 7 (NW) Level B, 25 july from pier 7 (NW)	South,	Swimming and fast an surface, diving, sidthinary at surface
First: Last: First:				(12) yas 110m	File	
t:						
		2Species Age Clar CASL = juvenile, s male HASE = juvenile, HAPO = call, adu	ubadult male, adult adult	³ Approximate distance from pile driving it visible from your location. If construction is not visible, record distance from observer. Indicate unit of measurement (meters, feet, etc.).		⁴ Stationary at surface, swimming (slow or fast), transiting, foraging, resting, looking around. Note if mainmal appears to be attentive to project activities, or displays any behavior changes related to project activities, and describe the project activity. Note any human-caused disturbances such as recreational boating or helicopters.

IF YOU DETECT AN ANIMAL: CALL IT OUT ON RADIO USING YOUR MMO #. GIVE ANIMAL'S POSITION AND DIRECTION OF TRAVEL. LEAD MONITOR - MARK OATES: 669-216-0341, "MM1" ON RADIO

	1
Date 12 7 21 Start/End Time 074 1 442 MMO N SCARBOROUGH Observing Location 200 2 Planeda Work to	
Weather (windspeed and direction, Beaufort, vis., cloud cover, precip.) Slight breeze naken 100% stood cover	
Formal good visibility, all is in the	200
Number and type of piles driven/removed? Vibratory or impact?	

Time of			Identifying	Location (Level A or Level B zone, initial and closest	Direction of	
Observation	Species ¹	Age Class ²	Marks	distance to pile driving)3	Travel	Behavior⁴
First: 0802 Last:	HASE	adult	spoted	Level B end of pier 3,10 meters	East Berning 88	Surpaced in main chronnel. Suimming East, after 10 soc done from view
First: 0822	HASE	18		Just oatside Level B approx 50m of pierl	West: Bearing 92°	wid channel - st supare heading out dove from view (0824 12 hammer Eine)
First: 0825	11	t t		mid-channel off pier 2	West bearing 84°	hammer not currently on - wister cruising @ surface 10-15 86, done
First: 0849 Last:	(2) MASE			divectly of pier 2 approx 1/2 way Stwin Dier of Con Island	bearing 74°	a Surface 10 Sec, dione
First: 0854 Last: 0859	same as	adult		near Con Ship 150 close to Island in Level Brone	West	crutisting stouty, diving
First: 0949 0951 Last: 0955, 13	HASE	(1		outside level B	moving East	-last signifing of pier ? near lag, dove diving a surfacting & seen & to 21 moving East away from zones
First: 1015 ,1018	11	11	darkgey-	just outside zone B near combridge	heading west bearing 55°	currently no hanner
First: 1050	HASE			ion offend of pier 3	facing North	cruising @ surface, dowl from view
*Species Abbreviations: California Sea Lion = CASL Pacific Harbor Seal = HASE Northern Elephant Seal = NOES Harbor Porpoise = HAPO Unknown seal, sea lion = UNK-P Unknown dolphin, porpoise = UNK-D		² Species Age Classes: CASL = juvenile, subadult male, adult male HASE = juvenile, adult HAPO = calf, adult		³ Approximate distance from pile driving if visible from your location. If construction is not visible, record distance from observer. Indicate unit of measurement (meters, feet, etc.).		⁴ Stationary at surface, swimming (slow or fast), transiting, foraging, resting, looking around. Note if mammal appears to be attentive to project activities, or displays any behavior changes related to project activities, and describe the project activity. Note any human-caused disturbances such as recreational boating or helicopters.

Date $\frac{12/8/2}{2}$ Weather (windspeed	l_Start/End Timeed and direction,	07:41/09 Beaufort, vis., clo	58 MMO oud cover, precip			tion Pier 7 F, cloudy, 6 mi visibility, 100% of
Number and type o	f piles driven/rer	noved? Vibrator	y or impact?	I pile driver	impac	A
Time of Observation	Species ¹	Age Class ²	Identifying Marks	Location (Level A or Level B zone, initial and closest distance to pile driving) ³	Direction of	f Behavior ⁴
First: 0830 Last: 0900	Hase	Sub advit	Black Spots	Level B, Looyds N of Rier 7	W	Swinning Slowly at Surface.
First:		Something				
First:						
Last: First:						
Last: First:						
Last: First:						
Last: First:						
Last:						
First: Last:						
¹Species Abbreviations: California Sea Lion = CASL Pacific Harbor Seal = HASE Northern Elephant Seal = NOES Harbor Porpoise = HAPO Unknown seal, sea lion = UNK-P		² Species Age Classes: CASL = juvenile, subadult male, adult male HASE = juvenile, adult HAPO = calf, adult		³ Approximate distance from pile driving if visible from your location. If construction is not visible, record distance from observer. Indicate unit of measurement (meters, feet, etc.).		4Stationary at surface, swimming (slow or fast), transiting, foraging, resting, looking around. Note if mammal appears to be attentive to project activities, or displays any behavior changes related to project activities, and describe the project activity. Note any human-caused disturbances such as recreational boating or helicopters.

IF YOU DETECT AN ANIMAL, CALL IT OUT ON RADIO USING YOUR MAIO # GIVE ANIMAL \$ POSITION AND DIRECTION OF TRAVEL LEAD MONITOR - MARK CATES GOS 216 C341, "AMIL!" ON RADIO

Number and type of piles driven/removed? Vibratory or impact? Location (Level A or Level Time of Direction of B zone, initial and closest Identifying Observation Species¹ distance to pile driving)3 Behavior* Age Class² Marks Travel Level 3 mid. chunks! First: 0842 HASE Adult oth ent a vers west Acarms & 800 . Last: 35 meters of par First: 1000 HASE 7 mill sindrings bean view Last: bearing 40° rand ones sidered of promote of the First: 1345 need channel - oth DIER 8 X CT Fast Dearing 344° Last: First: Last: First: Last: First: Last: First: Last: First: Last: ²Species Age Classes: ³Approximate distance from pile driving if visible ⁴Stationary at surface, swimming (slow or fast), transiting, foraging, ¹Species Abbreviations: CASL = juvenile, subadult male, adult from your location. If construction is not visible, resting, looking around. Note if mammal appears to be attentive to California Sea Lion = CASL record distance from observer, Indicate unit of project activities, or displays any behavior changes related to project Pacific Harbor Seal = HASE measurement (meters, feet, etc.). HASE = juvenile, adult activities, and describe the project activity. Note any human caused Northern Elephant Seal = NOES HAPO = calf, adult disturbances such as recreational boating or helicopters. Harbor Porpoise = HAPO Unknown seal, sea lion = UNK-P Unknown dolphin, porpoise = UNK-D

Date 12/9/21	Start/End Time	07:41/15:	44 _{MMO}	2 or	serving Location	n Pier 2
Weather (windspee	d and direction, E	Beaufort, vis., clo	ud cover, precip.)	52°F, parth	y cloudy,	n Pier 2 12 mpn winds SE, 9 mi visibility,
Number and type o	f piles driven/rem	noved? Vibratory	or impact?	1 driver	vibratory	Л
				CALLY ST	414.000	
Time of Observation	Species ¹	Age Class ²	Identifying Marks	Location (Level A or Level B zone, initial and closest distance to pile driving) ³	Direction of Travel	Behavior ⁴
First:			•			
Last:				69 8	į.	
First:	† .					
				ži.		
Last:					*	
First:	IR.					
Last:						
First:						
Last:						
First:						1
Last:						
First:				, , , , , , , , , , , , , , , , , , , ,		
Last: First:	-	-				
nist.						
Last:			基.			
First:						
Last:						
¹ Species Abbreviati		² Species Age Clas		³ Approximate distance from pile of		⁴ Stationary at surface, swimming (slow or fast), transiting, foraging,
California Sea Lion =		CASL = juvenile, s male	ubadult male, adult	from your location. If construction record distance from observer. In	The case of the same of the same of the same of	resting, looking around. Note if mammal appears to be attentive to project activities, or displays any behavior changes related to project
Pacific Harbor Seal =		HASE = juvenile, a	edult	measurement (meters, feet, etc.)		activities, and describe the project activity. Note any human-caused
Northern Elephant S		HAPO = calf, adul				disturbances such as recreational boating or helicopters.
Harbor Porpoise = H Unknown seal, sea l				3 .		
Unknown dolphin, p						

California Sea Lion = CASL Pacific Harbor Seal = HASE Northern Elephant Seal = NOES Harbor Porpoise = HAPO Unknown seal, sea lion = UNK-P Unknown dolphin, porpoise = UNK-D		male HASE = juvenile, HAPO = calf, adu		record distance from observer. In measurement (meters, feet, etc.		project activities, or displays any behavior changes related to project activities, and describe the project activity. Note any human-caused disturbances such as recreational boating or helicopters.
¹ Species Abbreviati	7500 7500 7500 750	² Species Age Cla CASL = juvenile,	sses: subaduit male, adult	³ Approximate distance from pile from your location. If construction		⁴ Stationary at surface, swimming (slow or fast), transiting, foraging, resting, looking around. Note if mammal appears to be attentive to
əst:		*				
ast: Irst:	 				 	
ast: irst:				· · · · · · · · · · · · · · · · · · ·		1524 15300#
irst:						1459 on 1513, A4 Pilly 30 1574 1530 of
ast:		-				1 1 1 1 13 14
n st.				w .		P.183
ast:		 				1935 30 1443 off 19:103
*				8		
rst:						P.10.7
est:				z z		Impect Pile 1 141800, 14310AF Pile Z
rst:		-				- + Dile 1
ast:						
rst: 9:15	HIDE	1.	- CC /			within marina)
rst: 9:04	COS C 1 VSC	juvenik	spots, duy snout	Level B , 30 yds NE of pile/crane	SE	Behaviord Swimming fast at surface, Chasing/plaining lost of surface, Chasing/plaining lost of surface, Chasing/plaining within marinal
Observation	Species ¹	Age Class ²	Marks	distance to pile driving)3	Travel	Behavior4
Time of			Identifying	Location (Level A or Level B zone, initial and closest	Direction of	
90m)P121 ST 0	721\$, Stare	1 09 21, Start	09:38 ET:10:		-, ET 11:43	Pile3 ST 13:07, FT 13:21
imber and type of	piles driven/rem	oved? Vibratory	or impact?			
				1.00	,	a mil inship A Decia
ather (windspeed	and direction, B	eautort, vis., clo	ud cover, precip.)	44 F, CRIV	& SUNIV	9 mil visibility, o piecip.

