

6/2/2016

California State Lands Representative
Richard B. Greenwood
Statewide Geophysical Coordinator
200 Oceangate, 12th Floor
Long Beach, CA 90802-4331

Dear Mr. Greenwood:

Subject: Post Survey Field Operations and Compliance Report

Please find in the pages below TerraSond Limited's Post Survey Field Operations and Compliance Report.

1. TerraSond completed a hydrographic and geophysical from May 12-17th, 2016, utilizing the survey vessel JAB. A sub bottom, side scan, multibeam and magnetometer survey was conducted in the Santa Monica Bay at two specific sites. Site one was located off of Hermosa Beach and site two was located off of Dockweiler State Beach near El Segundo. Daily line logs were collected as well as a marine wildlife observation log, completed by Padre Associates, Inc.
2. Seasonal weather was seen during survey operations. Calm mornings followed by the onshore wind in the later afternoons as the land heats up and the cooler air moves in from the ocean. The wind was generally 10-15 knots. Very little precipitation accumulated during the survey. The swell was consistent during survey operations around 18 seconds and 2-6 ft. The project area is open to the Pacific Ocean swell. Visibility was good during survey operations.
3. Images of the actual survey lines plotted over chart 18740.

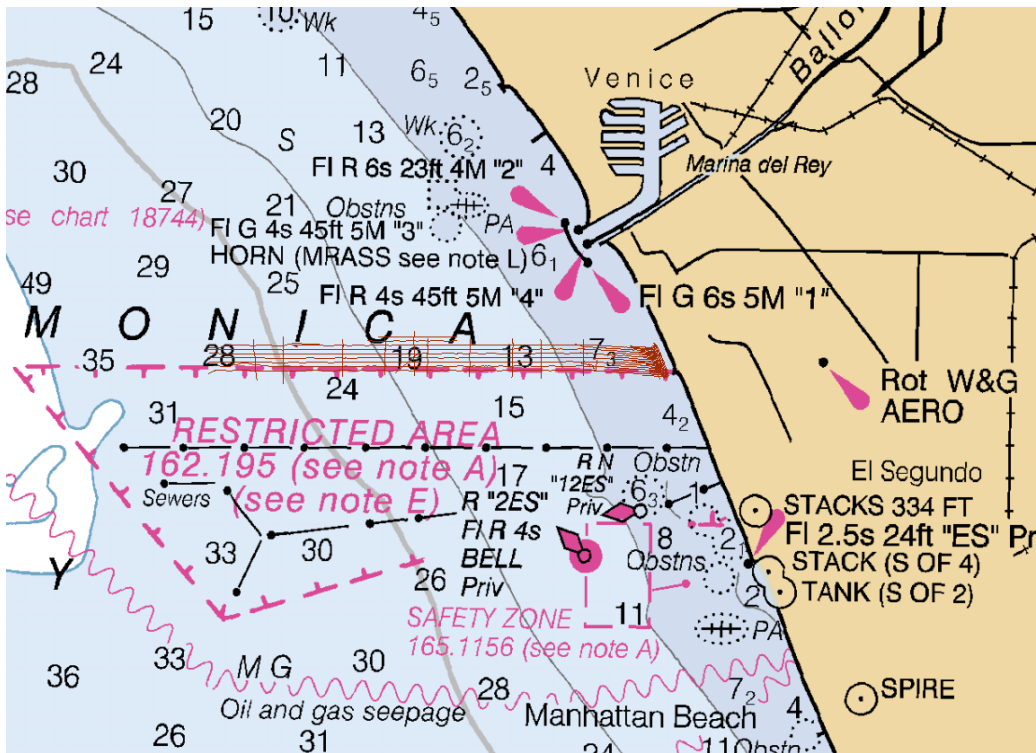


Figure 1 Survey lines off of Dockweiler State Beach

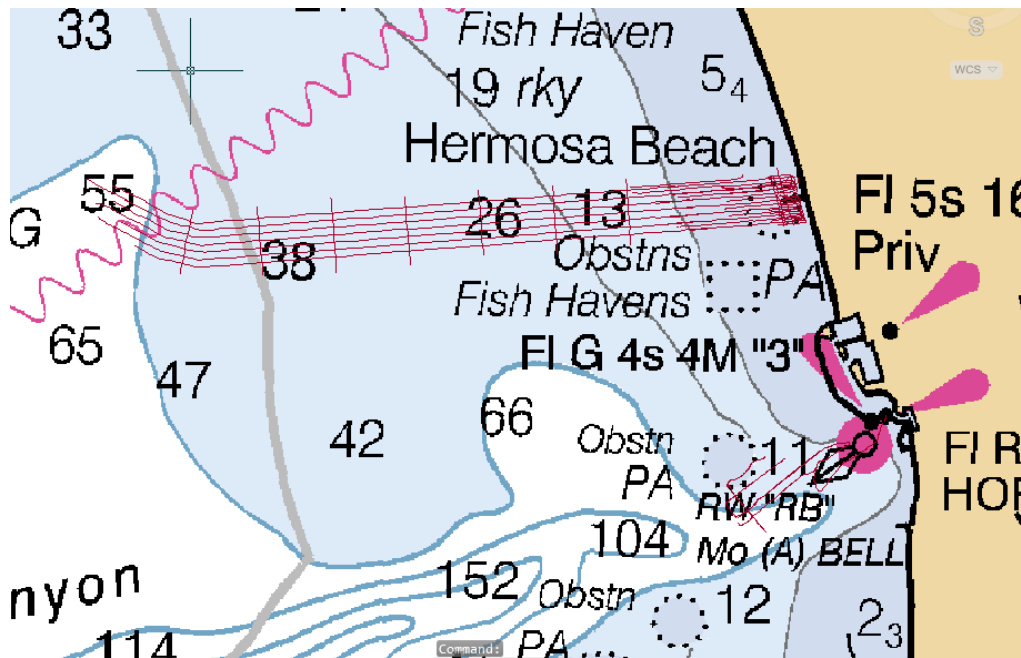


Figure 2 Survey Lines off of Hermosa Beach

4. Please see attached TerraSond_Survey_Lines_Completed_UTMZ11N_Meters.dxf file.
5. Dates and Times of survey operations.

Sub bottom data collection (SBP) Multibeam data collection (MBES) Side scan data collection (SSS)

Date	Time Start (Pacific Time)	Time Stop (Pacific Time)	Equipment Operating
