United Launch Alliance

DZ31-L480-REC-10-0031
15 July 2010

SUBJECT: MONITORING REPORT FOR HARBOR OPERATIONS

TO: National Marine Fisheries Service
Permits, Conservation and Education Division
Office of Protected Resources
1315 East-West Highway, 13th Floor
Silver Spring, MD 20910-3225

ATTN.: P. Michael Payne

Enclosed is the Monitoring Report for Harbor Operations that occurred during the month of June, 2010. This report has been prepared in accordance with the Incidental Harassment Authorization (IHA) for marine activities associated with the Delta IV / Evolved Expendable Launch Vehicle (EELV) Program on South Vandenberg Air Force Base, California. This submittal will serve as the annual report for 2010. No further harbor operations will occur in 2010.

During June of 2010, Delta IV flight hardware delivery attempts and operations occurred at the Vandenberg Harbor between June 6th and 17th, during periods of high tide. The enclosed report details monitoring activities and results of all of these operations.

A new request for renewal of the Incidental Harassment Authorization will be submitted within 30 days. Delivery operations are not scheduled until mid-2011.

If you have questions, please do not hesitate to call the undersigned at (805) 606-6340 x6566.

Sincerely,

Rhonda Cardinal

Rhonda Cardinal
Engineer/Scientist Environmental
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Delta II/IV Launch Operations
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REC/imk

Cc: Tom Devenoge- 30 CES/CEAN
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Paloma Nieto-SRS ManTech Technologies, Inc.

Monitoring Report for Delta Mariner Operations at the Vandenberg Harbor – June 2010

Vandenberg Air Force Base, California

July 2010

Prepared for

United Launch Alliance
P.O. Box 5219
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Prepared by

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Cover Photograph: Adult male and juvenile California sea lions hauled out on the breakwater during the June 16, 2010 monitoring period.

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1.0 Introduction

Under the Marine Mammal Protection Act of 1972, the National Oceanic and Atmospheric Administration (NOAA), National Marine Fisheries Service (Fisheries) issued an Incidental Harassment Authorization (IHA) to United Launch Alliance for the harassment of small numbers of Pacific harbor seals (*Phoca vitulina richardsi*), California sea lions (*Zalophus californianus*), and northern elephant seals (*Mirounga angustirostris*) incidental to Delta Mariner operations taking place at the harbor on south Vandenberg Air Force Base (VAFB) from September 4, 2009 to September 3, 2010 (NOAA 2009). This report summarizes monitoring activities and behavioral observations made during the June 2010 Delta Mariner operations at the Vandenberg Harbor (Figure 1).

1.1 Pacific Harbor Seals

Pacific harbor seals haul out on the remote sandy beaches and rocky ledges along the shore of VAFB. The main haul-out sites are on south VAFB near south Rocky Point (Figure 2), with smaller groups found on north VAFB. The haul-out near the project area (Figure 2: Small Haul-out #1) is the southeastern most of the south base haul-out sites.

Based on data from monthly counts conducted by ManTech SRS Technologies, Inc. (MSRS) from 2007 to 2009, a total of zero to 22 harbor seals are typically observed at Small Haul-out #1. Up to 28 harbor seals were observed using this haul-out site during harbor dredge monitoring conducted in 2009 (MSRS 2009).

Use of this site by harbor seals as a haul-out is largely dependent on tide. Based on extensive monitoring conducted at this site during the 2009 harbor dredging and Delta Mariner activities, harbor seals usually began leaving their haul-out area at this site when tides exceed 0.0 feet (ft), which is when waves typically began over washing the small haul-out rocks where the bulk of the seals congregate; all seals are usually gone by the time tides reach 1.0 ft. When tides reach 2.0 ft, all haul-out sites are submerged. Harbor seals do not typically haul out at this site unless tides recede to low enough levels to expose the small haul-out rocks with site usage inconsistent when the lowest predicted tide is between 0.0 ft and 1.0 ft.