IF YOU DETECT AN ANIMAL, CALL IT OUT ON RADIO USING YOUR MMO #. GIVE ANIMAL'S POSITION AND DIRECTION OF TRAVEL

LEAD MONITOR - MARK OATES, 669-216-0341, "MM1" ON RADIO Date 12/10/21 Start/End Time 0743 / MMO Station 2 (JM) Observing Location Pier 2
Weather (windspeed and direction, Beaufort, vis., cloud cover, precip.) E 3 mgh 1 | Cleur, 11% , no precip.) 3 Wide flange Hale vibrated, 4 wide flange Brams (Hale) Impacted Number and type of piles driven/removed? Vibratory or impact? Location (Level A or Level Direction of Time of Identifying B zone, initial and closest Travel Behavior Behavior Traveling East, Summing Sign. distance to pile driving)3 Observation Species¹ Age Class² Marks Level 13, 770m First: 0751 HASE HASE Black nodriving occurred Spots NE, 40° Adult Last: 0755 during observation Swimming fast, in many directions, Activity Huntry injured bird no driving occurred First: 0823 Black NE 30° then SW Adult Hase Spots , ourk Black, Last: # 6916 as books & Hericopters passed, footing around when Impacting began, that level B, 30M First: 0927 NA HASE Adult from MM2 Spets , light Last: NE, 200 Traveling NE, Swaming Storally First: 13 45 level B, 120 M Adult Black Spots HASE then NW, me Fruin MM2 1352 Last: level B, 30M SE, 1900 1531 Black Spots First: HubA HASE Dog nose From MMZ 1532 last: First: Last: First: Last: First: Last: Stationary at surface, swimming (slow or fast), transiting, foraging, 3Approximate distance from pile driving if visible ²Species Age Classes: ¹Species Abbreviations: resting, looking around. Note if mammal appears to be attentive to from your location. If construction is not visible, CASL = juvenile, subadult male, adult California Sea Lion = CASL project activities, or displays any behavior changes related to project record distance from observer. Indicate unit of male Pacific Harbor Seal = HASE activities, and describe the project activity. Note any human-caused measurement (meters, feet, etc.). HASE = juvenile, adult Northern Elephant Seal = NOES disturbances such as recreational boating or helicopters. HAPO = calf, adult Harbor Porpoise = HAPO Unknown seal, sea lion = UNK-P Unknown dolphin, porpoise = UNK-D



IF YOU DETECT AN ANIMAL: CALL IT OUT ON RADIO USING YOUR MMO #. GIVE ANIMAL'S POSITION AND DIRECTION OF TRAVEL. 10 DEC 2021 LEAD MONITOR - MARK OATES: 669-216-0341, "MM1" ON RADIO Date 1038 Start/End Time 1078 / MMO 1ML / MMO 3 Observing Location PIER 7
Weather (windspeed and direction, Beaufort, vis., cloud cover, precip.) Cuent, BEUF 21, W 4 1 mpH DIRECT 2011, NO FREE 2 2011 Number and type of piles driven/removed? Vibratory or impact? 3, piles w/vigratory Pin Deiren + 1 Mga CT Haramen + 1 H pie W/ My40 Location (Level A or Level Time of Identifying B zone, initial and closest Direction of Observation Species¹ Age Class² Marks distance to pile driving)3 Travel SMINING 70 M JEOM PIGET 315 FROM P FRIER THE CON PIE BURE 8 175 M FROM PIER 7 50 FROM PRIM AT SURFACE 70M 310° FROM PIER POR 310° FROM PIER POR First: 0805 HASE Last: 0808 First: 1545 HASE Last:1547 Last: First: Last: First: Last: First: Last: First: Last: First: .ast: ²Species Age Classes: ³Approximate distance from pile driving if visible ⁴Stationary at surface, swimming (slow or fast), transiting, foraging, ¹Species Abbreviations: CASL = juvenile, subadult male, adult from your location. If construction is not visible, resting, looking around. Note if mammal appears to be attentive to California Sea Lion = CASL record distance from observer. Indicate unit of project activities, or displays any behavior changes related to project Pacific Harbor Seal = HASE HASE = juvenile, adult measurement (meters, feet, etc.). activities, and describe the project activity. Note any human-caused Northern Elephant Seal = NOES HAPO = calf, adult disturbances such as recreational boating or helicopters. Harbor Porpoise = HAPO Unknown seal, sea lion = UNK-P Unknown dolphin, porpoise = UNK-D

Date 11 02 L 20	U Start/End Time	0946 /115	Z MMO IML	MMD7 OF	serving Locatio	n PIER Z: VIS 7600M, NO FREED, - 0-1 MPH W = 1152
Weather (windspe	ed and direction. E	Beaufort, vis., clo	ud cover, precip.	1 Dayle 20% (100)	B= 0-71	VIS Y GOOM NO FREE D - O- I MEN W
	40% UL	vd, 3-1.	M5 > 1000	M. HO PRECIP.	L 5 mpH	= 1157
Number and type	of piles driven/rem	oved? Vibratory	or impact?		-1	
				Location (Level A or Level		
Time of			Identifying	B zone, initial and closest	Direction of	
Observation	Species ¹	Age Class ²	Marks	distance to pile driving) ³	Travel	Behavior⁴
First: 1023				60° 500m7	NW	FIRST HENDED NW, THEN TURNED WE'S NANCY GOT LAST OBS, AFFER 1039 DOVE @ 1039 WHEN IMPACT HAVE WEN HIS AT SURFACE SEFECE IMPACE, LOVE WHEN IMPACT SURFACE CLOSEST DISPARED
1020	HASE	A	NA	6 700 40 YEVER B		NANCY GOT LAST OBS AFFER 1039
Last: 1039				20011	W	DONE @ 1039 WHEN IMPACT HAVE WEN
First: 1118	11.	200	. 1	0° 400 m \14197	E	1118 AT SURFACE BEFORE IMPACE, LOVE
	HASE	A	N/A	2 2-2		WHEN IMPACI SIZIED
Last: 1125			10000	10 350 m 1 B	E	- CL03651 1315/110122
First:						
act.						
Last:	-	-				
First:	. ~					
Last:						
First:						
1						
Last:						
First:						
Last:						*
First:						
Last:						
First:						
Last: 1Species Abbrevia	tions	² Species Age Clas	ses:	³ Approximate distance from pile of	driving if visible	⁴ Stationary at surface, swimming (slow or fast), transiting, foraging,
California Sea Lion			ubadult male, adult	from your location. If construction	and the same of	resting, looking around. Note if mammal appears to be attentive to
Pacific Harbor Sea	1 (2000)	male	1.16	record distance from observer. In		project activities, or displays any behavior changes related to project
Northern Elephant	Seal = NOES	HASE = juvenile, a HAPO = calf, adul		measurement (meters, feet, etc.)	•	activities, and describe the project activity. Note any human-caused disturbances such as recreational boating or helicopters.
Harbor Porpoise =		Indi O - call, addi	•			and an earliest such as recreationer adding or netropies.
Unknown seal, sea						
Unknown dolphin.	porpoise = UNK-D	1		1		1

Date 12/11/21	Start/End Time	0945/115	Z MMO N.	Scarborough Ot	serving Locatio	n Alameda Morina
Weather (windspec					20.7 107c C	C. Seamore of all all all all all all all all all al
Number and type o	or piles ariven/rem	noved? Vibratory	or impact?	Mact		
Time of	51		Identifying	Location (Level A or Level B zone, initial and closest	Direction of	Behavior ⁴
Observation	Species ¹	Age Class ²	Marks	distance to pile driving) ³	Travel	Dellavior .
First: 1040	HASE	adai-	27-8	The Det 7	west	GG 500 TD, don from view
First: \\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\	6.2	adult	brown 1	mid-channel a 50 M GL DIE T Branch 25° ind8	C	COUSING REMISER N. d-CARACTE TOUT GG 50 5 TSD. det it in view Tomorian steril Egasting 60 COUSING OF STATES & COLOR OF SMALL OFFI TOWNING OF AND MALLIAMES 30)
First:	1			Now		
Last:			element elemente	divide months		
First:		1				
Last:				- No see and a s	The state of the s	
First:					The same of the sa	
Last:						
First:						
Last:						
First:					quique de la companya	Annual Principle of the Control of t
Last:						A. CITTAL AND
First:			And the second s			
Last:		and the second				
¹ Species Abbreviat		¹ Species Age Clas		³ Approximate distance from pile of from your location. If construction		Stationary at surface, swimming (slow or fast), transiting, foraging,
California Sea Lion :	0000000	male (CASL = juvenile, s	ubadult male, adult	record distance from observer. In		resting, looking around. Note if mainmal appears to be attentive to project activities, or displays any behavior changes related to project
Pacific Harbor Seal Northern Elephant	11,000	HASE = juvenile,		measurement (meters, feet, etc.).		activities, and describe the project activity. Note any human-caused
Harbor Porpoise = F		HAPO = calf, adul	t			disturbances such as recreational boating or helicopters.
Unknown seal, sea						
Unknown dolphia				1		