5/11/2016	14:44	15:47	MBES
5/12/2016	08:20	17:57	SBP, SSS
5/13/2016	07:02	15:55	SBP, SSS, MBES
5/14/2016	08:08	16:22	SSS, MBES
5/15/2016	07:30	16:22	SSS, MBES
5/16/2016	06:45	17:18	SSS, MBES
5/17/2016	08:31	14:05	SSS, MBES

6. No environmental hazards were encountered during the survey.
7. No accident, injury, damage to or loss of property was encountered during the survey.
8. No additional information to supply
9. Biological information is provided in the following pages.

MARINE WILDLIFE MONITORING REPORT

**BATHYMETRIC MULTIBEAM, SIDE SCAN SONAR, AND SUB-BOTTOM
PROFILER HERMOSA BEACH AND LAX SURVEYS FOR
ALPINE OCEAN CABLE LANDING PROJECT**

LOS ANGELES COUNTY, CALIFORNIA

Project No. 1602-1040

Prepared for:

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MAY 2016



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1.0 INTRODUCTION

This Marine Wildlife Monitoring Report (Report) has been prepared for Terrasond Limited (Terrasond) to document the permit compliance and associated observations of marine mammals and turtles (marine wildlife) during a bathymetric multibeam, side-scan, and sub-bottom profiler survey (Project) in the Santa Monica Bay offshore Hermosa Beach and Los Angeles International Airport (LAX). The monitoring methods and avoidance measures detailed in this Report were implemented in accordance with the requirements in the existing California State Lands Commission (CSLC) issued Low-Energy Offshore Geophysical Permit PRC 9007.9.

Monitoring and avoidance measures were implemented during the Project to minimize adverse impacts to marine wildlife within the Project area. This Report summarizes the results of the monitoring and any measures implemented to reduce or eliminate potential impacts to marine wildlife.

