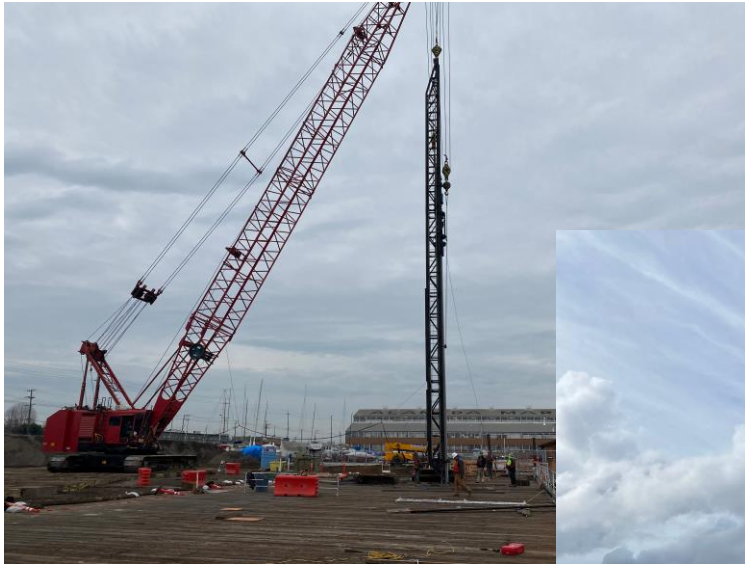


# Alameda Marina Shoreline Improvement Project- Marine Mammal Monitoring 2021-2022 Annual Report



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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 truncatus*), 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.**

Pile Description	Maximum Piles Installed per Day	Level A/PTS Shutdown Zone		Level B (120 dB RMS) Behavioral Monitoring Zone for All Species
		Porpoise (HF)	Dolphin (MF), Phocid (PW), & Otariid (OW)	
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.**

Pile Description	Attenuation	Number Piles Installed per Day	Level A/PTS Shutdown Zone			Level B (160 dB RMS) Behavioral Monitoring Zone for All Species
			Porpoise (HF)	Dolphin (MF) & Otariid (OW)	Phocid (PW)	
36-in Steel Pipe Pile	Attenuated	1	260	10	120	541
		2	400	25	190	
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

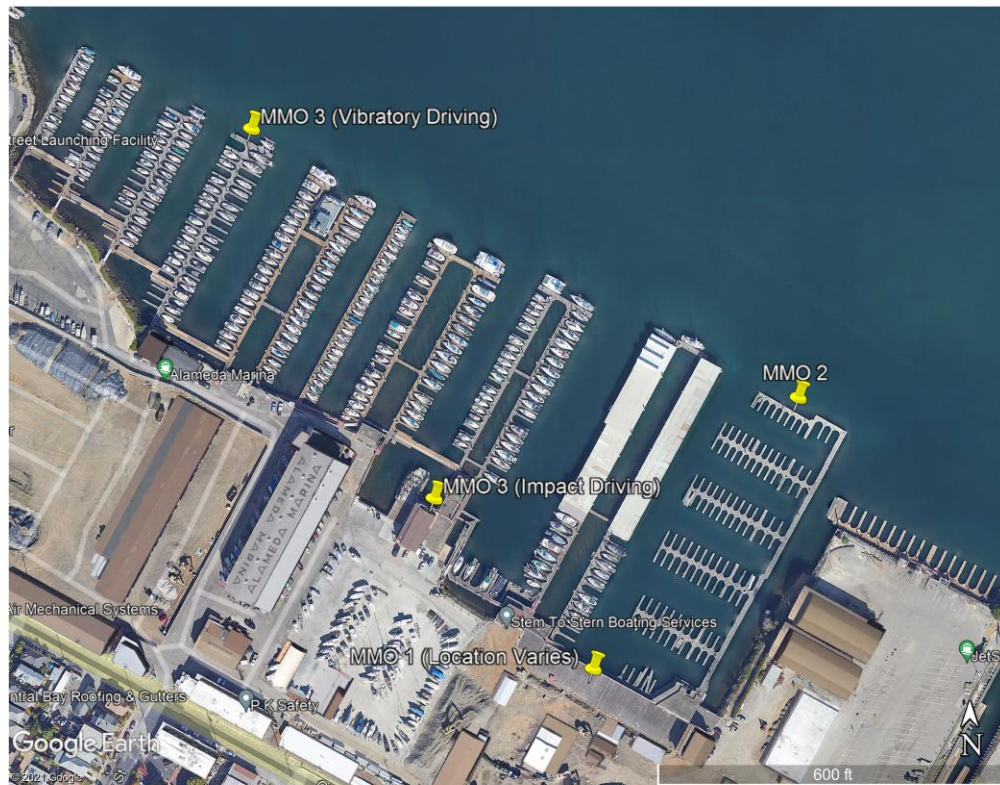
Impact driving and vibratory driving were monitored by three MMOs. The lead observer (MMO 1) was stationed at the active pile driving rig or at the best vantage point practicable to monitor the MMEZs for marine mammals and implement shutdown and delay procedures when applicable through communication 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 an 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.

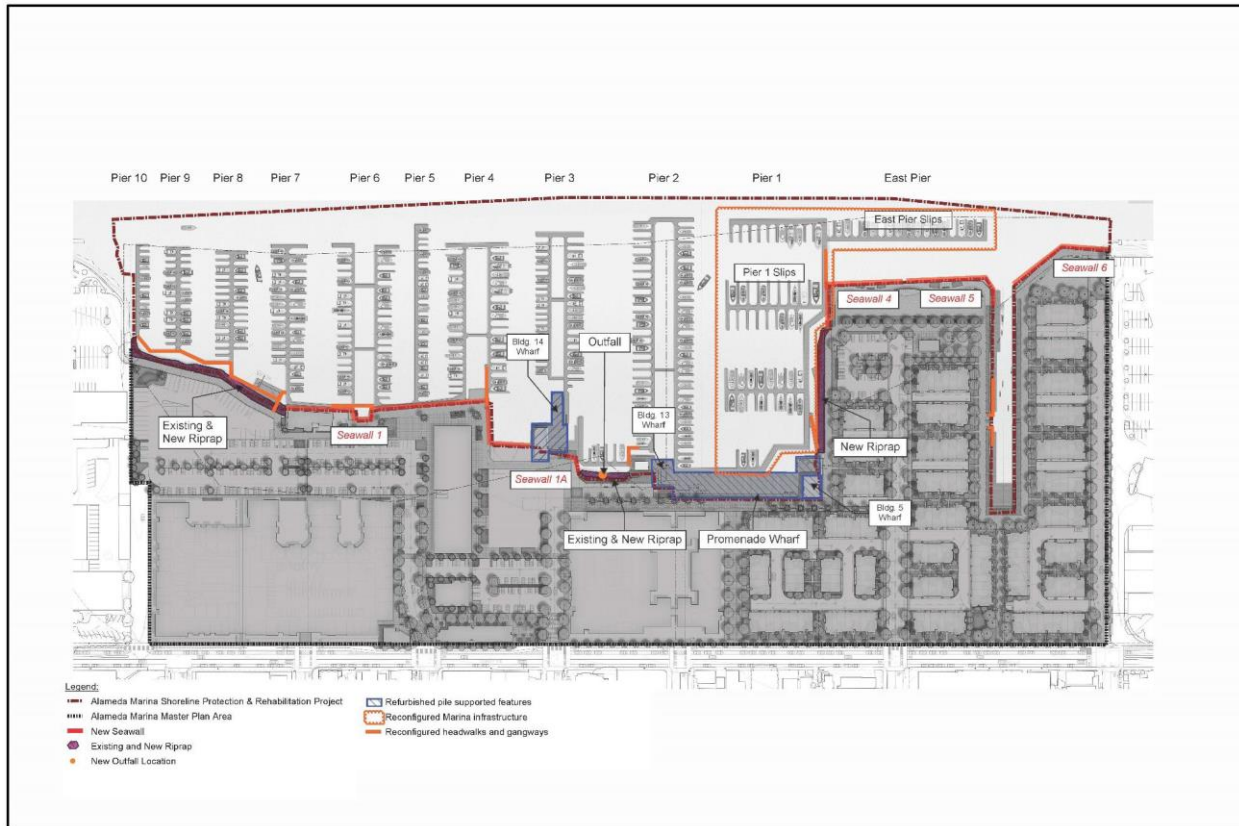


A third MMO (MMO 3) was used to assist with observation of the Level B MMZs for vibratory driving and for supplemental MMEZ and MMZ coverage during impact driving. During vibratory driving, MMO 3 was positioned at the terminus of pier 7 on a platform approximately .3 m above water level, with an unobstructed 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.**

<b>Species</b>	<b>No Driving or outside of MMZ</b>	<b>Vibratory Pipe Pile Install</b>	<b>Impact Wide- Flange Beams Install</b>	<b>Vibratory Wide- Flange Beams Install</b>	<b>Impact 16- inch Concrete Install</b>	<b>Impact 24- inch Concrete Install</b>	<b>Total Observed</b>	<b>Level B Take Observed</b>
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
8/6/2021	07:30	17:17	Impact	Concrete 16-inch	4	09:41	10:03	Promenade Wharf
						12:16	12:53	
						14:35	15:03	
						16:15	16:47	
8/9/2021	07:30	16:31	Impact	Concrete 16-inch	4	10:52	11:05	Promenade Wharf
						11:48	12:05	
						14:31	14:43	
						15:40	16:01	
8/10/2021	07:27	13:34	Impact	Concrete 16-inch	1	10:53	11:00	Promenade Wharf
8/11/2021	08:49	13:09	Impact	Concrete 16-inch	2	10:22	10:55	Promenade Wharf
						11:55	12:39	
12/1/2021	07:35	10:35	Vibratory	30" Steel Pipe Pile	1	08:59	10:05	New Boat Hoist / Elevator
12/7/2021	07:41	14:42	Impact	Concrete 24-inch	3	09:05	09:43	New Boat Hoist / Elevator
						11:06	11:26	
						13:48	14:12	
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)	09:27 (Vib)	Seawall 1
						11:22(Vib)	11:43 (Vib)	
						13:07 (Vib)	13:27 (Vib)	
						14:18 (Imp)	14:31 (Imp)	
						14:35 (Imp)	14:43 (Imp)	
						14:59 (Imp)	15:13 (Imp)	
						15:24 (Imp)	15:30 (Imp)	