Date 12/15/21	_Start/End Time	7:43/16:1	o MMO \no	essa Heinandozob	serving Location	Pier
Weather (windspee	d and direction, B	leaufort, vis., clou	d cover, precip.)	SSE I Brigh	party co	uly - iloth -
Number and type o	f piles driven/rem	oved? Vibratory	or impact?\	vide Flunge Bear	50,5	
Time of Observation	Species ¹	Age Class ²	Identifying Marks	Location (Level A or Level B zone, initial and closest distance to pile driving) ³	Direction of Travel	Behavior⁴
First: 9:10 Last: 9 25	CASL	Adult male		Boyards (Form)	west North	Duling, Swimming
First: 10:12 Last: 2:30	HASÉ	Adult		2)41m from pile		travied out
First: 10.30 Last: 10.34	CASL	2 adults		~ 275 m from pile driving	East	playing, splashing
First: 12.57 Last: 101	HASE	Aauet		~ 295m Initial } to ~ 232m clusest Spice	SW	Swimming Also noted by MMO3
First: 1:05 Last: 1:10	CASU	Adult female ov Sub mail C		~259m initial 3 to ~192m closest 3 pilo	west	Swimining fast also noted by MMU3
First: \.50 Last: \.50	HASE	Adult		~210m from p.lo druling	tast	Swimming.
First: 3:09 12	2 HASE	Adult		~ 220m frampile	East	milling, swimming
First:						
1 Species Abbreviations: California Sea Lion = CASL Pacific Harbor Seal = HASE Northern Elephant Seal = NOES Harbor Porpoise = HAPO Unknown seal, sea lion = UNK-P Linknown delphin, pornoise = LINK-D		³ Approximate distance from pile of from your location. If construction record distance from observer. In measurement (meters, feet, etc.).	is not visible, dicate unit of	4Stationary at surface, swimming (slow or fast), transiting, foraging, resting, looking around. Note if mammal appears to be attentive to project activities, or displays any behavior changes related to project activities, and describe the project activity. Note any human-caused disturbances such as recreational boating or helicopters.		

Date 12/15/21 Start/End Time 0743 / 1618 MMO MMO # 1	3 Observing Location MMO # 3 (9 - 67)
Weather (windspeed and direction, Beaufort, vis., cloud cover, precip.) 4/5°F	, 12 mph CF, Beaufort: 1, 9mi, Carry Goudy 30%
Number and type of piles driven/removed? Vibratory or impact? 5 VII &	flange piles Impassed

s Abbreviatio	ns:	² Species Age Clas	Dog nose Chir note ses: ubadult male, adult	*Approximate distance from pile d from your location. If construction	Contraction and Advantages	4Stationary at surface, swimming (slow or fast), transiting, foraging, resting, looking around. Note if mammal appears to be attentive to
910			Dog nose But note	th.en 160m	E 190600,	above Water
520	יחדיין		Dog nose Car note	then 160m	E 190 600	above Water
	ロアンし	7102 300 30	Dognose	1,000	- 160°	above Water
1513	LACE	Admit		1 feve 1 12 170.		Suiming Slow will heard
1411	HIDE		Day nose		2800	
410	11005	Adult	Black Stots	Level A 1130m	W	3w. mminy Stow
1314	Choc	mac		1 70	270°	* Seen by both monitors
313	CASI	Subadult	Far Aups	Level B	NW	Swimming -fast
307	HASE	Mult	Black Stols.	closest = 170m	then NW 250°	Swimming in multiple Directions
256	iles			Lever 13. 180m	NE	Swimming fast, Splashed at 5 for
	CASL	Adult .	: Tanish goldrolor	level by love	V 270°	Sminiming)
The second secon		 		1 12 180m	-	Swimming that close to Surface
	HASE	10-14	Spots	level B, 1 10m	900	Swimming Host in multiple directions
1647						
1647	HASE	Mult		Level A, 190m		Sw. myny Clow at inchace
ervation	Species ¹	Age Class ²	Marks	distance to pile driving) ³	Travel	Behavior ⁴
me of			Identifying	B zone, initial and closest	Direction of	
	1647 1647 1647 1647 1647 132 2256 307 31314 410	Privation Species 1 1847 HASE 1647 HASE 1647 CASL 1322 1324 HASE 307 31314 CASL HASE 1314 HASE	Privation Species Age Class Age Clas	Age Class? Marks Mark	Age Class? Marks distance to pile driving)3 Marks HASE Mult Slack Casts Marks Clevel A, 140m Casts Marks Casts Cast A, 140m Casts Dog nose Far flags Tanish goldrolor Female Dog Nose Black Gots Cast Tom Cast Far flags Cast Cast Adult Black Stots Level B, 170m Level B, 180m Tanish goldrolor Rosagital crest Cast Cast Adult Black Gots Level B, 180m Level B, 180m Cast Tanish goldrolor Rosagital crest Cast Cast Adult Black Gots Level B, 180m Level B, 180m Cast Tanish goldrolor Rosagital crest Closest = 170m Cast Cast	Identifying B zone, initial and closest distance to pile driving) Travel Marks Marks

IF YOU DETECT AN ANIMAL: CALL IT OUT ON RADIO USING YOUR MMO #. GIVE ANIMAL'S POSITION AND DIRECTION OF LEAD MONITOR - MARK OATES: 669-216-0341, "MM1" ON RADIO

Date 12-11-21 Start/End Time 0130 / 1655 MMO N. SCARB DROUGH Observing Location & Liveda Weather (windspeed and direction, Beaufort, vis., cloud cover, precip.) Clear, 090 cloud cover control contro

Number and type of piles driven/removed? Vibratory or impact? impact to piles (new) plus 4 adjuted from proces - wide the

				Location (Level A or Level	Direction of	
Time of			Identifying	B zone, initial and closest	Direction of	Behavior ⁴
Observation	Species ¹	Age Class ²	Marks	distance to pile driving) ³	Travel	
First: 0749 Last: 0755	HASE	adult		20 m of pier 3 B	north west	factory Fast - Resular lovers - Fre
First: 0810	rl	l i		Level B- just 86 bow of 66 750		O acres of the second s
Last:				Bearing 20°		
First: 1033	CSL	adult	pointed snout	mid channel botwn pier 3 : CG ship		
First: 1037	HASE	I.V.	grey-brown = spotty	mid-channel oft pier!	WHW	•
First: 1048	, II	11	11	Level B - 10 W off end of pier Z Bearing 80°	-	Surfaced, dove, surfaced again- seemed to be eating something, dove from view
First: 1103 Last: 1112	HASE		likely same animal as	30 m off pier I complex Level B/2-d signific 25 m off pier 2	dove facing North	popped up right of ter 1st hammer 'slow last signted heading west
First:				00 (
First:						
Last:			<	*		
¹ Species Abbreviations: ² Species Age Cla		ubadult male, adult dult	³ Approximate distance from pile d from your location. If construction record distance from observer. Ind measurement (meters, feet, etc.).	is not visible, dicate unit of	⁴ Stationary at surface, swimming (slow or fast), transiting, foraging, resting, looking around. Note if mammal appears to be attentive to project activities, or displays any behavior changes related to project activities, and describe the project activity. Note any human-caused disturbances such as recreational boating or helicopters.	

			LEAD MONITOR	(-MARK DATES, 005 210 05		000
12/17/	Start/End Time	Nuc. 15	57 MMO MA	10 # 2 (JM) Ob 1 mph SW, C	serving Location	5%, no prop.
Weather (windspee	d and direction B	seaufort vis clo	ud cover, precip.)	1 mph SW, C) 1 mi	5% , 110 Mile. P.
Weather (windspee	and direction, c	(Cadioi t, 113.)				
	f ile di on leom	ovod2 Vibratory	or impact?	6 Wide Flang	e Brams	Trapacted
Number and type o	f piles ariven/rem	loved: Vibratory	or impacts			
	_			Location (Level A or Level		
			Identifying	B zone, initial and closest	Direction of	
Time of	61	Age Class ²	Marks	distance to pile driving) ³	Travel	Behavior
Observation	Species ¹	Age Class		level B, 260m	E 110	Behavior ⁴ Suinaing fast, changed directions + Seen by both MMDs
First: 1036	HASE	A	Black	1000 0 120	. 110	, , , , , , , , , , , , , , , , , , , ,
last: 1043	MAJU	Adult				+ Seen by both MMOS
Last: 1045						
First:						
Last:						
First:						
Last:						
First:						
Last:						
First:						
2000						
Last:						
First:						
Last:		-				
First:						
Last:	-				-	
First:						
					1	
Last:		Zenning And Cin		³ Approximate distance from pile	driving if visible	⁴ Stationary at surface, swimming (slow or fast), transiting, foraging,
¹Species Abbreviatio		² Species Age Clas	ubadult male, adult	from your location. If constructio	10 10 0)	resting, looking around. Note if mammal appears to be attentive to
California Sea Lion = Pacific Harbor Seal =		male	,	record distance from observer. In		project activities, or displays any behavior changes related to project
Northern Elephant S		HASE = juvenile, a		measurement (meters, feet, etc.)		activities, and describe the project activity. Note any human-caused
Harbor Porpoise = H		HAPO = calf, adul	t			disturbances such as recreational boating or helicopters.
Unknown seal, sea li						
Unknown dolphin, p						4

IF YOU DETECT AN ANIMAL: CALL IT OUT ON RADIO USING YOUR MMO #. GIVE ANIMAL'S POSITION AND DIRECTION OF TRAVEL.