1.1 PROJECT ACTIVITIES

The survey was conducted in the waters of the Pacific Ocean offshore Hermosa Beach and LAX in Los Angeles County, California (Figure 1-1). The survey area is located within state waters out to the three nautical mile line. The inshore (3 to 15 meters [m] [9 to 50 feet {ft}] depth) and shallow water (greater than 15 m [50 ft] depth) surveys had a corridor width of 500 m (1,640 ft). The survey vessel (SV) *JAB*, a 13 meter (m) (43 foot [ft]) jet powered catamaran, was utilized for all survey operations.

Due to different mitigation monitoring requirements (i.e., safety zone size and number of marine wildlife monitors), the sub-bottom profiler was operated separately from the sidescan and multibeam sonar equipment. Sub-bottom profiler surveys were conducted May 12 and 13, 2016, while sidescan and multibeam equipment testing and/or surveys were conducted May 11, and May 13 through May 17, 2016. The acoustic equipment used during the surveys is detailed in Table 1-1.

Table 1-1. Survey Equipment and Frequency

Survey Equipment	Operating Frequency (kilohertz)
EdgeTech Sub-bottom 3100 w/ 216	2-15
Reson Seabat 7125 multibeam	400
EdgeTech 4200 side-scan sonar	400

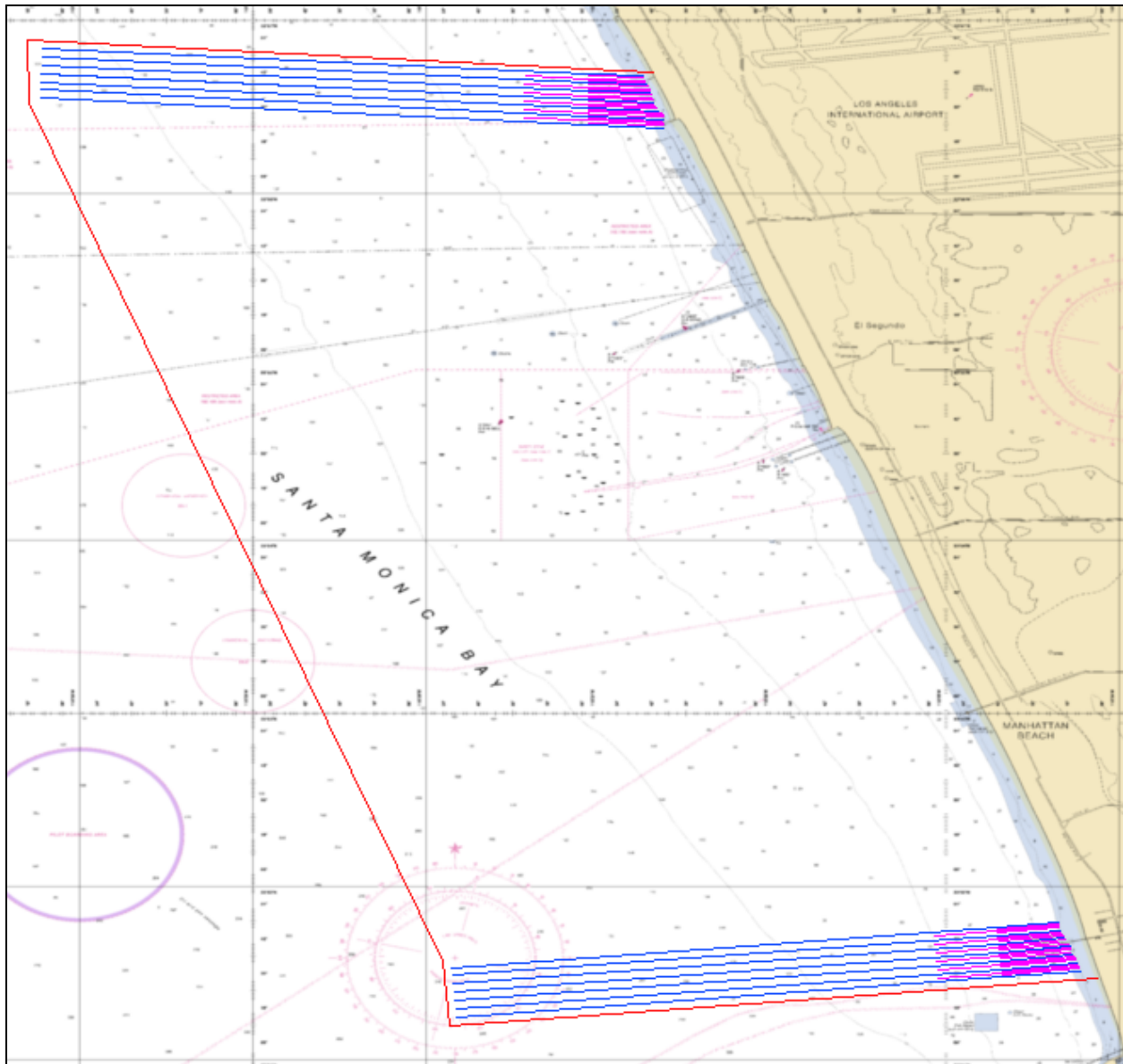


Figure 1-1. Project Area

2.0 REGULATORY SETTING

The CSLC Offshore Geophysical Permit Program (OGPP) requires individual surveying entities to obtain an OGPP non-exclusive permit to perform low-energy geophysical surveys of the ocean bottom and marine environment. Under the OGPP, operators are permitted to conduct surveys using specific types of geophysical equipment subject to permit terms and conditions developed to minimize impacts to marine wildlife and the coastal environment. In August 2013, the CSLC identified potential impacts to marine wildlife from acoustical survey equipment within a Mitigated Negative Declaration (MND), and determined survey activity requirements that would mitigate or avoid those impacts to a point where no significant impacts would occur. This Report details the compliance with the applicable OGPP permit mitigation measures as outlined in Table 2-1 and any permit amendments specifically requested by the CSLC staff.