\*\*\*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
12/11/2021	09:47	11:52	Impact	Wide Flange Beam	4	10:16	10:24	Seawall 1
						10:39	10:47	
						10:59	11:04	
						11:12	11:22	
12/15/2021	07:45	16:10	Impact	Wide Flange Beam	5	08:57	09:17	Seawall 1
						09:45	10:11	
						10:43	11:15	
						14:25	14:43	
12/17/2021	07:38	15:58	Impact	Wide Flange Beam	6	15:26	15:40	Seawall 1
						08:34	08:44	
						09:20	09:27	
						09:48	10:15	
						10:42	10:49	
						10:55	10:58	
						11:03	11:07	
						11:12	11:15	
						11:20	11:36	
12/20/2021	07:38	14:13	Impact	Wide Flange Beam	4	13:55	14:07	Seawall 1
						14:33	14:44	
						15:14	15:25	
						08:30	08:40	
						10:00	10:11	
						10:28	10:38	
						11:06	11:15	
						11:33	11:40	
						11:42	11:48	
						11:51	11:56	
						13:01	13:08	
						13:13	13:19	

**Table 7 - In-water pile driving activity during each monitoring day pt. 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	07:38	14:13	Impact	Wide Flange Beam	4	13:22	13:33	Seawall 1
						13:35	13:43	
12/21/2021	07:38	11:52	Impact	Wide Flange Beam	4	08:31	08:41	Seawall 1
						08:59	09:09	
						09:43	09:54	
						10:13	10:22	
						10:42	10:49	
						10:55	11:00	
						11:05	11:09	
1/3/2022	07:45	14:20	Impact	Wide Flange Beam	5	11:17	11:22	Seawall 1
						08:32	08:50	
						09:31	09:42	
						10:08	10:17	
						10:36	10:46	
						11:19	11:29	
						11:45	11:50	
						11:56	12:03	
						13:19	13:19	
						13:22	13:30	
1/5/2022	07:54	14:29	Impact	Wide Flange Beam	4	13:45	13:50	Seawall 1
						08:44	08:53	
						09:26	09:37	
						10:16	10:28	
						11:08	11:29	
						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
1/6/2022	07:54	16:31	Impact	Wide Flange Beam	6	08:54	09:11	Seawall 1
						10:19	10:33	
						11:39	11:53	
						14:09	14:19	
						14:56	15:05	
						15:51	16:01	
1/10/2022	07:54	09:59	Impact	Wide Flange Beam	2	08:24	08:54	Seawall 1
						08:56	09:05	
						09:08	09:14	
						09:16	09:20	
						09:23	09:29	
1/11/2022	07:54	12:25	Impact	Wide Flange Beam	2	10:28	10:45	Seawall 1
						11:43	11:55	
1/5/2022	07:54	14:29	Impact	Wide Flange Beam	4	08:44	08:53	Seawall 1
						09:26	09:37	
						10:16	10:28	
						11:08	11:29	
						13:19	13:24	
						13:28	13:37	
						13:40	13:47	
						13:53	13:59	

**Table 9 - In-water pile driving activity during each monitoring day pt. 5**

Date	Monitoring Begin	Monitoring End	Vibratory or Impact Hammer	Pile Type	# of Piles driven	Pile driving start	Pile Driving stop	Pile Driving Location
1/12/2022	07:54	15:06	Impact	Wide Flange Beam	6	08:33	08:45	Seawall 1
						09:14	09:20	
						09:55	10:02	
						10:44	10:49	
						11:16	11:27	
						11:58	12:06	
						13:58	14:01	
						14:10	14:14	
						14:17	14:20	
						14:22	14:25	
						14:28	14:30	
						14:33	14:36	
1/13/2022	08:15	15:09	Impact	Wide Flange Beam	4	11:26	11:33	Seawall 1
						11:54	11:57	
						13:12	13:20	
						13:42	13:49	
						14:07	14:11	
						14:16	14:18	
						14:23	14:30	
						14:34	14:39	
1/14/2022	07:54	16:21	Impact	Wide Flange Beam	4	13:11	13:19	Seawall 1
						13:40	13:49	
						14:19	14:29	
						14:52	15:00	
						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 Beam	2	10:23	10:34	Seawall 1
						11:05	11:22	
1/26/2022	07:47	10:29	Impact	Wide Flange Beam	3	08:28	08:37	Seawall 1a
						09:18	09:29	
						09:48	09:59	
1/27/2022	07:46	09:42	Impact	Wide Flange Beam	0	08:34	08:44	Seawall 1a
						08:50	08:53	
						08:57	09:00	
						09:02	09:12	
1/28/2022	07:46	10:31	Impact	Wide Flange Beam	1	08:23	09:01	Seawall 1a
						09:05	09:08	
						09:12	09:16	
						09:22	09:28	
1/31/2022	07:46	11:14	Impact	Wide Flange Beam	3	09:53	10:01	Seawall 1a
						08:52	09:12	
						09:36	09:45	
						10:16	10:36	
						10:42	10:44	
2/2/2022	07:41	15:21	Impact	Wide Flange Beam	4	10:49	10:52	Seawall 1a
						10:56	11:01	
						11:37	11:48	
						13:09	13:19	
2/3/2022	07:41	15:21	Impact	Wide Flange Beam	1	13:40	13:58	Seawall 1a
						14:20	14:51	
						08:26	08:38	
						09:55	09:59	
						10:04	10:17	
						10:22	10:26	
						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	

**Table 12 - Marine Mammal Sightings grouped by monitoring day pt. 1**

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.
12/1/2021	08:58	08:58	California Sea Lion	Adult	Male	138	0	600	Transiting southeast
	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
12/7/2021	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
	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
12/9/2021	08:58	08:58	California Sea Lion	Adult	Male	138	0	600	Transiting southeast
	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
12/10/2021	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
	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
	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
12/15/2021	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)
	11:10	11:16	Harbor Seal	Adult	Unknown	90	5	170	Fast swimming in multiple directions
	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
12/17/2021	07:49	08:10	Harbor Seal	Adult	Unknown	310	0	150	Logging at surface and later swimming towards main channel
	10:33	10:33	California Sea Lion	Adult	Unknown	Unknown	0	300	
	10:37	11:12	Harbor Seal	Adult	Unknown	225	0	300	foraging
12/20/2021	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
	10:05	10:10	California Sea Lion	Adult	Unknown	270	5	250	Logging and swimming
	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
12/21/2021	07:49	07:49	Harbor Seal	Adult	Unknown	220	0	200	Slow swimming
	08:19	08:29	Harbor Seal	Adult	Unknown	190	0	170	Slow Swimming
	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
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. 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.



**Table 17 - Marine Mammal Sightings grouped by monitoring day pt. 6**

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
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	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
1/5/2022	08:16	08:16	Harbor Seal	Adult	Unknown	270	0	225	briefly surfaced
	08:26	08:26	Harbor Seal	Adult	Unknown	300	0	220	
	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

**Table 18 - Marine Mammal Sightings grouped by monitoring day pt. 7**

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
1/6/2022	08:14	08:14	Harbor Seal	Adult	Unknown	70	0	200	Lounging at surface then diving.
	08:24	08:35	Harbor Seal	Adult	Unknown	290	0	240	Swimming at surface and changing directions multiple times
	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
1/10/2022	07:54	08:00	Harbor Seal	Adult	Unknown	Unknown	0	224	Dove into water
	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
1/11/2022	08:02	08:02	Harbor Seal	Adult	Unknown	Unknown	0	200	Hauled out on Pier
	09:02	09:02	Harbor Seal	Juvenile	Unknown	270	0	250	Fast swimming
	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
1/12/2022	08:11	13:47	Harbor Seal	Adult	Unknown	Unknown	52	245	Foraging continuously during observation period.
	08:18	08:19	Harbor Seal	Adult	Unknown	0	0	140	Slow swimming
	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
1/13/2022	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
	11:24	11:55	Harbor Seal	Adult	Unknown	48	1	173	logging
	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
1/14/2022	11:47	11:47	Harbor Seal	Adult	Unknown	90	0	340	Slow swimming
	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
1/18/2022	07:54	07:54	Harbor Seal	Adult	Unknown	90	0	300	Slow swimming
	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
1/31/2022	07:53	08:07	Harbor Seal	Adult	Unknown	Unknown	0	137	Slow swimming
	08:05	08:07	Harbor Seal	Adult	Unknown	Unknown	0	137	Slow swimming
	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

Marine Mammal Observations - Alameda Marina Shoreline Improvement Project

Date 6/6/21 Start/End Time 0730/1717 MMO Mark Oates Observing Location Promenade Wharf  
 Weather (windspeed and direction, Beaufort, vis., cloud cover, precip.) 25 mph, 100% vis, Clear

Number and type of piles driven/removed? Vibratory or impact? Impact 16-inch concrete 1111

Time of Observation	Species <sup>1</sup>	Age Class <sup>2</sup>	Identifying Marks	Location (Level A or Level B zone, initial and closest distance to pile driving) <sup>3</sup>	Direction of Travel	Behavior <sup>4</sup>
First:						
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<sup>1</sup> 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		<sup>2</sup> Species Age Classes: CASL = juvenile, subadult male, adult male HASE = juvenile, adult HAPO = calf, adult		<sup>3</sup> 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.).		<sup>4</sup> 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.