Dependent pups have not been observed at this site during monthly counts, but weaned pups have been documented sporadically as early as August. With pupping season on VAFB starting in late March to early April, most if not all pups, have been weaned by late June.

1.2 California Sea Lions

California sea lions have been documented hauled out sporadically at VAFB haul-out sites and other coastal rocks and beaches (MSRS unpublished notes). Sea lions were observed hauled out in the harbor area during dock construction monitoring conducted in June 2002 (SRS 2002) as well as harbor dredge monitoring conducted in 2009 (MSRS 2009).

Figure 1. Project Area Location

Figure 2. South Base Haul-out Sites

2.0 Project Activities

2.1 Baseline Data Collection

Prior to initiation of activities associated with the arrival of the Delta Mariner, visits to the site at the lowest daytime tide were made to assess pinniped usage. Initial visits to the site were made on June 2, 3 and 4, prior to the anticipated June 6 arrival of the Delta Mariner. The Delta Mariner was unable to dock on the June 6 due to adverse weather conditions, which persisted and prevented subsequent docking attempts on June 7, 8 and 9.

Following these attempts, the arrival of the Delta Mariner was rescheduled for June 17, the next suitable high tide period. Base line counts were again conducted on June 15, 16, and the morning of June 17 to re-assess site usage in advance of the new arrival date.

2.2 Delta Mariner Operations

Activities associated with the arrival of the Delta Mariner started on June 16. Following the morning low tides, equipment staging and harbor preparation activities were conducted. When such activities coincided with periods when pinnipeds were present at the haul-out site, monitors remained on-site after conducting baseline low tide counts until activities with potential to disturb pinnipeds concluded or until pinnipeds had left the site due to the rising tide. Most activities associated with the Delta Mariner took place when tides were above 2.0 ft, as high tides were necessary for the vessel to enter the harbor.

2.3 Follow-up Monitoring

On June 18, the next daytime low tide following the arrival and departure of the Delta Mariner, the site was revisited to re-assess site usage and pinniped behavior. Subsequent to the 0840 Pacific Daylight Time follow-up count, demobilization activities necessitating the use of a truck mounted crane were initiated, and monitors remained on-site to until advancing tide forced pinnipeds back into the water.

3.0 Monitoring Methods

In addition to pinniped counts, which included species, number of animals, age class, and gender when possible, data on natural or human-caused disturbances, as well as any unusual pinniped behavior, were recorded. Southern sea otters (*Enhydra lutris nereis*) rafting in kelp patties east of the harbor were counted opportunistically (see Figure 3).

For baseline data collection, a single count was made coinciding with the lowest daytime tide. When monitoring during low tide Delta Mariner activities, pinniped counts were taken hourly or whenever a change in numbers occurred. In cases where animals entered the water or alerted, monitors noted the stimulus causing animals to leave the site or alert when it was identifiable. Counts were made using 10x42 power binoculars. Wind and temperature data were recorded hourly using a Kestrel 3000 hand-held wind gauge with a built-in thermometer.

Tide data, as presented in this report, was obtained from a tidal prediction program, JTides 5.2 using the Port San Luis site. An 8 minute backward correction was applied to Port San Luis tide times to account for the difference in locations.