On April 26, 2016, Ms. Kelly Keen, CSLC Environmental Scientist requested via email an extension of the required safety zone for sub-bottom profiler operations from the permit standard of 100 m (330 ft) to 130 m (427 ft). In addition, Ms. Keen advised Terrasond that if the multibeam echosounder and sidescan sonar systems were operating above 200 kilohertz (kHz), then there would be no required monitoring within a designated safety zone radius and only one marine wildlife monitor would be required onboard. These amendments are reflected in a revised Marine Wildlife Contingency Plan (MWCP), submitted to CSLC prior to the commencement of survey activities.

In addition, special status species are protected by the Endangered Species Act of 1973 (Section 9 and implementing regulations 50 CFR Part 17). The Endangered Species Act (ESA) makes it unlawful to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect an endangered species, or to attempt to engage in any such conduct. Anyone violating the provisions of the ESA and regulations is subject to a fine and imprisonment. An “endangered species” is any species, which the Secretaries of the Department of the Interior and/or the Department of Commerce determine is in danger of extinction throughout all or a portion of its range. A “threatened species” is any species, which the Secretaries determine is likely to become an endangered species within the foreseeable future throughout all or a significant portion of its range. The United States Fish and Wildlife Service (USFWS) and the National Oceanic and Atmospheric Administration (NOAA) Fisheries are responsible for implementation of the Federal ESA.

NOAA Fisheries is also responsible for enforcing the Marine Mammal Protection Act of 1972 (MMPA), which protects all marine mammals within U.S. waters. Specifically, the MMPA prohibits the intentional killing or harassment of these marine mammals; however, incidental harassment, with authorization from the appropriate federal agency, may be permitted.