Date 12 20 21 Start/End Time 7:45 / 1530 MMO Vanessa Hernandez Observing Location Prese Weather (windspeed and direction, Beaufort, vis., cloud cover, precip.) Low 43° - High 54° Ewind & Barry	2
Weather (windspeed and direction, Beaufort, vis., cloud cover, precip.)	i i
Number and type of piles driven/removed? Vibratory or impact? 4 impact - wide flavige beams	

				Location (Level A or Level		
Time of			Identifying	B zone, initial and closest	Direction of Travel	Behavior ⁴
Observation	Species ¹	Age Class ²	Marks	distance to pile driving) ³ /		
First: 7:45	HASE	Adult		Bzone 2300m	E.	Restal Dive.
Last: 7:51		2				
First: 9:40	CASL	Adult		8-20ne ~270 m	NE	Diving
Last: 8 40		1				
First: 10.05	CASL	Adult	ear flaps.	Bzone ~330m initial ~250m closest	West	logging, swimming
Last: \0 \0		-				
First: 10:54	HASL	Adult		87000 ~ 450m		logging diving
Last: 10:54						
First: 12:55 Last: 1258	HASL	Adult		87010-180m		Breath & divp
	1			4.4.0		
First: 1:10	HASL			820ne ~ 350m		Pulling/bitting buttlehead's true
Last: 123	-					
First: 1:54	CASL	pault		8700e ~ 340m	W62+	-fast summing
Last: 1:56	9			3,00		
First:				A		
Last:						
¹ Species Abbreviation	ons:	² Species Age Clas		³ Approximate distance from pile of		4Stationary at surface, swimming (slow or fast), transiting, foraging,
California Sea Lion = CASL		8	ubadult male, adult	from your location. If construction record distance from observer. In	di na sman alipandine.	resting, looking around. Note if mammal appears to be attentive to project activities, or displays any behavior changes related to project
Pacific Harbor Seal =		male HASE = juvenile, a	adult	measurement (meters, feet, etc.).		activities, and describe the project activity. Note any human-caused
Northern Elephant S		HAPO = calf, adu		, , , , , , , , , , , , , , , , , , , ,	-	disturbances such as recreational boating or helicopters.
Harbor Porpoise = H						
Unknown seal, sea li						
Unknown dolphin, p	orboise = ONK-D					

IF YOU DETECT AN ANIMAL CALL IT OUT ON RADIO USING YOUR MMO #. GIVE ANIMAL'S POSITION AND DIRECT LEAD MONITOR - MARK DATES 669-216-0341. 'MMI" ON RADIO Weather (windspeed and direction, Beaufort, vis., cloud cover, precip.) Vide How insins Number and type of piles driven/removed? Vibratory or impact?_ Location (Level A or Level Direction of B zone, initial and closest Identifying Time of Travel distance to pile driving)3 Surfaced with first in month Marks Age Class² Species: Observation 5021 196/5 LASF Far hole 1ex 13, 112 SE Entole HILEA 200 Swimming fasi F10-10-Adult 58245 NW Far 10.0 Swimmy Slow For role level B, 190m NW Adult - ASF 197 Last: First: Last: FIRST Last: First Last Stationary at surface, swimming (slow or fast), transiting, foraging, ³Approximate distance from pile driving if visible ²Species Age Classes: Species Abbreviations: resting, looking around. Note if mammal appears to be attentive to CASL = juvenile, subadult male, adult from your location. If construction is not visible, California Sea Lion = CASL project activities, or displays any behavior changes related to project record distance from observer. Indicate unit of Pacific Harbor Seal = HASE activities, and describe the project activity. Note any human-caused measurement (meters, feet, etc.). HASE = juvenile, adult Northern Elephant Seal = NOES disturbances such as recreational boating or helicopters. HAPO = calf, adult Harbor Porpoise = HAPO Unknown seal, sea lion = UNK-P Unknown dolphin, porpoise = UNK-D

HE YOU DETECT AN ANIMAL CALL IT OUT ON RADIO USING YOUR MMO # GIVE ANIMAL'S POSITION AND DIRECTION OF TRAVEL.

LEAD MONITOR - MARK DAJES: 669-216-0341, "MM1" ON RADIO

Date 12-21-21 Weather (windspec	_Start/End Time	0745 111	ZMMO N. 2	CAR FOR OUGH OF	serving Location	n Alawah Marina pier 2 but cour, good visibility, glave on wat
the same of the sa	the state of the s			piles W/impact	1010	COURT AGOOD VISINGITY Glave on war
Time of Observation	Species:	Age Class	Identifying Marks	Location (Level A or Level B zone, initial and closest distance to pile driving) ³	Direction of	
First: 03000	HASE	h dal-	brown spots	Level 8 @ least 200 m from hammer Bearing B4°	dove	Behavior ⁴ Animal had been hauled out in piet complex since 0745 start and just you done to piet it would be piet to worker, discovered from your
Frst 1.04	HASE	Adult	spotted	Level B. @ mid-diame Bis piers 1 = Z 30 m brow hammer Beaving 60°	crusing East & surface	cruising a surjace, dore near part jurther East and further gram harner
First:	*					
First.		incide (Comman,)				
Last: Fest		O Comment				
Lest						
Frs		÷		The second secon		
Last. First:	<u> </u>					
Last	#	(100 CHE) - 100 CHE) -				
First		-co-s-				
Last:	5		that make			
Species Abbreviations: Carrontia Sea Jon = CASL Pacific Harbor Sea = HASE Northers Elephant Sea = NOES marsor Porpose = HAPO Jinknown Seal, sea ilon = UNK-P Jinknown Spionin, porpose = UNK-P		iSpecies Age Cla CAS., = gavenile, maie HASE = guvenile, HAPO = calif, adu	subadult male, adult adult	¹ Approximate distance from pile from your location. If constructio record distance from observer. In measurement (meters, feet, etc.)	n is not visible, idicate unit of	⁴ Stationary at surface, swimming (slow or fast), transiting, foraging, resting, looking around. Note if mammal appears to be attentive to project activities, or displays any behavior changes related to project activities, and describe the project activity. Note any human-caused disturbances such as recreational boating or helicopters.

Weather winistee	_Start/End Time scand direction, B	eaufort, vis., clo	od cover, precip.)	B JACK MOTHS OF	serving Location	58% () prop 2+10, aserper		
ונ אמול זהה יאפחמא	inie imenien	cred? Vibratory	or impact?					
Time of Observation	Species	Age Cass 4	identifying Maris	Location: Level A or Level 8 zone, initial and closest distance to pile driving) ²	Direction of Travel	Behavior ⁴		
- The State of the	+1.45	Polit !	SKIS	level B, Zon	NW 7200	Summing Stew Gentlering at Justice		
Frs. 7:27	HATE	13.27	74.75	, Lesti 3,174	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	Senton a Bitternad		
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TO SECOND				3	and the second s	4		
au.		2 5		6 ±	<u>i</u>	1		
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aur.		20		*	h.			
Superiors Address Andress California Tora Lan o CASL Facility Martins Seed o MASE		Species Age Can		"Approximate Sistance from pile		"Stationary at surface, swimming follow or fast), transitivity, foruging,		
		& CASA. S prograde, in	stadult male. adult	from your problem. If construction		resting locating around those if mammal appears to be aftered to be		
		male +uSE = portain a	rtudt.	necent distance from strender in measurement indext; fact etc.,		SPSyco activities, or displays any behavior changes related to project activities, and describe the project activity, lands any homeomorphism		
Bratters Eastwart		ray rail, wait		A TOTAL SECTION AND SECURITY SERVE	**	activities, and describe the project activity. Note any homan-caused dishurbances such as recreational boating or helicopters.		
HEATON STANDARD SH		1		Î.		1		
unterestant sessi sessi i		<i>□</i> T 0						
unimous solution a	CARLES BULL							

If YOU DETICE AN ANIMAL CALL IT OUT ON RADIO USING YOUR MMO#. GIVE ANIMAL'S POSITION AND DIRECTION OF TRAVEL TEAD MONITOR. MARK OATES 660-216-0-341, "MMT" OF RADIO

101

te V3 22 Start/End Time 9:30 /15-97 MMO VOYESQ FECCION 192 Observing Location PRO 3								
d and direction,	Beaufort, vis., clou	id cover, precip.)						
f piles driven/rer	noved? Vibratory	or impact?	noact					
, p		J						
			Location (Level A or Level					
Engeleel	Ago Class?				Behavior ⁴			
Species		IVIdIKS	and the second s	Havei				
HASE	Adults		190-240 m to pile		830 - Snayled out			
			1					
HASE	HADAH		190 W-500m to byle		syla rung is morning my record and			
LINCE	104 11		Unci &		diamid = Enterior 1 %			
14176	Maunt		12,0171 70 P. 18	to'st	bred sports			
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tions:					*Stationary at surface, swimming (slow or fast), transiting, foraging,			
California Sea Lion = CASL		ubaduit male, adult		and the same of th	resting, looking around. Note if mammal appears to be attentive to project activities, or displays any behavior changes related to project			
		dult			if of project activities, or displays any behavior changes related to project activities, and describe the project activity. Note any human-caused			
	100000 (60)				disturbances such as recreational boating or helicopters.			
Unknown seal, sea lion = UNK-P Unknown dolphin, perpeise = UNK-D								
	species¹ HASE HASE HASE Seal = NOES HAPO Iton = UNK-P	Species¹ Age Class² HASE AdultS HASE I Adult HASE Seal = NOES HAPO # calf, adult HASE I Adult Age Class² Species Age Clas CASL = Juvenile, a HAPO # calf, adult	stions: CASL HASE HASE HASE HASE HASE HASE HASE HASE	de and direction, Beaufort, vis., cloud cover, precip.) If piles driven/removed? Vibratory or impact?	Identifying Species Age Classes: ASE I Adult I Adult I Adult I Age Classes: CASL HASE HASE AGE Classes: CASL HASE MARE AGE Classes: CASL HASE MARE MASE MASE AGE Classes: CASL HASE MASE MAPO Call, adult MAPO measurement (meters, feet, etc.).			