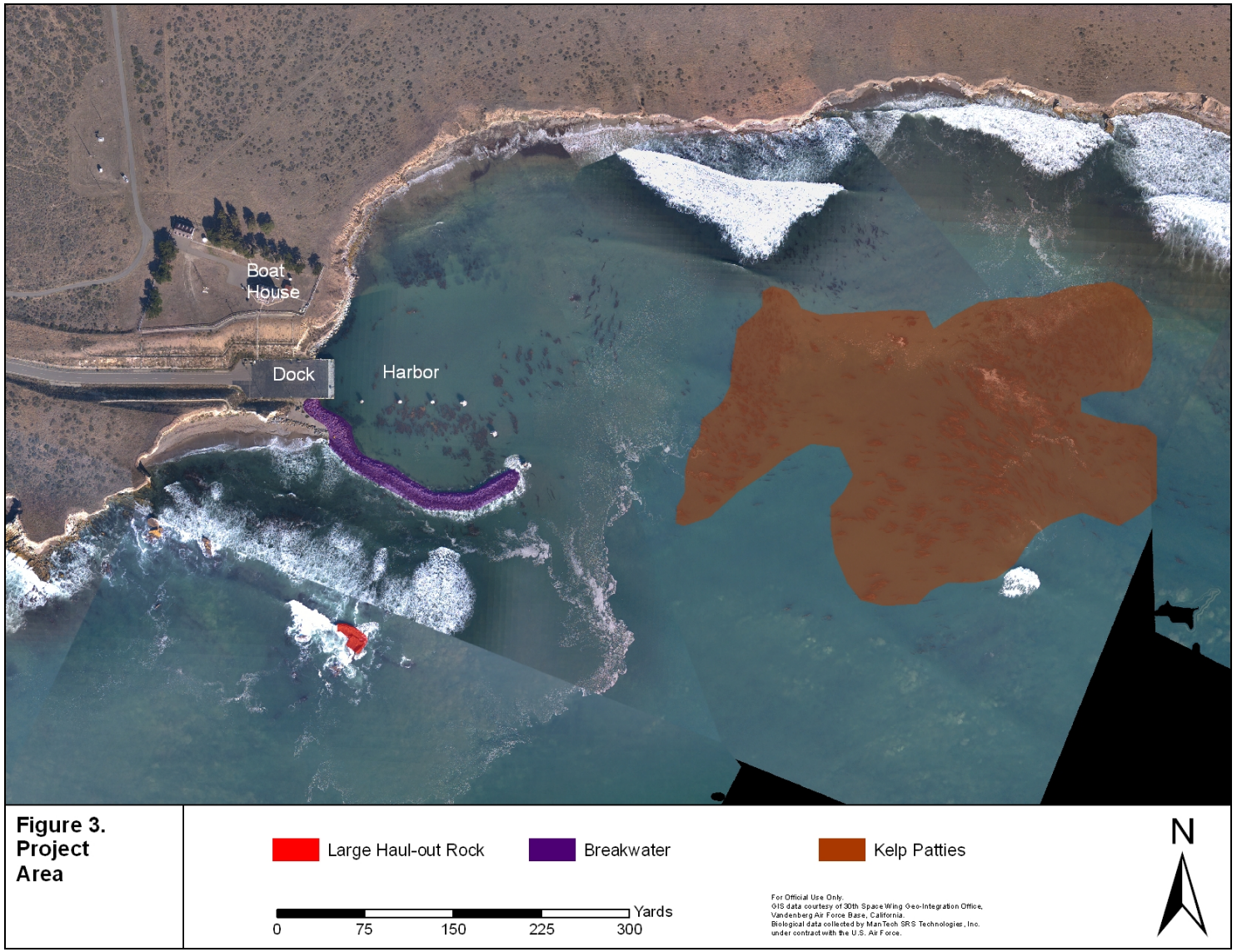


Figure 3. Project Area

4.0 Monitoring Results

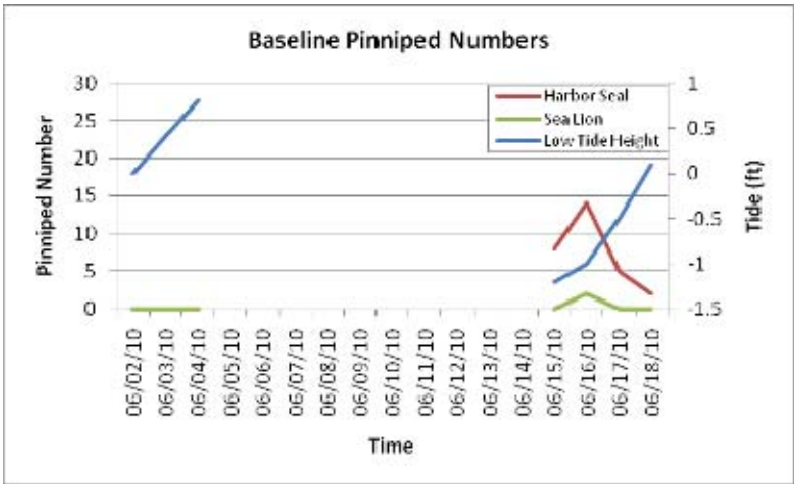
A complete record of all observations made during monitoring activities in included in Appendix A. Only two instances of project related disturbance were observed (Table 1). In the first instance, where a seal was observed to alert to a sudden loud noise, the animal resettled within 1 minute. In the second