Table 2-1. OGPP Marine Wildlife Mitigation Measures

Condition Number	Measure
Condition 5(c)	<p>Marine Wildlife Contingency Plan (MWCP): At least twenty-one (21) calendar days prior to each survey, Permittee shall prepare a MWCP for review and approval by the CSLC staff. Said plan shall include, at a minimum, measures that: 1) specify the distance, speed, and direction transit vessels would maintain when in proximity to a marine mammal or reptile; 2) qualifications, number, location, and authority of onboard Marine Wildlife Monitors (MWMs); 3) methods of reducing noise levels generated by the geophysical equipment; 4) Acoustic “safety zone(s)” radius that will be enforced by the MWMs (must be consistent with MM BIO-3 in attached Exhibit H); 5) identification of pinniped haul-out sites within or immediately adjacent to the proposed survey area; and 6) observation recording procedures and reporting requirements in the event of an observed impact to marine organisms.</p> <p>For surveys within 300 meters (m) of a pinniped haul-out site, the MWCP shall further require that:</p> <ol style="list-style-type: none"> 1. The survey vessel shall not approach within 91 m of a haul-out site, consistent with National Marine Fisheries Service (NMFS) guidelines; 2. Survey activity close to haul-out sites shall be conducted in an expedited manner to minimize the potential for disturbance of pinnipeds on land; and 3. MWMs shall monitor pinniped activity onshore as the vessel approaches, observing and reporting on the number of pinnipeds potentially being disturbed (e.g. via head lifting, flushing into the water). <p>Qualifications of proposed MWMs shall also be submitted to the National Oceanic and Atmospheric Administration (NOAA) and CSLC staff at least 21 calendar days in advance of the survey. Survey operations shall not commence until the SLC staff approves the MWMs and the MWCP.</p>
Condition 5(h)	<p>Prior to commencement of survey operations, the Permittee shall; 1) contact the NOAA Long Beach Office Staff and local whale-watching operations and shall acquire information on the current composition and relative abundance of marine wildlife offshore, and 2) convey sightings data to the vessel operator and crew, survey party chief, and onboard marine wildlife monitors (MWMs) prior to departure.</p>
Condition 7(d)	<p>Night Time Operations: Permittee shall not conduct night time survey operations, except when the CSLC staff may authorize at its discretion, upon application, the Permittee to use single beam echosounders and/or passive equipment types at night on a case-by-case basis. The CSLC staff will take into consideration the equipment specification, location, timing, and duration of survey activity.</p>
Condition 7(h)	<p>Marine Wildlife Monitors: A minimum of two qualified MWMs who are experienced in marine wildlife observations shall be onboard the survey vessel throughout both transit and data collection activities. Onboard MWMs responsible for observation during vessel transit shall be responsible for monitoring during the survey equipment operations. All visual monitoring shall occur from the highest practical vantage points aboard the survey vessel; binoculars shall be used to observe the surrounding areas, as appropriate.</p> <p>For survey activities that require the collection of geophysical data of nearshore ocean bottom areas, at least 21 calendar days prior to the commencement of survey activities, the Permittee may petition the CSLC staff for authorization to conduct survey operations with one (1) MWM onboard. The CSLC staff will</p>

	<p>evaluated such petitions on a case-by-case basis and, in granting such authorization at its discretion, will consider factors as the timing type, and location of the survey, the size of the survey vessel, the availability of alternate vessels, and the ability of one MWM to effectively monitor the safety zone.</p> <p>MWMs will not be required aboard vessels conducting survey activities that utilize, as the only form of geophysical equipment, non-pulse or non-acoustic generating, passive survey equipment (e.g. ROV, magnetometers, gravity meters).</p>												
Condition 7(i)	<p>Safety Zone Monitoring: The MWMs will survey an area (i.e, safety or exclusion zone) based on the equipment used, centered on the sound source (i.e., towfish), when the survey equipment is operating. The onboard MWMs shall have authority to stop operations if a marine mammal or reptile is observed within the specified safety zone (below), or if a large concentration of diving birds/seabirds is observed in the immediate vicinity. The MWMs shall also have authority to recommend continuation or cessation of operations during periods of limited visibility (i.e., fog, rain). Periodic reevaluation of weather conditions and reassessment of the continuation/cessation recommendation shall be completed by the onboard MWMs. During operations, if a mammal or reptile's actions are observed to be irregular, the monitor shall have authority to recommend that equipment be shut down until the animal(s) moves further away from the sound source. If irregular behavior is observed the equipment shall be shut-off and will be restarted and ramped-up to full power as applicable or will not be started until the animal(s) is/are outside of the safety zone or have not been observed for 15 minutes. Radial distances for the safety zone of each equipment type are as follows:</p> <table border="1"> <thead> <tr> <th>Equipment Type</th><th>Safety Zone (radius, m)</th></tr> </thead> <tbody> <tr> <td>Single Beam Echosounder</td><td>50</td></tr> <tr> <td>Multibeam Echosounder</td><td>500</td></tr> <tr> <td>Side-Scan Sonar</td><td>600</td></tr> <tr> <td>Subbottom Profiler</td><td>100</td></tr> <tr> <td>Boomer System</td><td>100</td></tr> </tbody> </table>	Equipment Type	Safety Zone (radius, m)	Single Beam Echosounder	50	Multibeam Echosounder	500	Side-Scan Sonar	600	Subbottom Profiler	100	Boomer System	100
Equipment Type	Safety Zone (radius, m)												
Single Beam Echosounder	50												
Multibeam Echosounder	500												
Side-Scan Sonar	600												
Subbottom Profiler	100												
Boomer System	100												
Condition 7(j)	<p>Soft Start: The Permittee shall use a "soft start" technique at the beginning of survey activities each day (of following a shut down) to allow any marine mammal that may be in the immediate area to leave before the sound sources reached full energy. Permittee shall initiate each piece of equipment at the lowest practical sound level, increasing output in such a manner as to increase in steps not exceeding approximately 6 decibels (dB) per 5-minute period.</p>												
Condition 7(k)	<p>Fishing gear interaction: To minimize interaction with fishing gear that may be present within a survey area: 1) the geophysical vessel (or designated vessel) shall traverse the proposed survey corridor prior to commencing survey operations to note and record the presence, type, and location of deployed fish gear (i.e., buoys); 2) No survey lines within 30 m (100ft) of observed fishing gear shall be conducted. The survey crew shall not remove or relocated any fish gear; removal or relocation shall only be accomplished by the owner of the gear upon notification by the survey operator of the potential conflict.</p>												
Condition 7(l)	<p>Collision reporting: In the event of a collision with a marine mammal or reptile the Permittee shall abide by the reporting and procedure requirement listed in Exhibit D.</p>												