LEAD MONITOR MARK DATES 669-216-0341, "MM1" ON RADIO

Date 1 3 7022	Start/End Time	0754, 155	5 MMO J	3 (JM) Ob	serving Location	15%, 80 marx 6 0-30				
Weather (windspee				8 mph 51: 1	2 mi	15%, no may 6 0-30				
Number and type of	umber and type of piles driven/removed? Vibratory or impact? 5 wide flage Ble I Mpached									
Time of Observation	Species ¹	Age Class ²	Identifying Marks	Location (Level A or Level B zone, initial and closest distance to pile driving) ³	Direction of Travel	Behavior ⁴				
First: 0849 Last: 0849 First: 0927	HASE	Adult	Black	Level B 124cm	NF 100	Behavior4				
First: 3927 Last: 6927	1-195E	Adult	Blacic	Level B. 170m	E 770'	owimming stows				
First:										
Last: First:										
First:					×					
Last: First:										
Last:										
First: Last:										
First:				и						
Last: 1Species Abbreviations: California Sea Lion = CASL Pacific Harbor Seal = HASE Northern Elephant Seal = NOES Harbor Porpoise = HAPO Unknown seal, sea lion = UNK-P		² Species Age Cla CASL = juvenile, male HASE = juvenile, HAPO = calf, adu	subadult male, adult adult	³ Approximate distance from pile from your location. If constructio record distance from observer. Ir measurement (meters, feet, etc.)	n is not visible, ndicate unit of	⁴ Stationary at surface, swimming (slow or fast), transiting, foraging, resting, looking around. Note if mammal appears to be attentive to project activities, or displays any behavior changes related to project activities, and describe the project activity. Note any human-caused disturbances such as recreational boating or helicopters.				
Unknown dolphin,	porpolse = UNK-D			1						

Date 1/5/2012	_Start/End Time _	0754,193	MMO H	Z Jaier Matmon	serving Location	Pier 7
Weather (windspeed	d and direction, B	eaufort, vis., clo	id cover, precip.)	5 mm SE O	E.M.	95.90 , no grap & 5700
Number and type of	f piles driven/rem	oved? Vibratory	or impact?	5 Wide flange piles	Impacked	
Time of Observation	Species ¹	Age Class ²	Identifying Marks	Location (Level A or Level B zone, initial and closest distance to pile driving) ³	Direction of Travel	Behavior ⁴
First: 0826 Last: 0826	HASE	Adult	Stork. Storts	Level B 1270m	NE, SONO	Similaring Post
Last: 6876 First: 0636 Last: 0836	HASE	Adul+	Mack 590+5	Level B, 240m	NE ,300°	Swimming Slaw of Surface
First: Last:						
First: Last:						
First:						
Last:					1	
First:						
Last:						
First:						
Last: First:						
Last: 1Species Abbreviations: California Sea Lion = CASL Pacific Harbor Seal = HASE Northern Elephant Seal = NOES Harbor Porpoise = HAPO Unknown seal, sea lion = UNK-P Unknown dolphin, porpoise = UNK-D		² Species Age Cla CASL = juvenile, s male HASE = juvenile, HAPO = calf, adu	subadult male, adult adult	³ Approximate distance from pile from your location. If construction record distance from observer. In measurement (meters, feet, etc.	on is not visible, ndicate unit of	⁴ Stationary at surface, swimming (slow or fast), transiting, foraging, resting, looking around. Note if mammal appears to be attentive to project activities, or displays any behavior changes related to project activities, and describe the project activity. Note any human-caused disturbances such as recreational boating or helicopters.

			LEAD MONTO	R - MARK DATES: 669-216-03	41, "MM1" ON	RADIO
Date 5 JAN 22	Start/End Time	0744 / 14	29 MMO 2 -	IML OF	serving Locatio	n Piero 2
Weather (windspee	ed and direction, I	Beaufort, vis., clo	oud cover, precip.	W 23 pmph B=0-	1,100% CL	n Pier 2 vo, Vestern, DRy = 03-4
W = 5 mist	SW, 8170-	L, V15 7 5	00 m 50 %	MMS 111 = 142	9	1
Number and type o	of piles driven/ren	noved? Vibrator	y or impact? 4	WIDE FINADOCH	01155-1	MARI
	9001	10 100-000				
Time of Observation	Species ¹	Age Class ²	Identifying Marks	Location (Level A or Level B zone, initial and closest distance to pile driving) ³	Direction of	Behavior⁴ .
First: 0816	- Species	Age class	IVIdIKS	Levello pile driving)	Traver	
Last: 08 1 V	HASE	A	N/A	275 m 20°	W	SULFACED THEN FOVE
First: 0828	LASE	A	LIGHT	LEVEL A 80m 260°	W	SURFACED IN PETWEEN ASK 273.
Last: 2020	1 NOC	, A	LOWRED	70 m 260		DOVE INT EEDING PLO OF FLOW TO ENT
First:						SURFACED IN PETWEEN ASK 273. SWAM ASURFACE TOLURE F SR 3 POVE INST BEFORE END OF FRENCH ENT MAY HAVE BEEN ONE OF 10 MASK
Last:						TWO IN HER @ 1/20 @ 0744-3814
First:						
Last:						
First:						
Last:						
First:						
Last:						
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Last:						
First:						
Last:						
¹ Species Abbreviat	tions:	² Species Age Cla		³ Approximate distance from pile of		⁴ Stationary at surface, swimming (slow or fast), transiting, foraging,
California Sea Lion	0=00=0	CASt = juvenile, :	subadult male, adult	from your location. If construction	AND SELECTION STRAINSCOTT	resting, looking around. Note if mammal appears to be attentive to
Pacific Harbor Seal		HASE = juvenile,	adult	record distance from observer. In measurement (meters, feet, etc.)		project activities, or displays any behavior changes related to project activities, and describe the project activity. Note any human-caused
Northern Elephant		HAPO = calf, adu		meters, rect etc.)	•	disturbances such as recreational boating or helicopters.
Harbor Porpoise = I				1		
Unknown seal, sea				1		
Unknown dolphin,	porpoise = UNK-D	1		I		

Date 1 6 201	2 Start/End Time	0754/16	31 MMO	13 Jared M. Or	oserving Locatio	n Pier 7 20%, No Deal & 1750
Weather (windspe	ed and direction, E	Beaufort, vis., clo	oud cover, precip.)	1 moh, SE, O	6 mi, 11	20%, NO DECT, 5, 1750
Number and type of	of piles driven/rem	oved? Vibratory	or impact?	Wide Aarroje	Diles Imp	octed
				J	Fr ar	4 W 1 5 M
				Location (Level A or Level		
Time of			Identifying	B zone, initial and closest	Direction of	
Observation First: 08711	Species ¹	Age Class ²	Marks	distance to pile driving) ³	Travel	Behavior ⁴
First: OBLG	111/15	Adult	Black spors	level B, 240m	NW,290	Swiming at Surface. Multiple directions
Last: 0835 First: 1145	HASE	1000	Clack Hous		Than NE, NW	Swiming at Surface. Multiple directions of travel Swiming Slow at Surface
First: 1145	uac r	**	Black Abts	Level B 1290m	NW, 2100	Swimming Story at Surface
11112	HASE	Adult	1401 7017	LCOCK V 1. Z V M	10 4 (300	
Last: 1149						
First:					*	
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ast,						
First:						
Last:						
¹ Species Abbreviation	ons:	² Species Age Class	ses:	³ Approximate distance from pile d	Iriving if visible	⁴ Stationary at surface, swimming (slow or fast), transiting, foraging,
California Sea Lion =		CASL = juvenile, si	ubadult male, adult	from your location. If construction		resting, looking around. Note if mammal appears to be attentive to
Pacific Harbor Seal =		male HASE = juvenile, a	dult	record distance from observer. In measurement (meters, feet, etc.).		project activities, or displays any behavior changes related to project
Northern Elephant S	eal = NOES	HASE = Juvenile, a HAPO = calf, adult		measurement (meters, reet, etc.).		activities, and describe the project activity. Note any human-caused disturbances such as recreational boating or helicopters.
Harbor Porpoise = H.		5 6511, 65611				as real entire posting of nencopters.
Unknown seal, sea li						* b ,
Unknown dolphin, po	orpoise = UNK-D					

IF YOU DETECT AN ANIMAL: CALL IT OUT ON RADIO USING YOUR MMO #. GIVE ANIMAL'S POSITION AND DIRECTION OF TRAVEL.