Marine Mammal Observations - Alameda Marina Shoreline Improvement Project

Date 8/9/21 Start/End Time 0730/1631 MMO Mark Oates Observing Location Promenade Wharf  
 Weather (windspeed and direction, Beaufort, vis., cloud cover, precip.) 05 mph, Clear, 0-1 Bear

Number and type of piles driven/removed? Vibratory or impact? Impact 16-inch concrete 1111

Time of Observation	Species <sup>1</sup>	Age Class <sup>2</sup>	Identifying Marks	Location (Level A or Level B zone, initial and closest distance to pile driving) <sup>3</sup>	Direction of Travel	Behavior <sup>4</sup>
First: <u>0730</u> Last: <u>0045</u>	<u>HASE</u>	<u>Adult</u>	<u>NA</u>	<u>Level B</u>	<u>UNK</u>	<u>Resting on Pier 1 dock. Dove during driving in Level B</u>
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<sup>1</sup> 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		<sup>2</sup> Species Age Classes: CASL = juvenile, subadult male, adult male HASE = juvenile, adult HAPO = calf, adult		<sup>3</sup> 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.).		<sup>4</sup> 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.

## Marine Mammal Observations - Alameda Marina Shoreline Improvement Project

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 Dec 2021 Start/End Time 0835 / 1035 MMO 1ML Observing Location 7307

Weather (windspeed and direction, Beaufort, vis., cloud cover, precip.)  $\bar{x} = 0$ ,  $U_{max} = 0\%$ ,  $N = 12500$ ,  $\sigma = 9.25$

Number and type of piles driven/removed? Vibratory or impact? 1 Pile vibratory

[illegible]



# Marine Mammal Observations - Alameda Marina Shoreline Improvement Project

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 12/1/21 Start/End Time 07:34, 10:35 MMO 2 Observing Location Box 1  
 Weather (windspeed and direction, Beaufort, vis., cloud cover, precip.) Haze clear sun 1 mi. visibility, 60°F  
 Number and type of piles driven/removed? Vibratory or impact? 1 vibratory

Time of Observation	Species <sup>1</sup>	Age Class <sup>2</sup>	Identifying Marks	Location (Level A or Level B zone, initial and closest distance to pile driving) <sup>3</sup>	Direction of Travel	Behavior <sup>4</sup>
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## Marine Mammal Observations - Alameda Marina Shoreline Improvement Project

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 12/7/21 Start/End Time 07:41 / 14:42 MMO

### Observing Location

Weather (windspeed and direction, Beaufort, vis., cloud cover, precip.)

3 Observing Location Field 7  
5 mph SW winds, cloudy, 52°F, 7 mi visibility

Number and type of piles driven/removed? Vibratory or impact? 3 driven, impact

[illegible]



Marine Mammal Observations - Alameda Marina Shoreline Improvement Project

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 12/7/21 Start/End Time 0746 / 1442 MMO N. SCARBOROUGH Observing Location Pier 2 Alameda Marina  
 Weather (windspeed and direction, Beaufort, vis., cloud cover, precip.) Slight breeze, calm, 100% cloud cover,  
Beaufort 1, and visibility, 2.1 miles  
 Number and type of piles driven/removed? Vibratory or impact? 0

Time of Observation	Species <sup>1</sup>	Age Class <sup>2</sup>	Identifying Marks	Location (Level A or Level B zone, initial and closest distance to pile driving) <sup>3</sup>	Direction of Travel	Behavior <sup>4</sup>
First: 0802 Last:	HASE	adult	spotted	Level B end of pier 3, 10 meters off pier	East Bearing 88°	surfaced in main channel, swimming East, after 10 sec dove from view
First: 0822 Last: 0833	HASE	"		just outside Level B approx 50m off pier 1	West: Bearing 92°	mid channel - at surface heading west dove from view (0834 1st hammer blow)
First: 0825 Last:	"	"		mid-channel off pier 2	West bearing 84°	hammer not currently on - HASE cruising @ surface 10-15 sec, dove
First: 0849 Last:	(2) HASE			directly off pier 2 approx 1/2 way btwn pier 2, C61 Island	facing West bearing 74°	@ surface 10 sec, dove
First: 0854 Last: 0859	same as above	adult		near C61 ship, 150 close to island in Level B zone	West bearing 42°	cruising slowly, diving - last sighting off pier 2 near lag, dove
First: 0949 0951 Last: 0955	HASE	"		outside level B off pier 1 to East	moving East	diving & surfacing & seems to be moving East away from zones
First: 1015, 1018 Last:	"	"	dark grey-brown	just outside zone B near C61 bridge	heading west bearing 55°	currently no hammer
First: 1050 Last:	HASE			10m off end of pier 3 in level B	facing North bearing 80°	cruising @ surface, dove from view
<sup>1</sup> 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		<sup>2</sup> Species Age Classes: CASL = juvenile, subadult male, adult male HASE = juvenile, adult HAPO = calf, adult		<sup>3</sup> 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.).		<sup>4</sup> 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.

(see back)

Marine Mammal Observations - Alameda Marina Shoreline Improvement Project

Date 12/8/21 Start/End Time 07:41/09:58 MMO 2 Observing Location Pier 7  
 Weather (windspeed and direction, Beaufort, vis., cloud cover, precip.) 2 mph NW winds, 53°F, cloudy, 6 mi visibility, 100% cle

Number and type of piles driven/removed? Vibratory or impact? 1 pile driven impact

Time of Observation	Species <sup>1</sup>	Age Class <sup>2</sup>	Identifying Marks	Location (Level A or Level B zone, initial and closest distance to pile driving) <sup>3</sup>	Direction of Travel	Behavior <sup>4</sup>
First: <u>0830</u> Last: <u>0900</u>	<u>HASE</u>	<del>CASL</del> <u>subadult male</u>	<u>Black spots</u>	<u>Level B, 100 yds N of Pier 7</u>	<u>W</u>	<u>Swimming slowly at surface.</u>
First:						
Last:						
First:						
Last:						
First:						
Last:						
First:						
Last:						
First:						
Last:						
First:						
Last:						
<sup>1</sup> 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		<sup>2</sup> Species Age Classes: CASL = juvenile, subadult male, adult male HASE = juvenile, adult HAPO = calf, adult		<sup>3</sup> 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.).		<sup>4</sup> 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.

Marine Mammal Observations - Alameda Marina Shoreline Improvement Project

IF YOU DETECT AN ANIMAL, CALL IT OUT ON RADIO USING YOUR NAME & GIVE ANIMAL'S POSITION AND DIRECTION OF TRAVEL  
LEAD MONITOR - MARK DATES 609-216-0344 'NAME' ON RADIO

Date 12/2/21 Start/End Time 0745/12:30 MMO N. SHORELINE Observing Location Alameda Marina  
Weather (windspeed and direction, Beaufort, vis., cloud cover, precip.) 20% cloud cover, clear, 10-15 mph wind

Number and type of piles driven/removed? Vibratory or impact? none

Time of Observation	Species <sup>1</sup>	Age Class <sup>2</sup>	Identifying Marks	Location (Level A or Level B zone, initial and closest distance to pile driving) <sup>3</sup>	Direction of Travel	Behavior <sup>4</sup>
First: 0848	HASE	Adult		Level B mid-channel off end of pier 5	West	
Last:				Bearing 80°		
First: 1000	HASE			35 meters off pier 7 mid channel	-	at surface resting, 50' away from view
Last:				bearing 40°		
First: 1345	?			mid channel - off pier 8 or 9	East	very close sighting, 10' away from view
Last:				bearing 344°		
First:						
Last:						
First:						
Last:						
First:						
Last:						
First:						
Last:						
First:						
Last:						
<sup>1</sup> 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		<sup>2</sup> Species Age Classes: CASL = juvenile, subadult male, adult male HASE = juvenile, adult HAPO = calf, adult		<sup>3</sup> 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.).		<sup>4</sup> 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.



Marine Mammal Observations - Alameda Marina Shoreline Improvement Project

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 12/9/21 Start/End Time 07:41/15:44 MMO 2 Observing Location Pier 2  
 Weather (windspeed and direction, Beaufort, vis., cloud cover, precip.) 52°F, partly cloudy, 12 mph winds SE, 9 mi visibility, 40% cloud cover

Number and type of piles driven/removed? Vibratory or impact? 1 driven vibratory

Time of Observation	Species <sup>1</sup>	Age Class <sup>2</sup>	Identifying Marks	Location (Level A or Level B zone, initial and closest distance to pile driving) <sup>3</sup>	Direction of Travel	Behavior <sup>4</sup>
First:						
Last:						
First:						
Last:						
First:						
Last:						
First:						
Last:						
First:						
Last:						
First:						
Last:						
First:						
Last:						
First:						
Last:						
<sup>1</sup> 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		<sup>2</sup> Species Age Classes: CASL = juvenile, subadult male, adult male HASE = juvenile, adult HAPO = calf, adult		<sup>3</sup> 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.).		<sup>4</sup> 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.

Marine Mammal Observations - Alameda Marina Shoreline Improvement Project

Date 12/10/21 Start/End Time 08:43 MMO Station 1 Observing Location With crane  
 Weather (windspeed and direction, Beaufort, vis., cloud cover, precip.) 44°F, clear & sunny, 0-5 mph SW, 0% cloud cover, 1 Beaufort, 9 mi visibility, 0 precip.

Number and type of piles driven/removed? Vibratory or impact?

(Wile Pile 1 ST 07:21, stopped 09:27, Start 09:38 ET 10:51 Pile 2 ST 11:22, ET 11:43 Pile 3 ST 13:07, ET 13:21

Time of Observation	Species <sup>1</sup>	Age Class <sup>2</sup>	Identifying Marks	Location (Level A or Level B zone, initial and closest distance to pile driving) <sup>3</sup>	Direction of Travel	Behavior <sup>4</sup>
First: 9:04 Last: 9:15	<del>CASL</del> HASE	juvenile	spots, dog snout	Level B, 30 yds NE of pile/crane	SE	Swimming fast at surface, chasing/playing with injured bird, (observed by all monitors at locations within marina)
First:						
Last:						
First:						Impact Pile 1 1418 on, 1431 off
Last:						
First:						Pile 2 1435 on, 1443 off
Last:						
First:						Pile 3 1459 on, 1513 off
Last:						
First:						Pile 4 1524 on, 1530 off
Last:						
First:						
Last:						
First:						
Last:						
<sup>1</sup> 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		<sup>2</sup> Species Age Classes: CASL = juvenile, subadult male, adult male HASE = juvenile, adult HAPO = calf, adult		<sup>3</sup> 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.).		<sup>4</sup> 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.