3.0 METHODS

Three days prior to the initiation of the survey, Padre marine biologists contacted NOAA Fisheries Long Beach office staff and local whale-watching groups to inquire about the species and numbers of recently observed marine wildlife near the survey area. Marine wildlife monitors onboard the survey vessel were responsible for observing wildlife and their behaviors during transit and data collection operations. Monitoring conditions and avoidance measures designed to decrease the impacts to marine wildlife were implemented as detailed in the following sections.

3.1 PERSONNEL

Two NOAA-approved marine wildlife monitors were required to be onboard during all sub-bottom profiler operations. Padre Marine Biologists Jennifer Klaib and Michaela Hoffman were responsible for monitoring during sub-bottom profiler operations. The sidescan and multibeam sonar equipment operate at frequencies greater than 200 kHz; therefore, only one marine wildlife monitor (Ms. Hoffman) was present during sidescan and multibeam operations. Ms. Klaib and Ms. Hoffman are both NOAA qualified marine wildlife monitors.

3.2 FISHING GEAR CLEARANCE

A fishing gear clearance was conducted in the Project area prior to survey operations. In addition, several navigational buoys for sailing and lifeguard training buoys were present in the survey area. In an effort to avoid fouling of survey equipment, marine wildlife monitors aided in the identification and avoidance of extraneous buoys and their moorings during survey operations.

3.3 MONITORING METHODS

3.3.1 Vessel Transit

The survey vessel transited between King Harbor, Redondo Beach and the survey area during daylight hours each survey day. During vessel transit, there was the potential for encountering marine wildlife. Marine wildlife monitors positioned themselves at the highest, safe vantage point for a clear view of the ocean within the vessels path. To minimize the chance of collision with or disturbance of marine wildlife, the marine wildlife monitor recommended that the vessel maintain a minimum distance of 91 m (300 ft) from marine wildlife. If marine wildlife was observed within the path of the transiting vessel, the monitors reported that observation to the vessel operator, who slowed the vessel and/or changed course in order to avoid contact.

3.3.2 Survey Monitoring

Prior to the start of data collection, survey operators utilized a “soft start” technique to allow any marine wildlife that may be in the survey area to leave before the sound source reached full energy level. Due to differences between the operating frequencies of survey equipment and their potential impacts to marine wildlife, the sub-bottom profiler was operated separately from the multibeam and sidescan sonar equipment. Different safety zone radii and number of marine wildlife monitors were required for the separate surveys (Table 3-1 – Survey Monitoring Requirements). Marine wildlife monitors were prepared with the appropriate safety and monitoring equipment to conduct observations, including Nikon 7 x 50 low light reticulated binoculars for daytime and low light observations.