Date / - 6 202	Start/End Time	0159162	MMO M.	SCARBOROUGH OB	serving Locatio	n Alameda Notice, ev & of sile &
Weather (windspee	d and direction, E	Beaufort, vis., clo	oud cover, precip.)	10090 cloud cover an	ad vis . B	equipart 0-1, calm
60	me large los	as floating	in main chan	piles impact		
Number and type o	f piles driven/rem	oved? Vibratory	or impact?	Diles impact		
				1		
1 1				Location (Level A or Level		
Time of			Identifying	B zone, initial and closest	Direction of	
Observation	Species ¹	Age Class ²	Marks	distance to pile driving)3	Travel	Behavior ⁴
First: 0814	HASE	adult	rusty brown	level B 20 m of pier 2 Bearing 100		lounging & Scul. dive framviews backing North
:	1	adul	rusty brown wisches spots	20 m of pier 2	~	barrens Novem
Last:				Bearing 700		
First: 1017	HASE	adult	s-patted	level B - just 76 pier in pier I complex		dove from pier 1, no sighting ofter it
	TITISE	adde	spotted H. brown	pier in pier I complex	_	dove. Hammer started buin arer
Last:			11,	@ 1000 from pile		
First:				0 - 1		
				e"		6
Last:						
Last: First:						
	to the state of th					
Last: ~			in.			
First:						
Last:				Ж		<u></u>
First:						
Last:				41		
First:						
Last:						
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Last:						
¹ Species Abbreviati	ons:	² Species Age Clas		³ Approximate distance from pile d		⁴ Stationary at surface, swimming (slow or fast), transiting, foraging,
California Sea Lion =	* ·	CASL = juvenile, s	subadult male, adult	from your location. If construction record distance from observer. Inc.		resting, looking around. Note if mammal appears to be attentive to project activities, or displays any behavior changes related to project
Pacific Harbor Seal		HASE = juvenile,	adult	measurement (meters, feet, etc.).		activities, and describe the project activity. Note any human-caused
Northern Elephant		HAPO = calf, adu		,		disturbances such as recreational boating or helicopters.
Harbor Porpoise = H		1		*		The state of the s
Unknown seal, sea i				9 .		
Unknown dolphin, p	orpoise # UNK-D	1				

Date <u> - 0-2027</u> Weather (windspec	Start/End Time ed and direction,	<u>から4 / 695</u> Beaufort, vis., clo	MMO M	SCARBORCUGH Ob	nserving Location	n Llayleda Marira Diet Ti			
Number and type o	umber and type of piles driven/removed? Vibratory or impact? Sales 1144								
Time of Observation	Species ¹	Age Class ²	Identifying Marks	Location (Level A or Level B zone, initial and closest distance to pile driving) ³	Direction of Travel	Behavior⁴			
First: 0806	HALE	Adult		level B 206 m from piles Bearing 100	west	Crising & soupers , from your 1. Bus			
Last:				Bearing 100					
First:									
Last:				2					
First:									
l act:									
Last: First:									
riist.					1				
Last:									
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First:				and the East of the Control of the C					
Last:									
First:									
Last:				9					
First:									
964									
Last: ¹ Species Abbreviati	ions:	² Species Age Clas	ses:	³ Approximate distance from pile of	driving if visible	⁴ Stationary at surface, swimming (slow or fast), transiting, foraging,			
California Sea Lion		CASL = juvenile, s	ubadult male, adult	from your location. If construction	n is not visible,	resting, looking around. Note if mammal appears to be attentive to			
Pacific Harbor Seal		male	4.4	record distance from observer. In		project activities, or displays any behavior changes related to project			
Northern Elephant	Seal = NOES	HASE ≈ juvenile, a HAPO ≈ calf, adul		measurement (meters, feet, etc.)	•	activities, and describe the project activity. Note any human-caused disturbances such as recreational boating or helicopters.			
Harbor Porpoise = F		mar o = can, addi	5 2			and an experience and the control of the copies.			
Unknown seal, sea l									
Unknown dolphin, c	orpoise = UNK-D	1		And the same of th					

_Start/End Time	7:54 19:	59 MMO Varx	essa Hernandez Ob	serving Location	n Picez				
	127								
umber and type of piles driven/removed? Vibratory or impact?									
Species ¹	Age Class ²	Identifying Marks	Location (Level A or Level B zone, initial and closest distance to pile driving) ³	Direction of Travel	Behavior ⁴				
HASE	Adult		Level B 224m.	,	Hauted out Pier 1 8.08 - in water				
HASE	Adult		Level B 250m	East	Mrd Channel - Spotted by MMJ2 Swimmind				
HASE	Pault		Level B 235m	North	Diving				
Last: 1-Species Abbreviations: California Sea Lion = CASL Pacific Harbor Seal = HASE Northern Elephant Seal = NOES Harbor Porpoise = HAPO Unknown seal, sea lion = UNK-P		ubadult male, adult idult	³ Approximate distance from pile driving if visible from your location. If construction is not visible, record distance from observer. Indicate unit of measurement (meters, feet, etc.).		⁴ Stationary at surface, swimming (slow or fast), transiting, foraging, resting, looking around. Note if mammal appears to be attentive to project activities, or displays any behavior changes related to project activities, and describe the project activity. Note any human-caused disturbances such as recreational boating or helicopters.				
	species¹ HASE HASE HASE HASE HASE ABSE HASE ABSE AB	species¹ Age Class² HASE Adult Adult HASE Adult HASE Adult HASE Adult Adult HASE Juvenile, s male HASE juvenile, a HAPO = calf, adult	species Age Class Age Classes: CASL HASE HASE HASE HASE HASE HASE HASE HASE	f piles driven/removed? Vibratory or impact? Species Age Class Identifying Marks Location (Level A or Level B zone, initial and closest distance to pile driving)	species¹ Age Class² Identifying Marks HASE Adult Level B JSOM Level B JSOM Level B JSSM North Age Class² Level B JSSM North Age Classe: CASL = Juvenile, subadult male, adult male male HASE = Javenile, adult HASE HASE HASE HASE HASE HAPO = calf, adult Marks Level B JSOM Level B JSSM North *Approximate distance from pile driving if visible from your location. If construction is not visible, record distance from observer. Indicate unit of measurement (meters, feet, etc.).				

Date 1/11/72 Weather (windspec	ed and direction,	Beaufort, vis., clo	MMO\(\int \) oud cover, precip	MESKA H OR	oserving Locatio	on 0742
Number and type o	of piles driven/rei	noved? Vibratory	or impact?i	mpout () E)		
Time of Observation	Species ¹	Age Class ²	ldentifying Marks	Location (Level A or Level B zone, initial and closest distance to pile driving) ³	Direction of Travel	Behavior ⁴
First: 8 02 Last:	HASE	Adult	/	level &		Assirt 5 m
First: 9.02 Last: 9.02	HASE	Adult	/	Leyel B	110 =	1, 4 1 :3 - 2 -
First: 11 45 Last: 11 54	HASE	Aaut		Lerri R 2=Am	1-10	60.7.1.0 E. Cibio o
First: 13.04 Last: 13.57	HASE	Adw.t		Levol B ~ 254m	Inplue	Risting Paristo Dy Kromin & t. P. Shitoras taking 1 3617
First: Last:						
First:						
Last: First:						
Last:						
First:						
**Species Abbreviations: California Sea Lion = CASL Parific Harbor Seal = HASE Northern Elephant Seal = NOES Harbor Porpoise = HAPO **Doknown seal, sea lion = UNK P		'Species Age Classes: CASL = juvenile, subadult male, adult male HASE = juvenile, adult HAPO = calf, adult		³ Approximate distance from pile driving if visible from your location. If construction is not visible, record distance from observer. Indicate unit of measurement (meters, feet, etc.).		⁴ Stationary at surface, swimming (slow or fast), transiting, foraging, resting, looking around. Note if mammal appears to be attentive to project activities, or displays any behavior changes related to project activities, and describe the project activity. Note any human-caused disturbances such as recreational boating or helicopters.

Date 1-11-22	Start/End Time	0805 1151	MMO !	ENTER BURGLAN OB	serving Location	11313312434 12 12 1 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2
Weather (windspee	d and direction, B	Beaufort, vis., clo	ud cover, precip.)	159600 10000	20,000	and the second of the second o
Number and type of	piles driven/rem	noved? Vibratory	or impact?			
Time of Observation	Species ¹	Age Class ²	Identifying Marks	Location (Level A or Level B zone, initial and closest distance to pile driving) ³	Direction of Travel	Behavior ⁴
Pirst:				Personal Communication of the		
Last:						
First:			All the control of th			
Last:						
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Last:			*	x ²		
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First:						
Last:						
*Species Abbreviations: California Sea Lion = CASL Pacific Harbor Seal = HASE Northern Elephant Seal = NOES Harbor Porpoise = HAPO Unknown seal, sea lion = UNK-P		² Species Age Classes: CASL = juvenile, subadult male, adult male HASE = juvenile, adult HAPO = calf, adult		³ Approximate distance from pile driving if visible from your location. If construction is not visible, record distance from observer. Indicate unit of measurement (meters, feet, etc.).		⁴ Stationary at surface, swimming (slow or fast), transiting, foraging, resting, looking around. Note if mammal appears to be attentive to project activities, or displays any behavior changes related to project activities, and describe the project activity. Note any human-caused disturbances such as recreational boating or helicopters.
Unknown dolphin, porpoise = UNK-D						

Date 1/12/22 Weather (windspee	Start/End Time	7.50 / 15.	06 MMO Va	nessa ob	serving Locatio	n Pick2				
	mber and type of piles driven/removed? Vibratory or impact?									
Time of Observation	Species ¹	Age Class ²	Identifying Marks	Location (Level A or Level B zone, initial and closest distance to pile driving) ³	Direction of Travel	Behavior⁴				
ast: 12.09	HASE	Adult		Level B ~245m (nom pile		Logging then during down. resurtaining = 10min				
irst: 1304 .ast: 13:47	HASE	Adult		Level B		waying then diving down or 13:30 e thu time drifting NE				
First: Last:					110031	is a constant of the				
First:										
ast: First:										
ast: First:										
Last: First:										
Last:										
First: Last:										
*Species Abbreviations: California Sea Lion = CASL Pacific Harbor Seal = HASE Northern Elephant Seal = NOES Harbor Porpoise = HAPO Unknown seal, sea lion = UNK-P Unknown dolphin, porpoise = UNK-D		² Species Age Class CASL = juvenile, su male HASE = juvenile, a HAPO ≈ calf, adult	ubadult male, adult dult	³ Approximate distance from pile of from your location. If construction record distance from observer. In measurement (meters, feet, etc.).	is not visible, dicate unit of	⁴ Stationary at surface, swimming (slow or fast), transiting, foraging, resting, looking around. Note if mammal appears to be attentive to project activities, or displays any behavior changes related to project activities, and describe the project activity. Note any human-caused disturbances such as recreational boating or helicopters.				