Marine Mammal Observations - Alameda Marina Shoreline Improvement Project

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 / 0816 MMO Station 2 (JM) Observing Location Pier 2  
Weather (windspeed and direction, Beaufort, vis., cloud cover, precip.) E 3 mph, 1, clear, 11%, NO precip

Number and type of piles driven/removed? Vibratory or impact? 3 Wide flange H pile vibrated, 4 wide flange Bents (H pile) impacted

Time of Observation	Species <sup>1</sup>	Age Class <sup>2</sup>	Identifying Marks	Location (Level A or Level B zone, initial and closest distance to pile driving) <sup>3</sup>	Direction of Travel	Behavior <sup>4</sup>
First: 0751 Last: 0755	HASE	HASE Adult	Black spots	Level B, 170m no driving occurred during observation	<del>ESE</del> to NE, 40°	Traveling East, swimming slowly
First: 0823 Last: <del>0816</del> 0916	Hase	Adult	Black spots, dark coat	level B, 300m; no driving occurred during observation	NE 30° then SW	Swimming fast, in many directions, Actively Hunting injured bird
First: 0927 Last: 1	HASE	Adult	Black spots, light coat	level B, 30M from MM2	NA	Resting on pier 1, looking around as boats & helicopters passed, looking around when impacting began, <del>then</del>
First: 1345 Last: 1352	HASE	Adult	Black spots	level B, 120M from MM2	NE, 20° then NW, 330°	Traveling NE, swimming slowly
First: 1531 Last: 1532	HASE	Adult	Black spots Dog nose	level B, 30M from MM2	SE, 190°	Swimming slow with head above water
First: Last:						
First: Last:						
First: Last:						
First: Last:						
<sup>1</sup> 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			<sup>2</sup> Species Age Classes: CASL = juvenile, subadult male, adult male HASE = juvenile, adult HAPO = calf, adult		<sup>3</sup> 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.).	
					<sup>4</sup> 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.	

Marine Mammal Observations - Alameda Marina Shoreline Improvement Project

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

10 DEC 2021

Date 1038 Start/End Time 1038 / MMO 1ML/MMO 3 Observing Location PIER 7  
 Weather (windspeed and direction, Beaufort, vis., cloud cover, precip.) clear, BEUF 1, W < 1 mph DIR 170, NO PRECIP = 0.00  
1600 clear, B=1, NO PRECIP, < 1 mph wind @ 1600  
 Number and type of piles driven/removed? Vibratory or impact? 3 piles w/vibratory pile driver + impact hammer + 1 H pile @ 1640  
H-

Time of Observation	Species <sup>1</sup>	Age Class <sup>2</sup>	Identifying Marks	Location (Level A or Level B zone, initial and closest distance to pile driving) <sup>3</sup>	Direction of Travel	Behavior <sup>4</sup>
First: 0805	HASE	A	N/A	LEVEL B 90 m	E	swimming 70 m from pier 7
Last: 0808				315°		315° FROM PIER 7, THEN CON
First: 1545	HASE	A	N/A	NO HAMMER ON	E	AT SURFACE 70m
Last: 1547				40m		310° FROM PIER 7
First:						
Last:						
First:						
Last:						
First:						
Last:						
First:						
Last:						
First:						
Last:						
First:						
Last:						
<sup>1</sup> 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		<sup>2</sup> Species Age Classes: CASL = juvenile, subadult male, adult male HASE = juvenile, adult HAPO = calf, adult		<sup>3</sup> 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.).		<sup>4</sup> 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.



Marine Mammal Observations - Alameda Marina Shoreline Improvement Project

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 11 DEC 2021 Start/End Time 0946 / 1152 MMO IML MMD 2 Observing Location PIER 2  
 Weather (windspeed and direction, Beaufort, vis., cloud cover, precip.) 0946: 20% Cloud, B=0-71, VIS > 600m, NO PRECIP, 0-1 mph WIND  
1152: 40% Cloud, B=1, VIS > 600m, NO PRECIP, 2-5 mph = 1152  
 Number and type of piles driven/removed? Vibratory or impact? \_\_\_\_\_

Time of Observation	Species <sup>1</sup>	Age Class <sup>2</sup>	Identifying Marks	Location (Level A or Level B zone, initial and closest distance to pile driving) <sup>3</sup>	Direction of Travel	Behavior <sup>4</sup>
First: <u>1023</u> Last: <u>1039</u>	<u>HASE</u>	<u>A</u>	<u>N/A</u>	<u>60° 500m</u> <u>6° 200m</u> } <u>LEVEL B</u>	<u>NW</u> <u>W</u>	<u>FIRST HEADED NW, THEN TURNED WEST</u> <u>NADIR GOT LAST OBS. AFTER 1039</u> <u>DOVE @ 1039 WHEN IMPACT + AWE WENT ON</u>
First: <u>1118</u> Last: <u>1125</u>	<u>HASE</u>	<u>A</u>	<u>N/A</u>	<u>0° 400m</u> <u>10° 350m</u> } <u>LEVEL B</u>	<u>E</u> <u>E</u>	<u>1118 AT SURFACE BEFORE IMPACT, DIVE</u> <u>WHEN IMPACT SUBMERGED</u> <u>= CLOSEST DISTANCE</u>
First: _____ Last: _____						
First: _____ Last: _____						
First: _____ Last: _____						
First: _____ Last: _____						
First: _____ Last: _____						
First: _____ Last: _____						
First: _____ Last: _____						
<sup>1</sup> 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		<sup>2</sup> Species Age Classes: CASL = juvenile, subadult male, adult male HASE = juvenile, adult HAPO = calf, adult		<sup>3</sup> 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.).		<sup>4</sup> 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.

**Marine Mammal Observations - Alameda Marina Shoreline Improvement Project**

**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 12/11/21 Start/End Time 0945/1152 MMO N. Searborough Observing Location Alameda Marina  
 Weather (windspeed and direction, Beaufort, vis., cloud cover, precip.) calm, mostly clear, 100cc, Beaufort 0-1, 2000 m, 100%

Number and type of piles driven/removed? Vibratory or impact? impact

Time of Observation	Species <sup>1</sup>	Age Class <sup>2</sup>	Identifying Marks	Location (Level A or Level B zone, initial and closest distance to pile driving) <sup>3</sup>	Direction of Travel	Behavior <sup>4</sup>
First: 1040	HASE	adult		Level B @ 75m	West	CRUISING @ surface mid-channel, east
Last: 1044			> 2 <sup>nd</sup> sp.	same area	East	CRUISING @ 75m, down view, looking around, bearing 40°
First: 1110	"	adult	Brown w/ spots	mid-channel @ 50 m S of pier 11	CS	CRUISING @ surface & looking around a small area, looking around, bearing 30°
Last:						
First:						
Last:						
First:						
Last:						
First:						
Last:						
First:						
Last:						
First:						
Last:						
First:						
Last:						
<sup>1</sup> 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			<sup>2</sup> Species Age Classes: CASL = juvenile, subadult male, adult male HASE = juvenile, adult HAPO = calf, adult		<sup>3</sup> 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.).	
					<sup>4</sup> 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.	



Marine Mammal Observations - Alameda Marina Shoreline Improvement Project

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 12/15/21 Start/End Time 7:43 / 16:10 MMO Vnessa Hernandez Observing Location Pier

Weather (windspeed and direction, Beaufort, vis., cloud cover, precip.) SSE - 10 mph partly cloudy → clouds →

Number and type of piles driven/removed? Vibratory or impact? Wide Flange Beams 9, 5

Time of Observation	Species <sup>1</sup>	Age Class <sup>2</sup>	Identifying Marks	Location (Level A or Level B zone, initial and closest distance to pile driving) <sup>3</sup>	Direction of Travel	Behavior <sup>4</sup>
First: <u>9:10</u> Last: <u>9:25</u>	<u>CASL</u>	<u>Adult male</u>		<u>80 yards (from me)</u> <u>60 yards</u>	<u>West</u> <u>North</u>	<u>Diving, swimming</u> <u>~45° from pile driving</u>
First: <u>10:12</u> Last: <u>2:30</u>	<u>HASE</u>	<u>Adult</u>		<u>~241 m from pile driving</u>		<u>hauled out</u>
First: <u>10:30</u> Last: <u>10:34</u>	<u>CASL</u>	<u>2 adults</u>		<u>~275 m from pile driving</u>	<u>East</u>	<u>Playing, splashing</u>
First: <u>12:57</u> Last: <u>1:01</u>	<u>HASE</u>	<u>Adult</u>		<u>~295m initial</u> <u>~232m closest</u> } <u>to pile driving</u>	<u>SW</u>	<u>Swimming</u> <u>Also noted by MMO3</u>
First: <u>1:05</u> Last: <u>1:10</u>	<u>CASL</u>	<u>Adult female</u> <u>or</u> <u>Sub. male</u>		<u>~259m initial</u> <u>~192m closest</u> } <u>to pile driving</u>	<u>West</u>	<u>Swimming fast</u> <u>also noted by MMO3</u>
First: <u>1:50</u> Last: <u>1:50</u>	<u>HASE</u>	<u>Adult</u>		<u>~210m from pile driving</u>	<u>East</u>	<u>Swimming</u>
First: <u>3:09</u> Last: <u>3:36</u>	<u>HASE</u>	<u>Adult</u>		<u>~220m from pile driving</u>	<u>East</u>	<u>milling, swimming</u>
First: <u>  </u> Last: <u>  </u>						
<sup>1</sup> 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		<sup>2</sup> Species Age Classes: CASL = juvenile, subadult male, adult male HASE = juvenile, adult HAPO = calf, adult		<sup>3</sup> 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.).		<sup>4</sup> 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.