Table 3-1. Survey Monitoring Requirements

Survey Equipment	Safety Zone Radius (m)	Number of Marine Wildlife Monitors
EdgeTech Sub-bottom 3100 w/ 216	130	2
Reson Seabat 7125 Multibeam and EdgeTech 4200 Side-scan sonar	None required	1

3.3.2.1 Sub-bottom Profiler Survey

During the two-day sub-bottom profiler survey, two NOAA-approved marine wildlife monitors were onboard the survey vessel. Monitoring was conducted from the best vantage points at both the bridge and the stern of the vessel. In accordance with the amended permit conditions (refer to Section 2.0 – Regulatory Setting), a 130 m (426 ft) radius safety zone was monitored whenever the sub-bottom profiler was activated.

Prior to data collection, marine wildlife monitors observed the safety zone radius to ensure no marine wildlife were present. When the safety zone was determined to be clear, survey equipment was slowly ramped up to full power in accordance with permit conditions. During survey operations, the marine wildlife monitor(s) observed wildlife within the equipment-specific safety zone radius whenever survey equipment was operating. When marine wildlife entered the safety zone radius, the marine wildlife monitor identified the species, counted the number of individual animals present, observed the animals' behavior, and the animals' direction/speed of movement. The marine wildlife monitor recorded any distress behaviors, if necessary. A distress behavior was defined as any behavior where the animal acted irregularly including, but not limited to, sudden change in direction, rapid breathing or surfacing, sudden or erratic change in behavior, and/or any defensible behavior such as fluke or pectoral fin slapping.

If distress was observed, the marine wildlife monitor would immediately report that observation to the survey and vessel operators who would, unless those actions jeopardized the safety of the crew, change the speed and/or course of the vessel, and/or terminate acoustic equipment. The path of the observed animal would be closely monitored until it was determined that it had safely passed through the designated safety zone and data collection could resume as normal. The marine wildlife monitor retained the authority to stop any activity that could result in harm to marine wildlife.

The marine wildlife monitors recorded all observations of marine wildlife within the designated hazard zone radius including the time of observation, species, number of individuals, behavior, and distance from the sound source. Any action requested and implemented in order to avoid impacting marine wildlife was also recorded (refer to Appendix A). Weather data was taken and recorded daily. If conditions and/or visibility changed throughout each day, this was also recorded. All observations were recorded on pre-printed data sheets.

3.3.2.2 Multibeam and Sidescan Sonar Survey

A minimum of one NOAA-approved marine wildlife monitor was onboard the vessel during the six-day multibeam and sidescan survey, including one day of equipment testing on May 11, 2016. During survey operations, the marine wildlife monitor observed wildlife within the general survey area near the survey vessel whenever survey equipment was operating. No safety zone was required during the multibeam and sidescan sonar survey. When marine wildlife were observed, the marine wildlife monitor identified the species, counted the number of individual animals present, observed the animals' behavior, and the animals' direction/speed of movement. The marine wildlife monitor recorded any distress behaviors and implemented avoidance actions as discussed above, if necessary.

3.3.3 Pinniped Haul-outs

Survey activities did not occur near any known pinniped haul-out and/or rookeries. The closest haul-out/rookery is located on Santa Catalina Island approximately 50 kilometers (km) [31 miles (mi)] south of the survey area. Hauled-out California sea lions were observed for distress behaviors whenever the vessel transited by navigational buoys.

4.0 RESULTS

All marine wildlife observations are detailed in Appendix A – Daily Marine Wildlife Observations. The following sections summarize the observations made by marine wildlife monitors and results of any avoidance actions requested during the Project.

4.1 SPECIES OBSERVED

Observations were conducted for seven days during vessel transit and survey operations. A total of three species of marine mammals, and one unidentified whale species, were recorded during the Project, totaling 321 individual animals. The species observed included one baleen whale species (humpback whale [*Megaptera novaeangliae*]), one odontocete species (common dolphin [*Delphinus* sp.]), one pinniped species (California sea lion [*Zalophus californianus*]) and one unidentified whale species. Few animals were observed during vessel transit. The four California sea lions recorded during transit were observed nearshore, feeding on small bait fish or milling around navigational buoys near the harbor entrance. In addition, no collisions occurred with marine wildlife during the survey period. Table 4-1 summarizes the total number of individual animals observed for each species during vessel transit, sub-bottom profiler, and multibeam/sidescan survey activities.