Date 12 Jan 2022 Start/End Time 0754 1 1506 MM03 - ML	Observing Location PIER 7
Weather (windspeed and direction, Beaufort vis cloud cover precip) or head	WD=1, B=0, VIS=500 m 250/4ast 1/1/ - 0754
W31MpH, WD = 0, V1=0, V19 = 500 m (LOVO =	40%, Dev
Number and type of piles driven/removed? Vibratory or impact?	ACT PILES
	The state of the s

	T			Location (Level A or Level		
Time of			Identifying	B zone, initial and closest	Direction of	
Observation	Species ¹	Age Class ²	Marks	distance to pile driving) ³	Travel	Behavior⁴
First: 0818	Species	Age Class	IVIdIKS	11:000 0500	Havei	5/RF-120.51/4 - 9 11
010	HASE	A	NA	Laterta	1	March Dia 115 C
Last: 0819	11.00		, , , ,	145m 3520 A	The state of the s	WORK DID NOT START WHILL CE 3,
First: 1121	1.		,	310m 330° LEVEL		SUPFACED WHEN LAMINE WAS OFF
1100	HA SE	A	NA		N	DUR WHON HAMMER WANT ON)
Last: 1122			, , ,	315m 330 B		***
First: 1434	61.466	1	h1/	550 m 1300 LEVEL		SURFACED, SWAM, DOVE
Last: 1434	HASE	t	N/A	50m 338 B	NW	WHILE HAMMER LUAS ON
First:						
Last:						
First:						
				70.		
Last:					3.00	
First:					· ·	
Last:						
First:						
Last:					1	
First:	+	 				
1130.						
Last:	1 22 2 10 11 11					
¹ Species Abbreviati	ions:	² Species Age Clas		³ Approximate distance from pile of		⁴ Stationary at surface, swimming (slow or fast), transiting, foraging,
California Sea Lion = CASL Pacific Harbor Seal = HASE		The state of the s	ubadult male, adult	from your location. If construction		resting, looking around. Note if mammal appears to be attentive to
		male HASE = juvenile, a	adult	record distance from observer. In measurement (meters, feet, etc.)		project activities, or displays any behavior changes related to project
Northern Elephant		HAPO = calf, adul		measurement (meters, reet, etc.)	•	activities, and describe the project activity. Note any human-caused disturbances such as recreational boating or helicopters.
Harbor Porpoise = H						
Unknown seal, seal Unknown dolphin, p						
Unknown dolphin, p	JOI POISE = OHK-D	7				

IF YOU DETECT AN ANIMAL: CALL IT OUT ON RADIO USING YOUR MMO #. GIVE ANIMAL'S POSITION AND DIRECTION OF TRAVEL LEAD MONITOR - MARK OATES: 669-216-0341, "MM1" ON RADIO

Weather (windspeed and direction, Beaufort, vis., cloud cover, precip.) 1590 CC, slight hotely it as well as w

				Location (Level A or Level		Affilia in the second s
Time of			Identifying	B zone, initial and closest	Direction of	
Observation	Species ¹	Age Class ²	Marks	distance to pile driving) ³	Travel	Behavior ⁴
first: 1825				Level B		mid - channel of end of fire ?
	HASE	adult		270 m francrane	EAST	cousing " simpais" it to see it is not from your
ast:				bearing 66°		I note: however or want to be a const.
irst: 0934				Level B		mid-channel blux pless 142
	HASE	A		375 W		and con bridge
ast: 09.45				bearing 68°		1
irst: 09.45				Level B		mid-channel off piers 3-4
*	HASE	A		216	5	crusing a supoce four goods
ast:	T. N. J. L.			bearing 38°		
First 1030	1		brown			Cruising @ sunface, looking around.
.5 7	HASE	A	w/spots	300m	5	dove from view (ham men off)
ast:	1		0/3000	bearing 58°		No w
ast:				trevel B		@ surface 30 sec , bloggers up . oggirg.
*	MASE	A		173 m		dove from view
* 125		,		bearing 48°		(wm3 also remorded)
irst: 120			possibly	0.00		and of ther 3 refusing the souled
	HASE	A	same dring	223 m	East	they dove from view
Last:			as 1124	bearing 70°		
First: 1421				Level B	focisy	mid channel blum west and of Lin 16
¥	HASE	A		400m	4 2	and marina
ast:				bearing 330°	5	& surjace 16 sec dove line in
First:						
.ast:						
Species Abbreviations:		'Species Age Cla		Approximate distance from pile		*Stationary at surface, swimming (slow or fast), transiting, foraging,
California Sea Lion = CASL Pacific Harbor Seal = HASE		CASL = juvenile, male	subadult male, adult	from your location. If construction record distance from observer, in	and the contract of the contract of	resting, looking around. Note if mammal appears to be attentive to project activities, or displays any behavior changes related to project
		HASE = juvenile,	adult	measurement (meters, feet, etc.)		activities, and describe the project activity. Note any human-caused
Northern Elephant		HAPO = calf, adu				disturbances such as recreational boating or helicopters.
Harbor Porpoise = F						
Unknown seal, seal	A SECTION ASSESSMENT AND ASSESSMENT ASSESSME					
Unknown dolphin, j	DOLDOINS = CHAY-D			Annual to the second se		

IF YOU DETECT AN ANIMAL: CALL IT OUT ON RADIO USING YOUR MMO #. GIVE ANIMAL'S POSITION AND DIRECTION OF TRAVEL. LEAD MONITOR - MARK OATES: 669-216-0341, "MM1" ON RADIO

Date 1/13/22 Weather (windspee	Start/End Time ed and direction,	8:11 / 15:0 Beaufort, vis., clo	MMO <u>Jan</u> ud cover, precip.)		serving Location	n pier 7.
lumber and type o	of piles driven/rer	moved? Vibratory	or impact?\\/	ipact		
Time of Observation	Species ¹	Age Class ²	Identifying Marks	Location (Level A or Level B zone, initial and closest distance to pile driving) ³	Direction of Travel	Behavior⁴
irst: 11:45 ast: 11:55	HASE	Adult		Level B ~150m	Stationary @surface	dove back in same out of here
rst: 14:10 est: 14.14	HASE	Adult		Leve18 ~185M	Suiface. Stationary	lockling, prosecut +1 ppers set 3 dos
rst: (4.75 ast: 14.26	HASE	Adwt		16161P	west	Swimming
irst: 14:37 ast: 14:38	HASE	Adult		Level B ~190m	Suitaio Stationary	logging & anna
irst: ast:					1	
irst:				,		
irst:				5		
rst:						
¹ Species Abbreviati California Sea Lion = Pacific Harbor Seal	= CASL = HASE	² Species Age Class CASL = juvenile, s male HASE = juvenile, s	ubadult male, adult	³ Approximate distance from pile of from your location. If construction record distance from observer. In measurement (meters, feet, etc.)	n is not visible, dicate unit of	⁴ Stationary at surface, swimming (slow or fast), transiting, foraging, resting, looking around. Note if mammal appears to be attentive to project activities, or displays any behavior changes related to project activities, and describe the project activity. Note any human-caused

disturbances such as recreational boating or helicopters.

Northern Elephant Seal = NOES

Harbor Porpoise = HAPO Unknown seal, sea lion = UNK-P Unknown dolphin, porpoise = UNK-D HAPO = calf, adult

Number and type of piles driven/removed? Vibratory or impact?									
Time of Observation	Species ¹	Age Class ²	Identifying Marks	Location (Level A or Level B zone, initial and closest distance to pile driving) ³	Direction of Travel	Behavior⁴			
irst ;147 ast: 1147	HASE	ADIX	Bleic	Level B, 340m	E, 90°	Sciencing of Justice Cloud			
ast: 15.00	HASE	Ada 4	Black	lex1 B, 180 m	5, 180°	Swimming stown in whatty to Tireflans, Turned around and Swam away from Importing, guiting			
irst: by both Monitors ast:						of old to			
First:									
ast: First:									
ant:									
First:									
ast:		and the second							
ast: First:									
inst.									
aut:	040								
*Species Abbreviations: California Sea Lon * CAC. Pacific Harton Seal * HASE Northern Elephant Seal * NOES Harbon Porgoine * HAPO		*Species Age Classes: CASL × paveride, subadult male, adult male HAS « paveride, adult HAPC) « calf, adult		*Approximate distance from pile driving if visible from your location. If construction is not visible, record distance from observer. Indicate unit of measurement (meters, feet, etc.).		*Stationary at surface, swimming (slow or fast), transiting, foraging, resting, looking around. Note if mammal appears to be attentive to project activities, or displays any behavior changes related to project activities, and describe the project activity. Note any human-caused disturbances such as recreational boating or helicopters.			