Marine Mammal Observations - Alameda Marina Shoreline Improvement Project

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 12/15/21 Start/End Time 0743 / 1610 MMO MMO #3 Observing Location MMO #3 (6-7)  
 Weather (windspeed and direction, Beaufort, vis., cloud cover, precip.) 45°F, 12 mph - SE, Beaufort: 1, 9mi, Partly Cloudy 30%  
 Precip 0

Number and type of piles driven/removed? Vibratory or impact? 5 vib flange piles impacted

Time of Observation	Species <sup>1</sup>	Age Class <sup>2</sup>	Identifying Marks	Location (Level A or Level B zone, initial and closest distance to pile driving) <sup>3</sup>	Direction of Travel	Behavior <sup>4</sup>
First: 1047 Last: 1047	HASE	Adult	Black Cross	Level A, 140m	NW 280°	Swimming slow at surface
First: 1110 Last: 1116	HASE	Adult	Black spots Dog nose	Level B, 170m	E 90° then NE 20°	Swimming fast in multiple directions
First: 1122 Last: 1132	CASL	Adult Female	Far flaps Tanish gold color NO Sagittal Crest	Level B, 180m	W 270°	Swimming fast close to surface
First: 1256 Last: 1307	HASE	Adult	Dog nose Black spots	Level B, 180m closest = 170m	NE then 50° NW 280°	Swimming fast, splashed at S - for Swimming in multiple directions
First: 1313 Last: 1314	CASL	Subadult male	Far flaps	Level B 170m	NW 270°	Swimming fast * Seen by both monitors
First: 1410 Last: 1411	HASE	Adult	Black spots Dog nose	Level A, 130m	NW 280°	Swimming slow
First: 1513 Last: 1520	HASE	Adult	Black spots Dog nose Bite note	Level B, 170m then 150m	S E 160° E 190°	Swimming slow with head above water
First: Last:						
<sup>1</sup> 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		<sup>2</sup> Species Age Classes: CASL = juvenile, subadult male, adult male HASE = juvenile, adult HAPO = calf, adult		<sup>3</sup> 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.).		<sup>4</sup> 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.



**Marine Mammal Observations - Alameda Marina Shoreline Improvement Project**

**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 12-11-21 Start/End Time 0730 / 1555 MMO N. SCARBOROUGH Observing Location Alameda Marina Pier 2  
 Weather (windspeed and direction, Beaufort, vis., cloud cover, precip.) clear, 0% cloud cover, calm, Beaufort 0-1, some glare to East as sun rises  
 Number and type of piles driven/removed? Vibratory or impact? impact, 6 piles (new) plus 4 adjusted from previous - wide flange piles

Time of Observation	Species <sup>1</sup>	Age Class <sup>2</sup>	Identifying Marks	Location (Level A or Level B zone, initial and closest distance to pile driving) <sup>3</sup>	Direction of Travel	Behavior <sup>4</sup>
First: 0749	HASE	adult		30m off pier 2 level B	North west	swimming toward main channel
Last: 0755				20m off pier 3		facing East - @ surface, looking around
First: 0810	"	"		Level B - just off bow of CG 750		
Last:				Bearing 20°		
First: 1033	CSL	adult	pointed snout	Level B mid channel btwn pier 3 & CG ship		
Last:						
First: 1037	HASE	"	grey-brown & spotty	mid-channel off pier 1	WNW	
Last: 1039						
First: 1045	"	"	"	Level B - 10m off end of pier 2	-	Surfaced, dove, surfaced again - seemed to be eating something, dove from view
Last: 1048				Bearing 80°		
First: 1103	HASE		likely same animal as 1045	30m off pier 1 complex Level B / 2nd sight is 25m off pier 2	dove facing North	popped up right after 1st hammer blow last sighted heading west
Last: 1112						
First:						
Last:						
First:						
Last:						
<sup>1</sup> 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		<sup>2</sup> Species Age Classes: CASL = juvenile, subadult male, adult male HASE = juvenile, adult HAPO = calf, adult		<sup>3</sup> 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.).		<sup>4</sup> 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.



# Marine Mammal Observations - Alameda Marina Shoreline Improvement Project

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 12/17/21 Start/End Time 1400, 1557 MMO MMO #2 (JM) Observing Location Pier 7  
Weather (windspeed and direction, Beaufort, vis., cloud cover, precip.) 1 mph SW, 0, 9 mi, 5%, no precip.

Number and type of piles driven/removed? Vibratory or impact? 6 Wide Flange Beams Impacted

Time of Observation	Species <sup>1</sup>	Age Class <sup>2</sup>	Identifying Marks	Location (Level A or Level B zone, initial and closest distance to pile driving) <sup>3</sup>	Direction of Travel	Behavior <sup>4</sup>
First: 1036 Last: 1043	HASE	Adult	Black spots	level B, 260m	E 110	Swimming fast, changed direction briefly → Seen by both MMOs
First:						
Last:						
First:						
Last:						
First:						
Last:						
First:						
Last:						
First:						
Last:						
First:						
Last:						
First:						
Last:						
<sup>1</sup> 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		<sup>2</sup> Species Age Classes: CASL = juvenile, subadult male, adult male HASE = juvenile, adult HAPO = calf, adult		<sup>3</sup> 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.).		<sup>4</sup> 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.

Marine Mammal Observations - Alameda Marina Shoreline Improvement Project

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 12/20/21 Start/End Time 7:45 / 1530 MMO Vanessa Hernandez <sup>MMO2</sup> Observing Location Prep 2  
Weather (windspeed and direction, Beaufort, vis., cloud cover, precip.) Low 43° - High 54° E wind ~ 8 mph

Number and type of piles driven/removed? Vibratory or impact? 4 impact - wide flange beams

Time of Observation	Species <sup>1</sup>	Age Class <sup>2</sup>	Identifying Marks	Location (Level A or Level B zone, initial and closest distance to pile driving) <sup>3</sup>	Direction of Travel	Behavior <sup>4</sup>
First: 7:45 Last: 7:51	HASE	Adult 2		Bzone ~300m	E.	Restful One
First: 8:40 Last: 8:40	CASL	Adult 1		Bzone ~270 m	NE	Diving
First: 10:05 Last: 10:10	CASL	Adult	ear flaps.	Bzone ~330m initial ~250m closest	West	logging, swimming
First: 10:54 Last: 10:54	HASL	Adult		Bzone ~450m		logging/diving
First: 12:55 Last: 12:58	HASL	Adult		Bzone ~180m		Breath & dive
First: 1:10 Last: 1:23	HASL ↓			Bzone ~350m		Pulling/biting butterfly's tail
First: 1:54 Last: 1:56	CASL	Adult		Bzone ~300m	West	fast swimming
First: Last:						
<sup>1</sup> 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		<sup>2</sup> Species Age Classes: CASL = juvenile, subadult male, adult male HASE = juvenile, adult HAPO = calf, adult		<sup>3</sup> 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.).		<sup>4</sup> 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.



# Marine Mammal Observations - Alameda Marina Shoreline Improvement Project

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 2/14/20 Start/End Time 0745 / 1520 MMO NUO#2 (Dad M.) Observing Location Pier 7  
Weather (windspeed and direction, Beaufort, vis., cloud cover, precip.) 7 mph SE, 1 mi, 80%, 10 miles

Number and type of piles driven/removed? Vibratory or impact? 11 wide flange impacts

Time of Observation	Species <sup>1</sup>	Age Class <sup>2</sup>	Identifying Marks	Location (Level A or Level B zone, initial and closest distance to pile driving) <sup>3</sup>	Direction of Travel	Behavior <sup>4</sup>
First: 0745	HASE	Adult	Black Spots Ear hole	Level B, 70m	NW 300°	Surfaced with bird in mouth foraging behavior Swimming slow
Last: 0817						
First: 0820	HASE	Adult	Ear hole	Level B, 210m	SE 20°	Swimming slow
Last: 0836						
First: 0837	HASE	Adult	Black Spots	Level B, 200m	E 90°	Swimming fast
Last: 0834						
First: 0845	HASE	Adult	Ear hole	Level B, 170m	NW 120°	Swimming slow
Last: 0847						
First: 1553	HASE	Adult	Ear hole	Level B, 150m	NW 190°	Swimming slow
Last:						
First:						
Last:						
First:						
Last:						
First:						
Last:						
<sup>1</sup> 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		<sup>2</sup> Species Age Classes: CASL = juvenile, subadult male, adult male HASE = juvenile, adult HAPO = calf, adult		<sup>3</sup> 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.).		<sup>4</sup> 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.

## Marine Mammal Observations - Alameda Marina Shoreline Improvement Project

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

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

Date 12-21-21 Start/End Time 0745 / 1152 MMO N. SCARBOROUGH Observing Location Alameda Marina pier 2  
Weather (windspeed and direction, Beaufort, vis., cloud cover, precip.) calm, Beaufort 0-1, 40% cloud cover, good visibility, glare on water to E

Number and type of piles driven/removed? Vibratory or impact? 4 piles w/ impact

[illegible]



## Marine Mammal Observations - Alameda Marina Shoreline Improvement Project

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

LEAD MONITOR - MARK JATES 689-216-0341 "MAY1 ON RADIO"

Date 10/10/1993 Start/End Time 14:00-18:00 MMO # 303 N/A Observing Location 0-07  
 (Weather: wind speed and direction, Beaufort, vis., cloud cover, precip.) 2 mph NE, 0, 2, 58%, 0-1000, 0-1000, 0-1000

Number and type of dies driven removed? Vibratory or impact?