instance, where two seals flushed, both animals returned to the haul-out within 3 minutes.

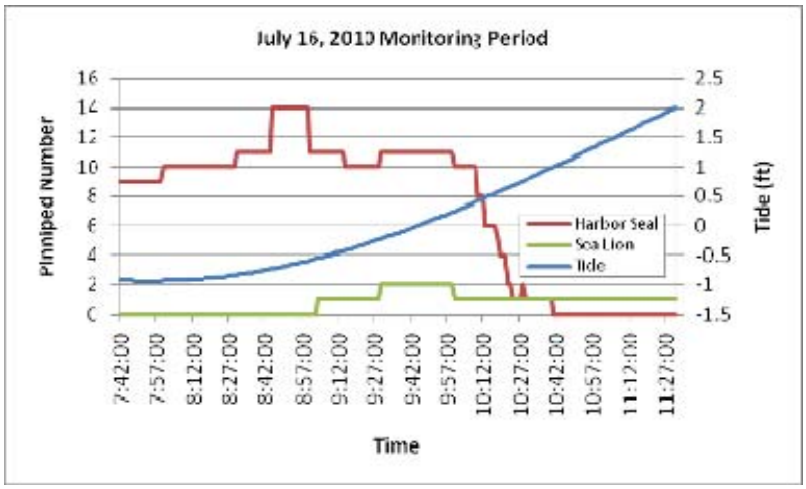
Table 1: Summary of pinniped reactions to project related disturbances.

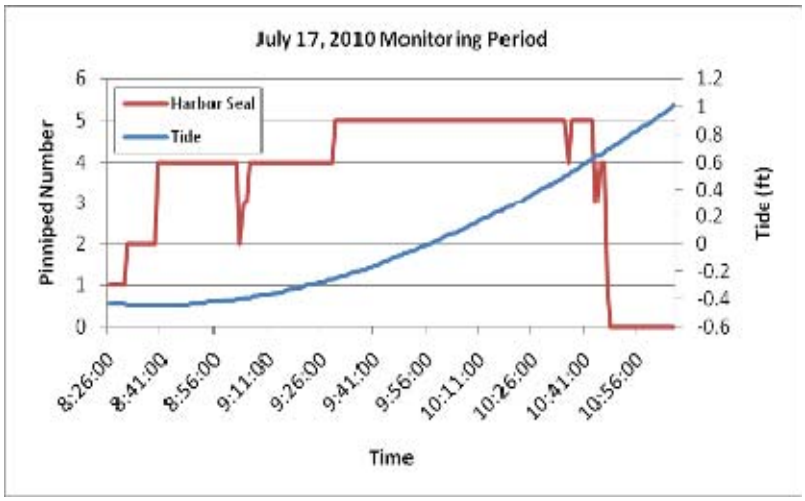
Date	Time	Number Hauled Out	Disturbance	Head Alert	Entered Water
6/17/10	08:52	4	Crane arm made loud squeak when raised	1	0
	09:03	4	Crane arm movement causes affixed loose straps to flap	0	2