IF YOU DETECT AN ANIMAL: CALL IT OUT ON RADIO USING YOUR MMO #. GIVE ANIMAL'S POSITION AND DIRECTION OF TRAVEL.

1512
LEAD MONITOR - MARK OATES: 669-216-0341, "MM1" ON RADIO

WLL	The state of the s	3 210 0341, 111111 011 114010	
Date 14 141 200 Start/End Time 0746 1102	-1 MMO 2- IML	Observing Location PIER Z	100
Weather (windspeed and direction, Beaufort, vis., cloud	ud cover, precip.) W5=0, W1) =	N/A , B=0, VIS = 400 m, GLARE	TOTHE BUT WATL TOP
0 10 CLUB, DRY = 0746 WS 2 1 mg H,	WD: /NA B= 0 -1 40	96 (LUVA, DEN = 1621	
Number and type of piles driven/removed? Vibratory	or impact? 4 WIDE FRANKED	DAKES - IMALE	
		3	

		T				
Time of				Location (Level A or Level		
8	6		Identifying	B zone, initial and closest	Direction of	
Observation	Species ¹	Age Class ²	Marks	distance to pile driving) ³	Travel	Behavior⁴
irst:1350	HASE	n	NA	LELEB B	\	SURFACED, SWAM, DOVE
ast: 1352	TINE	A	1 /A	650 m 45°	E	MAY TE SAME ANIMAL MMOS OSE
	-	-				
irst: 1447	HASE	A	NA	LEVEL BOO	N = 1	SURFACED, RESTED, DOVE
ast: 1453	HASE	A	1	200m 600	W	MMO 3 DESTO STIME IND. 1 -7E
irst: 1507		10 aug	**Adaption	To the second se	5	SUPPLETO RESTED . COVER 2 THE HIDIV RETURNED EAST FREE WHORE
	1 1	1	1	150 m 50		INDÍV PETRO EN ENST TOPE
ast: 1514	~ ~			350m 50°	NE	IF WAS FORDS OUT FIND
irst:						
ast:						
irst:						
.ast:						
irst:						
ast:						
irst:						
art.						
ast: First:	-	+				<u> </u>
1131.						
.ast:						
¹ Species Abbreviati	ions:	² Species Age Clas		³ Approximate distance from pile	-	⁴ Stationary at surface, swimming (slow or fast), transiting, foraging,
California Sea Lion :			ubadult male, adult	from your location. If construction record distance from observer. In	out of the second secon	resting, looking around. Note if mammal appears to be attentive to
Pacific Harbor Seal		male HASE = juvenile, a	adult	measurement (meters, feet, etc.)		project activities, or displays any behavior changes related to project activities, and describe the project activity. Note any human-caused
Northern Elephant		HAPO = calf, adu		installation (meters) rect, etc.)		disturbances such as recreational boating or helicopters.
Harbor Porpoise = F						Access of a communication material additional and distinction of distinct addition of the second addition of the second additional a
Unknown seal, sea						
Unknown dolphin, j	porpoise = UNK-D					

SAME HAS

Date 1 18 202	Start/End Time	0,751,	MMO H	3 Jured Martin	bserving Location	on Visit 2				
Weather (windspee	d and direction, B	eaufort, vis., clo	ud cover, precip.)	Amen from East	17,8.	on Open 2				
lumber and type of piles driven/removed? Vibratory or impact?										
Time of Observation	Species ¹	Age Class ²	Identifying Marks	Location (Level A or Level B zone, initial and closest distance to pile driving) ³	Direction of Travel	Behavior ⁴				
First: C934 Last: 075 ¹³	HASE	Adult	Black Spots Ear boles	Level B, 300m	1	Behavior ^a				
First: 0830 Last: 0832	CASL	Adult	For Php,	Level B, 360m	1103.7%	Some in the things				
First:										
.ast:										
First:										
Last:										
First:										
Last:										
First:										
Last:										
First:										
Last:										
First:										
Last:					and the second s					
¹ Species Abbreviation	ons:	² Species Age Class	3 m	⁸ Approximate distance from pile di		Stationary at surface, swimming (slow or fast), transiting, foraging,				
California Sea Lion =		CASL = juvenile, su male	baduit male, adult	from your location. If construction record distance from observer. Ind		resting, looking around. Note if mammal appears to be attentive to project activities, or displays any behavior changes related to project.				
Pacific Harbor Seal =		HASE = juvenile, ad	fult	measurement (meters, feet, etc.).	model unit of	activities, and describe the project activity. Note any human-caused				
Northern Elephant S		HAPO = calf, adult		The state of the s		disturbances such as recreational boating or helicopters.				
Harbor Porpoise = H. Unknown seal, sea li										
Unknown seal, sea lion = UNK-P Unknown dolphin, porpoise = UNK-D										

Date <u> 18 22</u> Weather (windspee	Start/End Time ed and direction,	Beaufort, vis., clo	MMO 10 (resia ob	serving Location	n_Pier 7			
lumber and type of piles driven/removed? Vibratory or impact?									
Time of Observation	Species ¹	Age Class ²	Identifying Marks	Location (Level A or Level B zone, initial and closest distance to pile driving) ³	Direction of Travel	Behavior⁴			
First: 8.05	HASE	fault		Level B the vel A	Suitace	Surfaced & dore Grove B			
Last: 9.12		×2		~390 m & 121m	westward	9:12 - @ 16 01 + zone			
First: 8.28	HASE	Adult		Level B	West	summing slow.			
Last: 8.28		1,000		~290m		MMO 1 SIGNED FORINGE			
First:						,			
Last:									
First:	15				9				
Last:									
First:									
Last:									
First:									
Last:									
First:									
Last:									
First:									
Last:									
¹ Species Abbreviation California Sea Lion = Pacific Harbor Seal = Northern Elephant Se	CASL HASE	male HASE = juvenile, a	ibadult male, adult dult	³ Approximate distance from pile of from your location. If construction record distance from observer. In measurement (meters, feet, etc.).	is not visible, dicate unit of	4Stationary at surface, swimming (slow or fast), transiting, foraging, resting, looking around. Note if mammal appears to be attentive to project activities, or displays any behavior changes related to project activities, and describe the project activity. Note any human-caused			
Northern Elephant Seal = NOES Harbor Porpoise = HAPO hknown seal, sea lion = UNK-P hyn dolphin, porpoise = UNK-D		HAPO = calf, adult				disturbances such as recreational boating or helicopters.			

Date 1/31/22	_Start/End Time	0745/120	№ ммо	Ob	serving Location	Pire 1			
Weather (windspeed	d and direction, B	eaufort, vis., clo	ud cover, precip.)						
umber and type of piles driven/removed? Vibratory or impact? 3 impact? 4 MIVCH									
Time of Observation	Species ¹	Age Class ²	Identifying Marks	Location (Level A or Level B zone, initial and closest distance to pile driving) ³	Direction of Travel	Behavior ⁴			
First:									
Last:									
First:									
Last:									
First:									
Last:						**			
First:									
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First:				A STATE OF THE STA					
Last:									
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Last:	2								
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**Ispecies Abbreviations: California Sea Lion = CASL. Pacific Harbor Seal = HASE. Northern Elephant Seal = NOES. Harbor Porpoise = HAPO. Unknown seal, sea lion = UNK-P. Unknown dolphin, porpoise = UNK-D.		² Species Age Classes: CASL = juvenile, subadult male, adult male HASE = juvenile, adult HAPO = calf, adult		⁴ Approximate distance from pile driving if visible from your location. If construction is not visible, record distance from observer. Indicate unit of measurement (meters, feet, etc.).		4Stationary at surface, swimming (slow or fast), transiting, foraging, resting, looking around. Note if mammal appears to be attentive to project activities, or displays any behavior changes related to project activities, and describe the project activity. Note any human-caused disturbances such as recreational boating or helicopters.			

Weather (windspec										
Number and type o	Number and type of piles driven/removed? Vibratory or impact?									
Time of Observation	Species ¹	Age Class ^z	Identifying Marks	Location (Level A or Level B zone, initial and closest distance to pile driving) ³	Direction of Travel	Behavior⁴				
First: 7. しる ー Last: かつ子	HASE	Aduet		Level A ~ 137m	Surface	3 ST 3000 - NEED A				
First: 805	HASE	odult		Level A ~137m	Surface	Summing 1 d. Ma a frev 1 seen together w/ HASE above.				
First: 9 32 Last: 9:32	HASE	adult		Level B ~ 195m	West	Slowly su mm ro.				
First: 10:44 Last: 10:50	HASE	adult		Level B~ 374m	South	Sionly surming				
First:				*						
Last:										
First:										
Last:		1								
First:										
Last:										
First:										
Last:										
² Species Abbreviations: California Sea Lion = CASL Pacific Harbor Seal = HASE Northern Elephant Seal = NOES		² Species Age Classes: CASL = juvenile, subadult male, adult male HASE = juvenile, adult HAPO = calf, adult		³ Approximate distance from pile driving if visible from your location. If construction is not visible, record distance from observer. Indicate unit of measurement (meters, feet, etc.).		'Stationary at surface, swimming (slow or fast), transiting, foraging, resting, looking around. Note if mammal appears to be attentive to project activities, or displays any behavior changes related to project activities, and describe the project activity. Note any human-caused disturbances such as recreational boating or helicopters.				
IN ELANMONDA NASIONAMONONI, NESTITAMIN SONO ECONO				measurement (meters, reet, etc.).						