Time of Observation	Species	Age Class	Identifying Marks	Location (Level A or Level B zone, initial and closest distance to pile driving)	Direction of Travel	Behavior
1:20-21	HASE	Adult	Dark skin	Level B, 20m	NW 220°	Swimming, slow; stationary at surface
1:22	HASE	Adult	Dark skin	Level B, 17m	NW 190°	Swimming, slow; Seal on a Buftoad
1:23						
1:24						
1:25						
1:26						
1:27						
1:28						
1:29						
1:30						
1:31						
1:32						
1:33						
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2:51						
2:52						
2:53						
2:54						
2:55						
2:56						
2:57						
2:58						
2:59						
3:00						
3:01						

**Species Abbreviations**  
California Sea Lion = CALS  
Northern Elephant Seal = NSES  
Harbor Seal = HASE  
Lionel Sea Lion = LSL  
Lionel Sea Lion = LSL

**Species Age Classes**  
CALS = juvenile, subadult male, adult male  
HASE = juvenile, adult  
NSES = juvenile, adult  
LSEA = adult, male, female

**Designations**  
Designations for distance from pile driving & relative from other animals. If cannot within 1000 meters, record distance from shoreline. Indicate unit of measurement (meters, feet, etc.)

**Behavior**  
Stationary at surface, swimming (slow or fast), resting, foraging, resting

# Marine Mammal Observations - Alameda Marina Shoreline Improvement Project

IF YOU DETECT AN ANIMAL CALL IT OUT ON RADIO USING YOUR MMO #, GIVE ANIMAL'S POSITION AND DIRECTION OF TRAVEL  
HEAD MONITOR MARK DATE'S 600 216 0 541, "MMI" ON RADIO

Date 1/3/22 Start/End Time 8:30/15:55 MMO Vanessa Hernandez Observing Location Pier 2  
Weather (windspeed and direction, Beaufort, vis., cloud cover, precip.) \_\_\_\_\_

Number and type of piles driven/removed? Vibratory or impact? Impact

Time of Observation	Species <sup>1</sup>	Age Class <sup>2</sup>	Identifying Marks	Location (Level A or Level B zone, initial and closest distance to pile driving) <sup>3</sup>	Direction of Travel	Behavior <sup>4</sup>
First: 8:40 Last: 8:55	HASE	5-6 Adults		Level B 190-240m to pile		8:30 → 5 hauled out 2:38 → 1 hauled out
First: 8:53 Last: 8:59	HASE	1 Adult		Level B 190m-200m to pile		swimming, 5m/min, 10m/min, 20m/min
First: 9:21 Last: 9:22	HASE	1 Adult		Level B 150m to pile	East	diving, swimming, hauled out
First: Last:						
First: Last:						
First: Last:						
First: Last:						
First: Last:						
First: Last:						
First: Last:						
<sup>1</sup> 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		<sup>2</sup> Species Age Classes: CASL = juvenile, subadult male, adult male HASE = juvenile, adult HAPO = calf, adult		<sup>3</sup> 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.).		<sup>4</sup> 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.

# Marine Mammal Observations - Alameda Marina Shoreline Improvement Project

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

LEAD MONITOR MARK DATES 669 216 0341, "MMI" ON RADIO

Date 11/3/2022 Start/End Time 0754 / 1555 MMO #3 (JM) Observing Location Pier 7  
 Weather (windspeed and direction, Beaufort, vis., cloud cover, precip.) 8 mph SE, 1, 2 mi, 95%, no wind K, 0:20

Number and type of piles driven/removed? Vibratory or impact? 5 wide flange pile<sup>s</sup> impacted

Time of Observation	Species <sup>1</sup>	Age Class <sup>2</sup>	Identifying Marks	Location (Level A or Level B zone, initial and closest distance to pile driving) <sup>3</sup>	Direction of Travel	Behavior <sup>4</sup>
First: <u>0849</u>	<u>HASE</u>	<u>Adult</u>	<u>Black spots</u>	<u>Level B, 124m</u>	<u>NF 90°</u>	<u>Swimming slow</u>
Last: <u>0849</u>						
First: <u>0927</u>	<u>HASE</u>	<u>Adult</u>	<u>Black spots</u>	<u>Level B, 170m</u>	<u>E 270°</u>	<u>Swimming slow</u>
Last: <u>0927</u>						
First:						
Last:						
First:						
Last:						
First:						
Last:						
First:						
Last:						
First:						
Last:						
First:						
Last:						
<sup>1</sup> 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		<sup>2</sup> Species Age Classes: CASL = juvenile, subadult male, adult male HASE = juvenile, adult HAPO = calf, adult		<sup>3</sup> 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.).		<sup>4</sup> 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.



Marine Mammal Observations - Alameda Marina Shoreline Improvement Project

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 1/5/2022 Start/End Time 0754, 1419 MMO # 2 Target Mammal Harbor Porpoise Observing Location Pier 7  
Weather (windspeed and direction, Beaufort, vis., cloud cover, precip.) 5 mph, SE, 0, 8 mi, 95%, No precip, 0/0200

Number and type of piles driven/removed? Vibratory or impact? 5 wide flange piles impacted

Time of Observation	Species <sup>1</sup>	Age Class <sup>2</sup>	Identifying Marks	Location (Level A or Level B zone, initial and closest distance to pile driving) <sup>3</sup>	Direction of Travel	Behavior <sup>4</sup>
First: <u>0826</u> Last: <u>0826</u>	<u>HASE</u>	<u>Adult</u>	<u>Black spots</u>	<u>Level B, 220m</u>	<u>NE, 90°</u>	<u>Swimming Fast</u>
First: <u>0836</u> Last: <u>0836</u>	<u>HASE</u>	<u>Adult</u>	<u>Black spots</u>	<u>Level B, 240m</u>	<u>NE, 360°</u>	<u>Swimming Slow at Surface</u>
First:						
Last:						
First:						
Last:						
First:						
Last:						
First:						
Last:						
First:						
Last:						
First:						
Last:						
<sup>1</sup> 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		<sup>2</sup> Species Age Classes: CASL = juvenile, subadult male, adult male HASE = juvenile, adult HAPO = calf, adult		<sup>3</sup> 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.).		<sup>4</sup> 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.

## Marine Mammal Observations - Alameda Marina Shoreline Improvement Project

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 5 JAN 22 Start/End Time 0744 / 1429 MMO 2 - 1ML Observing Location PIER 2  
Weather (windspeed and direction, Beaufort, vis., cloud cover, precip.) W  $\leq 3$  mph, B = 0-1, 10% clars, V = 500m, DR. = 0744  
W = 5 mph SW, B = 0-2, V = 500m, 50% clars, DR. = 1429  
Number and type of piles driven/removed? Vibratory or impact? 4 wide-flange piles - impact

[illegible]



Marine Mammal Observations - Alameda Marina Shoreline Improvement Project

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 1/6/2022 Start/End Time 0754/1631 MMO #3 Jared M. Observing Location Pier 7  
Weather (windspeed and direction, Beaufort, vis., cloud cover, precip.) 1 mph, SE, 0, 6 mi, 100%, No Precip, 47.50

Number and type of piles driven/removed? Vibratory or impact? Wide Flange piles Impacted

Time of Observation	Species <sup>1</sup>	Age Class <sup>2</sup>	Identifying Marks	Location (Level A or Level B zone, initial and closest distance to pile driving) <sup>3</sup>	Direction of Travel	Behavior <sup>4</sup>
First: <u>0821</u> Last: <u>0839</u>	<u>HASE</u>	<u>Adult</u>	<u>Ear holes Black spots</u>	<u>Level B, 240m</u>	<u>NW, 290</u> <u>than NE, NW</u>	<u>Swimming at surface. Multiple directions of travel</u>
First: <u>1145</u> Last: <u>1149</u>	<u>HASE</u>	<u>Adult</u>	<u>Black spots</u>	<u>Level B, 290m</u>	<u>NW, 310°</u>	<u>Swimming slow at surface</u>
First: Last:						
First: Last:						
First: Last:						
First: Last:						
First: Last:						
First: Last:						
First: Last:						
First: Last:						
<sup>1</sup> 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		<sup>2</sup> Species Age Classes: CASL = juvenile, subadult male, adult male HASE = juvenile, adult HAPO = calf, adult		<sup>3</sup> 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.).		<sup>4</sup> 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.

# Marine Mammal Observations - Alameda Marina Shoreline Improvement Project

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 1-6-2022 Start/End Time 0754/1631 MMO N. SCARBOROUGH Observing Location Alameda Marina, end of pier 2  
 Weather (windspeed and direction, Beaufort, vis., cloud cover, precip.) 100% cloud cover, good vis, Beaufort 0-1, calm  
some large logs floating in main channel  
 Number and type of piles driven/removed? Vibratory or impact? 6 piles, impact

Time of Observation	Species <sup>1</sup>	Age Class <sup>2</sup>	Identifying Marks	Location (Level A or Level B zone, initial and closest distance to pile driving) <sup>3</sup>	Direction of Travel	Behavior <sup>4</sup>
First: <u>0814</u> Last:	<u>HASE</u>	<u>adult</u>	<u>rusty brown w/ some spots</u>	<u>level B 20 m off pier 2 Bearing 70°</u>	<u>-</u>	<u>loungeing @ surf, dove from view bearing North</u>
First: <u>1017</u> Last:	<u>HASE</u>	<u>adult</u>	<u>spotted lt. brown</u>	<u>level B - just off pier in pier 1 complex @ 100' from pile</u>	<u>-</u>	<u>dove from pier 1, no sighting after it dove. Hammer started 6 min later</u>
First:						
Last:						
First:						
Last:						
First:						
Last:						
First:						
Last:						
First:						
Last:						
First:						
Last:						
<sup>1</sup> 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		<sup>2</sup> Species Age Classes: CASL = juvenile, subadult male, adult male HASE = juvenile, adult HAPO = calf, adult		<sup>3</sup> 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.).		<sup>4</sup> 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.

Marine Mammal Observations - Alameda Marina Shoreline Improvement Project

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 1-10-2022 Start/End Time 0754 / 0959 MMO N. SCARBOROUGH Observing Location Alameda Marina Pier 7  
Weather (windspeed and direction, Beaufort, vis., cloud cover, precip.) mostly clear, 29% cloud cover, 2-4 mi vis.