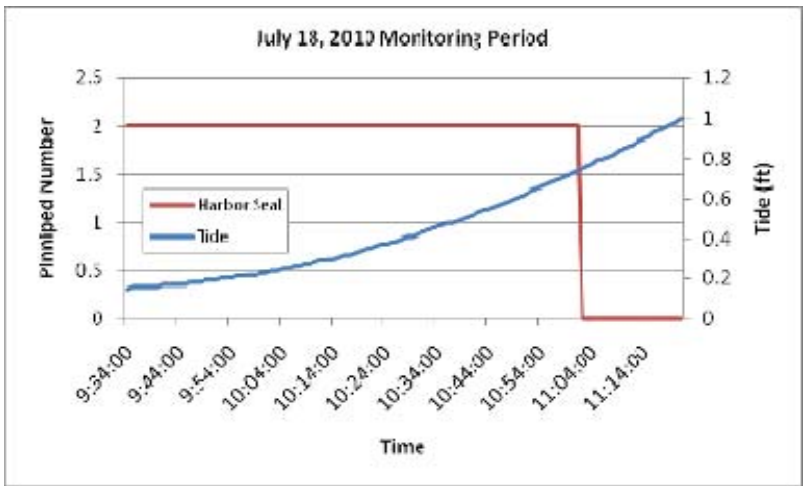
4.1 Pinnipeds

The number of harbor seals present on any given day appeared to be largely dependent on tide, although other factors such as weather and swell height likely affected numbers as well. During the first three baseline counts, tides did not drop below 0.0 ft; on these days no harbor seals were observed. On June 16, two California sea lions were present on the breakwater in addition to the harbor seals utilizing the haul-out rocks. The graphs that follow depict the number of pinnipeds hauled out in relation to tide.



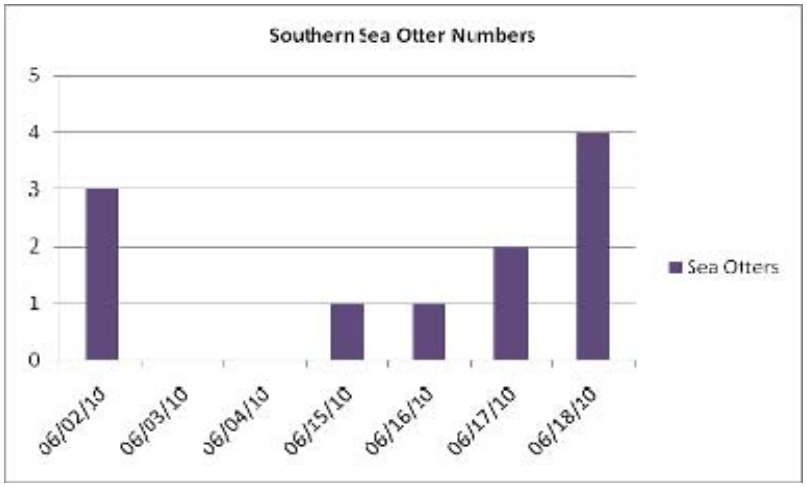

July 16, 2010 Monitoring Period
Pinniped Number
Tide (ft)
Harbor Seal
Sea Lion
Tide
Time


July 17, 2010 Monitoring Period
Pinniped Number
Tide (ft)
Harbor Seal
Tide
Time


July 18, 2010 Monitoring Period
Pinniped Number
Tide (ft)
Harbor Seal
Tide
Time

4.2 Southern Sea Otters

In addition to pinnipeds, southern sea otters were regularly observed rafting in the kelp patties east of the harbor. Between zero and four sea otters were observed in this location during monitoring activities. No sea otter behavioral responses were observed due to activities occurring on the dock or in the harbor.



NOTES:
Maximum number of southern seas otters observed per monitoring period.
Kelp beds east of the harbor were not visible during the monitoring period on June 4 due to rough seas.

5.0 Discussion

During the June 2 to 18, 2010, monitoring period both Pacific harbor seals and California sea lions hauled out within view of the harbor and dock. Harbor seals were only observed to utilize rocks approximately 540 to 570 ft south of the harbor area (Figures 3 and 4), while sea lions were observed hauled out on the breakwater.

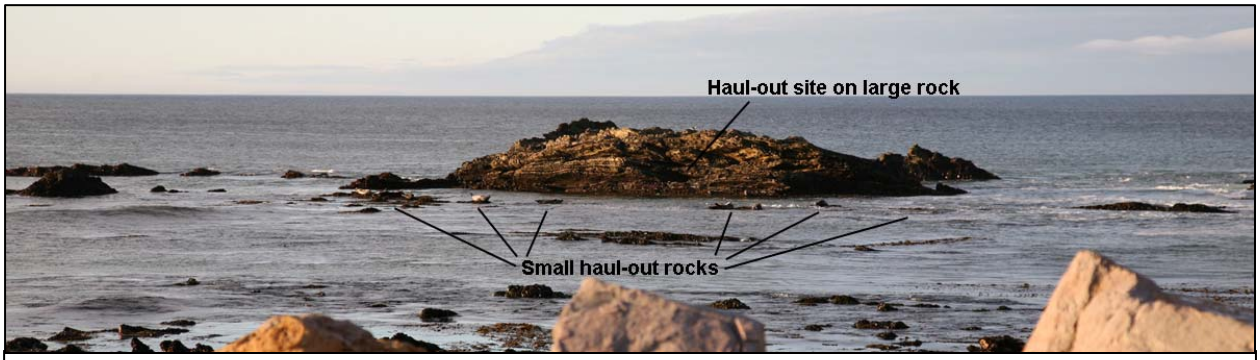


Figure 4. Rocks comprising Small Haul-out #1.

All harbor seals observed appeared to be in good health. The juvenile sea lion observed was slightly emaciated but appeared alert and did not exhibit any abnormal behavior.

There was no indication of altered behavior of Pacific harbor seals and California sea lions in the water due to activities occurring on the dock or in the harbor. Pinnipeds were routinely observed in the water within and around the harbor for the duration of project activities.

Southern sea otter numbers varied from day to day. Variation in numbers was likely partially dependent on weather. The high count of four otters observed on June 18 coincided with the calmest seas and mildest weather conditions of the monitoring period.

6.0 Literature Cited

National Ocean and Atmospheric Administration. 2009. Incidental Harassment Authorization. Issued to the United Launch Alliance. Dated September 4, 2009. NOAA/National Marine Fisheries Service, Silver Spring, MD. 3pp.

ManTech SRS. 2009. Monitoring Report for Harbor Operations, Vandenberg Air Force Base, California. ManTech SRS Technologies, Lompoc, CA. 42pp.

SRS Technologies. 2002. Marine Mammal Monitoring During Dock Modification Construction at Vandenberg Air Force Base, 25-28 June 2002. SRS Technologies, Lompoc, CA. 9 pp.

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Appendix A : Daily Monitoring Logs