Number and type of piles driven/removed? Vibratory or impact? 5 piles, impact

Time of Observation	Species <sup>1</sup>	Age Class <sup>2</sup>	Identifying Marks	Location (Level A or Level B zone, initial and closest distance to pile driving) <sup>3</sup>	Direction of Travel	Behavior <sup>4</sup>
First: <u>0806</u>	<u>HASE</u>	<u>Adult</u>		<u>level B</u> <u>206m from piles</u> <u>Bearing 10°</u>	<u>west</u>	<u>at first 30m from piles</u>
Last:						
First:						
Last:						
First:						
Last:						
First:						
Last:						
First:						
Last:						
First:						
Last:						
First:						
Last:						
First:						
Last:						
<sup>1</sup> 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		<sup>2</sup> Species Age Classes: CASL = juvenile, subadult male, adult male HASE = juvenile, adult HAPO = calf, adult		<sup>3</sup> 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.).		<sup>4</sup> 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.



# Marine Mammal Observations - Alameda Marina Shoreline Improvement Project

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 1/10/22 Start/End Time 7:54 / 9:59 MMO Vanessa Hernandez Observing Location Pier 2  
Weather (windspeed and direction, Beaufort, vis., cloud cover, precip.) \_\_\_\_\_

Number and type of piles driven/removed? Vibratory or impact? Impact

Time of Observation	Species <sup>1</sup>	Age Class <sup>2</sup>	Identifying Marks	Location (Level A or Level B zone, initial and closest distance to pile driving) <sup>3</sup>	Direction of Travel	Behavior <sup>4</sup>
First: 7:54 Last: 8:09	HASE	Adult		Level B 224m.	.	Hauled out at Pier 1 8:02 - in water
First: 8:06 Last: 8:06	HASE	Adult		Level B 250m	East	Mid Channel - spotted by MMO 2 Swimming
First: 8:32 Last: 8:32	HASE	Adult		Level B 235m	North	Diving
First: Last:						
First: Last:						
First: Last:						
First: Last:						
First: Last:						
First: Last:						
First: Last:						
<sup>1</sup> 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		<sup>2</sup> Species Age Classes: CASL = juvenile, subadult male, adult male HASE = juvenile, adult HAPO = calf, adult		<sup>3</sup> 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.).		<sup>4</sup> 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.

# Marine Mammal Observations - Alameda Marina Shoreline Improvement Project

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 1/11/22 Start/End Time        /        MMO Vanessa H Observing Location Pier 2  
Weather (windspeed and direction, Beaufort, vis., cloud cover, precip.)       

Number and type of piles driven/removed? Vibratory or impact? Impact 10:30

Time of Observation	Species <sup>1</sup>	Age Class <sup>2</sup>	Identifying Marks	Location (Level A or Level B zone, initial and closest distance to pile driving) <sup>3</sup>	Direction of Travel	Behavior <sup>4</sup>
First: 8:02 Last:	HASE	Adult	✓	Level B		Swimming
First: 9:02 Last: 9:02	HASE	Adult	✓	Level B ~25m from crane	North	Swimming
First: 11:45 Last: 11:54	HASE	Adult	✓	Level B ~25m	N/A	Resting, looking around
First: 13:04 Last: 13:57	HASE	Adult		Level B ~25m	In place	Resting, looking around, swimming & in station near pile
First:						
Last:						
First:						
Last:						
First:						
Last:						
First:						
Last:						
<sup>1</sup> 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		<sup>2</sup> Species Age Classes: CASL = juvenile, subadult male, adult male HASE = juvenile, adult HAPO = calf, adult		<sup>3</sup> 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.).		<sup>4</sup> 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.



## Marine Mammal Observations - Alameda Marina Shoreline Improvement Project

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 1-11-82 Start/End Time 0805 / 1516 MMO 11 SAR SARUBA Observing Location Near S. Florida  
Weather (windspeed and direction, Beaufort, vis., cloud cover, precip.) 1596 m color 1200 miles - 2- 2000 12000 - 10000 - 2000 - East

Number and type of piles driven/removed? Vibratory or impact?

[illegible]

Marine Mammal Observations - Alameda Marina Shoreline Improvement Project

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 1/12/22 Start/End Time 7:50 / 15:06 MMO Vanessa Observing Location Pier 2  
Weather (windspeed and direction, Beaufort, vis., cloud cover, precip.) \_\_\_\_\_

Number and type of piles driven/removed? Vibratory or impact? Impact

Time of Observation	Species <sup>1</sup>	Age Class <sup>2</sup>	Identifying Marks	Location (Level A or Level B zone, initial and closest distance to pile driving) <sup>3</sup>	Direction of Travel	Behavior <sup>4</sup>
First: <u>8:11</u> Last: <u>12:09</u>	<u>HASE</u>	<u>Adult</u>		<u>Level B</u> <u>~245m from pile</u>	<u>circling</u>	<u>Logging then diving down.</u> <u>resurfacing ~ 10min</u>
First: <u>13:04</u> Last: <u>13:47</u>	<u>HASE</u>	<u>Adult</u>		<u>Level B</u> <u>~245m</u>	<u>circling</u> <u>NEast</u>	<u>Logging then diving down</u> ↗ <u>→ 13:30 @ this time drifting NE</u>
First:						
Last:						
First:						
Last:						
First:						
Last:						
First:						
Last:						
First:						
Last:						
<sup>1</sup> 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		<sup>2</sup> Species Age Classes: CASL = juvenile, subadult male, adult male HASE = juvenile, adult HAPO = calf, adult		<sup>3</sup> 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.).		<sup>4</sup> 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.

Lunch  
52

Marine Mammal Observations - Alameda Marina Shoreline Improvement Project

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 JAN 2022 Start/End Time 0754 / 1506 MMO 3 - IML Observing Location PIER 7  
 Weather (windspeed and direction, Beaufort, vis., cloud cover, precip.) ~1 mph WD = ? , B = 0 , VIS = 500 m , 25% (LASS) LWT = 0754  
W < 1 mph , WD = ? , B = 0 , VIS = 500 m , LWT = 40% , DAY  
 Number and type of piles driven/removed? Vibratory or impact? 6 IMPACT PILES

Time of Observation	Species <sup>1</sup>	Age Class <sup>2</sup>	Identifying Marks	Location (Level A or Level B zone, initial and closest distance to pile driving) <sup>3</sup>	Direction of Travel	Behavior <sup>4</sup>
First: 0818 Last: 0819	HASE	A	NA	140m 352° LEVEL A 145m 352°	N	SURFACED, SWAM, DIVE WORK DID NOT START UNTIL 0813
First: 1121 Last: 1122	HASE	A	N/A	310m 330° LEVEL B 315m 330°	N	SURFACED WHEN HAMMER WAS OFF DIVE WHEN HAMMER WENT ON
First: 1434 Last: 1434	HASE	A	N/A	550m 60° LEVEL B 550m 60°	NW	SURFACED, SWAM, DIVE WHILE HAMMER WAS ON
First:						
Last:						
First:						
Last:						
First:						
Last:						
First:						
Last:						
First:						
Last:						
<sup>1</sup> 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		<sup>2</sup> Species Age Classes: CASL = juvenile, subadult male, adult male HASE = juvenile, adult HAPO = calf, adult		<sup>3</sup> 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.).		<sup>4</sup> 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.



Marine Mammal Observations - Alameda Marina Shoreline Improvement Project

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 Start/End Time 0815 / 1509 MMO N. SCARBOROUGH Observing Location Pier 3, Alameda Marina  
 Weather (windspeed and direction, Beaufort, vis., cloud cover, precip.) 1590 cc, slight haze in air around 1000 ft, 20% clouds, 10% rain  
very calm, Beaufort 0-1, debris on water frequent, wood scraps & plastic, 1 large rounded rock, 1 small rounded rock  
 Number and type of piles driven/removed? Vibratory or impact?

Time of Observation	Species <sup>1</sup>	Age Class <sup>2</sup>	Identifying Marks	Location (Level A or Level B zone, initial and closest distance to pile driving) <sup>3</sup>	Direction of Travel	Behavior <sup>4</sup>
First: <u>0826</u> Last:	<u>HASE</u>	<u>adult</u>		<u>Level B</u> <u>270 m from crane</u> <u>bearing 66°</u>	<u>EAST</u>	<u>mid-channel off end of pier 3</u> <u>crussing @ surface 15-20 sec, dove from view</u> <u>(note: hammer on wood 2-10-20-10-20)</u>
First: <u>0934</u> Last:	<u>HASE</u>	<u>A</u>		<u>Level B</u> <u>375 m</u> <u>bearing 68°</u>		<u>mid-channel btwn piers 1 &amp; 2</u> <u>and CG bridge</u>
First: <u>0945</u> * Last:	<u>HASE</u>	<u>A</u>		<u>Level B</u> <u>245 m</u> <u>bearing 38°</u>	<u>S</u>	<u>mid-channel off pier 3 &amp;</u> <u>crussing @ surface facing South</u> *
First: <u>1030</u> Last:	<u>HASE</u>	<u>A</u>	<u>brown</u> <u>w/spots</u>	<u>300 m</u> <u>bearing 58°</u>	<u>S</u>	<u>crussing @ surface, looking around,</u> <u>dove from view (hammer off)</u> <u>1 min</u>
First: <u>1124</u> * Last: <u>1125</u>	<u>HASE</u>	<u>A</u>		<u>Level B</u> <u>173 m</u> <u>bearing 48°</u>		<u>@ surface 30 sec, blippers up, crussing,</u> <u>dove from view</u> * <u>(mm 3 also recorded)</u>
First: <u>1139</u> Last:	<u>HASE</u>	<u>A</u>	<u>possibly</u> <u>same animal</u> <u>as 1124</u>	<u>223 m</u> <u>bearing 70°</u>	<u>East</u>	<u>end of pier 3, crussing @ surface</u> <u>then dove from view</u>
First: <u>1421</u> * Last:	<u>HASE</u>	<u>A</u>		<u>Level B</u> <u>400 m</u> <u>bearing 330°</u>	<u>facing</u> <u>S</u>	<u>mid channel btwn west end of C'n 16</u> <u>and marina</u> * <u>@ surface 20 sec, dove from view</u>
First: Last:						
<sup>1</sup> 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		<sup>2</sup> Species Age Classes: CASL = juvenile, subadult male, adult male HASE = juvenile, adult HAPO = calf, adult		<sup>3</sup> 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.).		<sup>4</sup> 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.