Date	Time (PDT)	Number of Seals	Number of Sea Lions	Number of Pelicans	Number of Otters	Swell Height (ft)	Average Wind Speed (mph)	Maximum Wind Speed (mph)	% Cloud Cover	Temper-ature °F	Observer	Note
6/2/2010	8:41	0	0	0	3	4	6.4	10.7	60	57.4	A. Abela	3 otters in kelp outside harbor
6/3/2010	9:30	0	0	0	0	2	1.6	8.4	0	72	R. Ball	
6/4/2010	10:20	0	0	0		7	15	23	5	65.8	A. Abela	Too much chop to see otters (if present)
6/15/2010	7:06	8	0	0	1	5	2.8	4.1	100	55.9	A. Abela	1 otter and 1 seal in kelp outside harbor
6/16/2010	7:48	9	0	0	1	4	2.2	6.7	100	54.4	A. Abela	1 otter in kelp outside harbor
6/16/2010	8:00	10	0	0	1	4	2.2	6.7	100	54.4	A. Abela	
6/16/2010	8:15	10	0	0	1	4	2.2	6.7	100	54.4	A. Abela	
6/16/2010	8:30	11	0	0	1	4	2.2	6.7	100	54.4	A. Abela	
6/16/2010	8:45	14	0	0	1	4	2.2	6.7	100	54.4	A. Abela	
6/16/2010	9:00	11	0	0	1	4	3.1	6.3	85	55.7	A. Abela	
6/16/2010	9:04	11	1	0	1	4	3.1	6.3	85	55.7	A. Abela	1 sea lion (adult male) hauls out on breakwater
6/16/2010	9:15	10	1	3	1	4	3.1	6.3	85	55.7	A. Abela	
6/16/2010	9:30	11	2	3	1	4	3.1	6.3	85	55.7	A. Abela	emaciated juvenile sealion hauls out, 1 harbor seal swimming in harbor
6/16/2010	9:45	11	1	2	1	4	3.1	6.3	85	55.7	A. Abela	juvenile sea lion no longer visible, may be on far side of breakwater
6/16/2010	9:53	11	1	2	1	4	3.1	6.3	85	55.7	A. Abela	crew arrives on site
6/16/2010	10:00	10	1	3	1	4	7.8	21.2	35	57.4	A. Abela	
6/16/2010	10:07	10	1	3	1	4	7.8	21.2	35	57.4	A. Abela	equipment started up, no response from pinnipeds
6/16/2010	10:10	8	1	3	1	4	7.8	21.2	35	57.4	A. Abela	haul-outs becoming submerged, seals getting washed off rocks
6/16/2010	10:13	6	1	3	1	4	7.8	21.2	35	57.4	A. Abela	
6/16/2010	10:15	6	1	3	1	4	7.8	21.2	35	57.4	A. Abela	1 harbor seal in water outside harbor
6/16/2010	10:18	5	1	3	1	4	7.8	21.2	35	57.4	A. Abela	
6/16/2010	10:19	4	1	3	1	4	7.8	21.2	35	57.4	A. Abela	
6/16/2010	10:22	2	1	3	1	4	7.8	21.2	35	57.4	A. Abela	
6/16/2010	10:24	1	1	3	1	4	7.8	21.2	35	57.4	A. Abela	

Date	Time (PDT)	Number of Seals	Number of Sea Lions	Number of Pelicans	Number of Otters	Swell Height (ft)	Average Wind Speed (mph)	Maximum Wind Speed (mph)	% Cloud Cover	Temper-ature °F	Observer	Note
6/16/2010	10:28	2	1	3	1	4	7.8	21.2	35	57.4	A. Abela	
6/16/2010	10:29	1	1	3	1	4	7.8	21.2	35	57.4	A. Abela	Crane arm raised, no response
6/16/2010	10:41	0	1	3	1	4	7.8	21.2	35	57.4	A. Abela	
6/16/2010	10:45	0	1	5	1	4	7.8	21.2	35	57.4	A. Abela	
6/16/2010	11:00	0	1	5	1	4	9.3	16.4	10	58.3	A. Abela	
6/16/2010	11:01	0	1	5	1	4	9.3	16.4	10	58.3	A. Abela	Crane used to raise boat, sea lion asleep
6/16/2010	11:05	0	1	5	1	4	9.3	16.4	10	58.3	A. Abela	Boat lowered into water, sea lion asleep
6/16/2010	11:10	0	1	5	1	4	9.3	16.4	10	58.3	A. Abela	Left site
6/17/2010	8:26	1	0	41	2	3.5	3	5.4	5	59.4	A. Abela	Delta Mariner anchored offshore beyond haul-outs
6/17/2010	8:31	2	0	41	2	3.5	3	5.4	5	59.4	A. Abela	2 otters rafting offshore
6/17/2010	8:40	4	0	41	2	3.5	3	5.4	5	59.4	A. Abela	
6/17/2010	8:42	4	0	20	2	3.5	3	5.4	5	59.4	A. Abela	
6/17/2010	8:49	4	0	20	2	3.5	3	5.4	5	59.4	A. Abela	Boom truck, engine start, no response from pinnipeds
6/17/2010	8:52	4	0	20	2	3.5	3	5.4	5	59.4	A. Abela	Boom arm raised, made loud squeak, 1 seal briefly alerted
6/17/2010	9:00	4	0	20	2	3.5	4.4	9.8	5	58	A. Abela	
6/17/2010	9:03	2	0	20	2	3.5	4.4	9.8	5	58	A. Abela	Boom arm movement caused affixed loose straps to flap, spooking 2 of the harbor seals
6/17/2010	9:04	3	0	20	2	3.5	4.4	9.8	5	58	A. Abela	
6/17/2010	9:06	4	0	20	2	3.5	4.4	9.8	5	58	A. Abela	
6/17/2010	9:15	4	0	20	2	3.5	4.4	9.8	5	58	A. Abela	1 harbor seal in water adjacent to haul-out
6/17/2010	9:30	5	0	20	2	3.5	4.4	9.8	5	58	A. Abela	
6/17/2010	9:56	5	0	20	2	3.5	4.4	9.8	5	58	A. Abela	waves starting to overwash small haul-out rocks
6/17/2010	10:00	5	0	20	2	3.5	1.8	4.2	3	69.6	A. Abela	skiff motors out of harbor, past haul-out to rendezvous with Delta Mariner, no response from harbor seals
6/17/2010	10:30	5	0	20	2	3.5	1.8	4.2	3	69.6	A. Abela	
6/17/2010	10:36	4	0	20	2	3.5	1.8	4.2	3	69.6	A. Abela	seals starting to get washed off rocks
6/17/2010	10:37	5	0	20	2	3.5	1.8	4.2	3	69.6	A. Abela	

Date	Time (PDT)	Number of Seals	Number of Sea Lions	Number of Pelicans	Number of Otters	Swell Height (ft)	Average Wind Speed (mph)	Maximum Wind Speed (mph)	% Cloud Cover	Temper-ature °F	Observer	Note
6/17/2010	10:44	3	0	20	2	3.5	1.8	4.2	3	69.6	A. Abela	
6/17/2010	10:45	4	0	20	2	3.5	1.8	4.2	3	69.6	A. Abela	
6/17/2010	10:47	1	0	20	2	3.5	1.8	4.2	3	69.6	A. Abela	
6/17/2010	10:48	0	0	17	2	3.5	1.8	4.2	3	69.6	A. Abela	
6/18/2010	9:39	2	0	107	4	3	5.8	13.9	100	54.1	A. Abela	
6/18/2010	9:42	2	0	107	4	3	5.8	13.9	100	54.1	A. Abela	equipment started up, no response from pinnipeds
6/18/2010	10:00	2	0	107	4	3	5.8	13.9	100	54.1	A. Abela	boom crane used to lift out floats, not visible to seals, no reaction
6/18/2010	10:13	2	0	107	4	3	5.8	13.9	100	54.1	A. Abela	1 seal in water approaching haul-out
6/18/2010	10:18	2	0	107	4	3	5.8	13.9	100	54.1	A. Abela	rocks starting to get overwashed
6/18/2010	10:30	2	0	107	4	3	1.1	2.2	95	58.3	A. Abela	
6/18/2010	10:34	2	0	107	4	3	1.1	2.2	95	58.3	A. Abela	seals raising heads and tails to stay above water
6/18/2010	10:38	2	0	107	4	3	1.1	2.2	95	58.3	A. Abela	boat raised from water, position not visible to seals, no response
6/18/2010	11:00	2	0	107	4	3	2.4	4.2	90	57.8	A. Abela	
6/18/2010	11:02	0	0	107	4	3	2.4	4.2	90	57.8	A. Abela	seals washed off rocks no attempt to re-haul-out or linger in area