\* fake



Marine Mammal Observations - Alameda Marina Shoreline Improvement Project

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 Start/End Time 8:11 / 15:09 MMO Vanessa Observing Location Pier 7.  
Weather (windspeed and direction, Beaufort, vis., cloud cover, precip.) \_\_\_\_\_

Number and type of piles driven/removed? Vibratory or impact? Impact

Time of Observation	Species <sup>1</sup>	Age Class <sup>2</sup>	Identifying Marks	Location (Level A or Level B zone, initial and closest distance to pile driving) <sup>3</sup>	Direction of Travel	Behavior <sup>4</sup>
First: <u>11:45</u> Last: <u>11:55</u>	<u>HASE</u>	<u>Adult</u>		<u>Level B</u> <u>~150m</u>	<u>Stationary @ surface</u>	<u>Floating w/ back flippers out of water</u> <u>dove back in. 1 sec. after 1st obs.</u>
First: <u>14:10</u> Last: <u>14:14</u>	<u>HASE</u>	<u>Adult</u>		<u>Level B</u> <u>~185m</u>	<u>Surface</u> <u>Stationary</u>	<u>Logging, brought up 1 pile out 3 done</u>
First: <u>14:25</u> Last: <u>14:26</u>	<u>HASE</u>	<u>Adult</u>		<u>Level B</u> <u>~250m</u>	<u>West</u>	<u>Swimming</u>
First: <u>14:37</u> Last: <u>14:38</u>	<u>HASE</u>	<u>Adult</u>		<u>Level B</u> <u>~190m</u>	<u>Surface</u> <u>Stationary</u>	<u>Logging &amp; diving</u>
First: _____ Last: _____						
First: _____ Last: _____						
First: _____ Last: _____						
First: _____ Last: _____						
First: _____ Last: _____						
First: _____ Last: _____						
<sup>1</sup> 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		<sup>2</sup> Species Age Classes: CASL = juvenile, subadult male, adult male HASE = juvenile, adult HAPO = calf, adult		<sup>3</sup> 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.).		<sup>4</sup> 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.

340  
21  
1/13/22

## Marine Mammal Observations - Alameda Marina Shoreline Improvement Project

**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 14 Oct Start/End Time 0754 / 1621 MMO #3 Juved Martine Observing Location Pier 7  
Weather (windspeed and direction, Beaufort, vis., cloud cover, precip.) 1 mph from the East, 0.6 mi, 15%, no rain

Number and type of piles driven/removed? Vibratory or impact?

[illegible]



# Marine Mammal Observations - Alameda Marina Shoreline Improvement Project

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 14 JAN 2022 Start/End Time 0746 / 1621 MMO 2-1ML Observing Location PIER 2  
 Weather (windspeed and direction, Beaufort, vis., cloud cover, precip.) WS=0, WD=N/A, B=0, VIS=400m, GLAZE TO THE EAST UNTIL 1000  
0% CLOUDS, DRY = 0746 | WS=1 mph, WD: N/A, B=0-1, 40% CLOUD, DRY = 1621  
 Number and type of piles driven/removed? Vibratory or impact? 4 WIDE-FLALED PILES - IMPACT

Time of Observation	Species <sup>1</sup>	Age Class <sup>2</sup>	Identifying Marks	Location (Level A or Level B zone, initial and closest distance to pile driving) <sup>3</sup>	Direction of Travel	Behavior <sup>4</sup>
First: <u>1350</u> Last: <u>1352</u>	<u>HASE</u>	<u>A</u>	<u>N/A</u>	<u>LEVEL B</u> <u>600m 45°</u> <u>650m 45°</u>	<u>E</u>	<u>SURFACED, SWAM, DOVE</u> <u>MAY BE SAME ANIMAL MMO3 OBSERVED EARLIER</u>
First: <u>1447</u> Last: <u>1453</u>	<u>HASE</u>	<u>A</u>	<u>N/A</u>	<u>LEVEL B</u> <u>290m 0°</u> <u>200m 0°</u>	<u>W</u>	<u>SURFACED, RESTED, DOVE</u> <u>MMO3 OBSERVED SAME INDV. → E</u>
First: <u>1507</u> Last: <u>1514</u>	<u>↓</u>	<u>↓</u>	<u>↓</u>	<u>LEVEL B</u> <u>250m 50°</u> <u>350m 50°</u>	<u>S</u> <u>NE</u>	<u>SURFACED, RESTED, DOVE x 2 TIMES</u> <u>INDV RETURNED EAST FROM WHERE IT WAS FIRST OBSERVED</u>
First:						
Last:						
First:						
Last:						
First:						
Last:						
First:						
Last:						
First:						
Last:						
<sup>1</sup> 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		<sup>2</sup> Species Age Classes: CASL = juvenile, subadult male, adult male HASE = juvenile, adult HAPO = calf, adult		<sup>3</sup> 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.).		<sup>4</sup> 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.

SAME HASE  
7

Marine Mammal Observations - Alameda Marina Shoreline Improvement Project

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 1/18/2022 Start/End Time 0751 /            MMO #3 Jared Martin Observing Location Plot 2

Weather (windspeed and direction, Beaufort, vis., cloud cover, precip.) 2 mph from East, 7, 60%, all good

Number and type of piles driven/removed? Vibratory or impact?

Time of Observation	Species <sup>1</sup>	Age Class <sup>2</sup>	Identifying Marks	Location (Level A or Level B zone, initial and closest distance to pile driving) <sup>3</sup>	Direction of Travel	Behavior <sup>4</sup>
First: 0739 Last: 0754	HASE	Adult	Black Spots Ear holes	Level B, 300m	E, 90°	Swimming slow
First: 0830 Last: 0832	CASL	Adult male	Ear Flaps	Level B, 360m	NW, 270°	Swimming at surface Sun on back 14, 1 m/s
First:						
Last:						
First:						
Last:						
First:						
Last:						
First:						
Last:						
First:						
Last:						
First:						
Last:						

<sup>1</sup>**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

<sup>2</sup>**Species Age Classes:**  
CASL = juvenile, subadult male, adult male  
HASE = juvenile, adult  
HAPO = calf, adult

<sup>3</sup>**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.).

<sup>4</sup>**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.



# Marine Mammal Observations - Alameda Marina Shoreline Improvement Project

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 1/18/22 Start/End Time 7:50/ MMO VORRESSA Observing Location Pier 7  
 Weather (windspeed and direction, Beaufort, vis., cloud cover, precip.) 45° - 54°

Number and type of piles driven/removed? Vibratory or impact? Impact

Time of Observation	Species <sup>1</sup>	Age Class <sup>2</sup>	Identifying Marks	Location (Level A or Level B zone, initial and closest distance to pile driving) <sup>3</sup>	Direction of Travel	Behavior <sup>4</sup>
First: 8:05	HASE	Adult		Level B & Level A ~390m & 121m	Surface westward	Surfaced & dove @ Level B 8:12 - @ Level A zone
Last: 8:12						
First: 8:28	HASE	Adult		Level B ~290m	West	Swimming slow. MMO 1 sighted farther
Last: 8:28						
First:						
Last:						
First:						
Last:						
First:						
Last:						
First:						
Last:						
First:						
Last:						
First:						
Last:						
<sup>1</sup> 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		<sup>2</sup> Species Age Classes: CASL = juvenile, subadult male, adult male HASE = juvenile, adult HAPO = calf, adult		<sup>3</sup> 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.).		<sup>4</sup> 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.

Marine Mammal Observations - Alameda Marina Shoreline Improvement Project

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 1/31/22 Start/End Time 0745 / 1200 MMO \_\_\_\_\_ Observing Location Pier 7

Weather (windspeed and direction, Beaufort, vis., cloud cover, precip.) \_\_\_\_\_

Number and type of piles driven/removed? Vibratory or impact? 3 impact driven

Time of Observation	Species <sup>1</sup>	Age Class <sup>2</sup>	Identifying Marks	Location (Level A or Level B zone, initial and closest distance to pile driving) <sup>3</sup>	Direction of Travel	Behavior <sup>4</sup>
First:						
Last:						
First:						
Last:						
First:						
Last:						
First:						
Last:						
First:						
Last:						
First:						
Last:						
First:						
Last:						
First:						
Last:						
<sup>1</sup> 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		<sup>2</sup> Species Age Classes: CASL = juvenile, subadult male, adult male HASE = juvenile, adult HAPO = calf, adult		<sup>3</sup> 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.).		<sup>4</sup> 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.

Marine Mammal Observations - Alameda Marina Shoreline Improvement Project

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 1/31/22 Start/End Time 7.45 / MMO Vanessa D. Observing Location Pier 2

Weather (windspeed and direction, Beaufort, vis., cloud cover, precip.) \_\_\_\_\_

Number and type of piles driven/removed? Vibratory or impact? \_\_\_\_\_

Time of Observation	Species <sup>1</sup>	Age Class <sup>2</sup>	Identifying Marks	Location (Level A or Level B zone, initial and closest distance to pile driving) <sup>3</sup>	Direction of Travel	Behavior <sup>4</sup>
First: 7:33 Last: 8:07	HASE	Adult		Level B ~ 170m Level A ~ 137m	Surface	Swimming slowly around Pier 1 = 57 seen in Level A
First: 8:03 Last: 8:07	HASE	adult		Level A ~ 137m	Surface	Swimming g/d. near Pier 1 seen together w/ HASE above
First: 9:32 Last: 9:32	HASE	adult		Level B ~ 185m	West	Slowly swimming
First: 10:44 Last: 10:50	HASE	adult		Level B ~ 374m	South	slowly swimming
First: Last:						
First: Last:						
First: Last:						
First: Last:						
First: Last:						
<sup>1</sup> 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		<sup>2</sup> Species Age Classes: CASL = juvenile, subadult male, adult male HASE = juvenile, adult HAPO = calf, adult		<sup>3</sup> 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.).		<sup>4</sup> 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.