Table 4-1. Observed Marine Wildlife Species

Activity	Species			
	California Sea Lion	Common Dolphin	Humpback Whale	Unidentified Whale
Vessel Transit	4	-	-	-
Sub-bottom Profiler Survey	15	103	-	-
Multibeam and Sidescan sonar Survey	8	187	3	1

4.1.1 Sub-bottom Profiler Survey

The species observed in greatest numbers was common dolphin (103 individual animals), which was primarily observed traveling quickly through the safety zone and survey area without displaying any distress behaviors. Additionally, 15 California sea lions were also observed throughout the duration of the survey period. The sea lions were primarily observed slowly swimming through the safety zone or feeding during nearshore survey activities. No distress behaviors were observed from marine wildlife during the sub-bottom profiler surveys.

4.1.2 Multibeam and Sidescan Sonar Survey

Common dolphins were the most abundant species observed during the multibeam and sidescan sonar surveys (187 individual animals). The dolphins were observed traveling through

the safety zone and occasionally swimming alongside the vessel's stern with no display of distress or irregular behavior.

4.2 AVOIDANCE ACTIONS

4.2.1 Sub-bottom Profiler Survey

On May 13, 2016, a pod of approximately 50 common dolphins entered into the 130 m (426 ft) safety zone during sub-bottom profiler operations. The marine wildlife monitors did not observe any distress or irregular behaviors while the dolphins were within the safety zone; however, the sub-bottom profiler energy level was decreased to 50 percent to mitigate for any potential impacts.

4.2.2 Multibeam and Sidescan Sonar Survey

On May 14 and 15, 2016, humpback whales were observed in the survey area during multibeam and sidescan sonar operations. On May 14, 2016, a whale was observed diving approximately 75 m (246 ft) from the bow of the vessel. The marine wildlife monitor requested the vessel decrease speed to allow the whale space to complete its dive and potential resurfacing without interruption. No distress or irregular behavior was observed. On May 15, 2016, a humpback whale surfaced within 30 m (98 ft) off the port bow. The marine wildlife monitor recommended the vessel slow down to less than two knots and notified the survey crew of a potential termination of data collection. The whale resurfaced 15 m (49 ft) off the starboard bow and no distress was observed.

5.0 CONCLUSION

Marine wildlife monitors observed three coastal species that were anticipated to occur within the survey area, and implementation of preemptive avoidance actions helped to minimize the potential adverse impacts to those marine species. Based on the observations of the marine wildlife monitor, and the cooperative efforts of the Terrasond team and vessel crew, no negative Project-related effects to the marine wildlife were observed during the survey period. There were no mitigation shut downs implemented and no collisions occurred with marine wildlife during the course of the survey period. In addition, the vessel crew consistently and promptly complied with all avoidance action requests, which contributed to the success of the implemented mitigation measures.

APPENDIX A

DAILY MARINE WILDLIFE OBSERVATION TABLE

Table A-1. Daily Marine Wildlife Observations

Date	Time	Survey Operation/Equipment	Species	Number Observed	Distance from Sound Source (m)	Behavior	Distress / Implemented Avoidance Action
5/11/2016	-	-	-	-	-	-	No marine wildlife observed during equipment testing
5/12/2016	07:05	Transit	California sea lion	1	n/a	Feeding	No distress observed
5/12/2016	07:51	Sub-bottom profiler	California sea lion	1	75	Slow swimming	No distress observed
5/12/2016	08:00	Sub-bottom profiler	California sea lion	1	50	Swimming parallel to vessel	No distress observed
5/12/2016	09:08	Sub-bottom profiler	California sea lion	1	100	Feeding	No distress observed
5/12/2016	09:45	Sub-bottom profiler	California sea lion	1	60	Fast swimming/porpoising	No distress observed
5/12/2016	11:10	Sub-bottom profiler	California sea lion	1	10	Swimming	No distress observed
5/12/2016	11:29	Sub-bottom profiler	California sea lion	1	8	Slow swimming	No distress observed
5/12/2016	12:03	Sub-bottom profiler	California sea lion	1	15	Slow swimming	No distress observed
5/12/2016	13:29	Sub-bottom profiler	California sea lion	2	20	Slow swimming	No distress observed
5/12/2016	16:13	Sub-bottom profiler	California sea lion	1	20	Fast swimming	No distress observed
5/12/2016	16:41	Sub-bottom profiler	California sea lion	1	25	Swimming	No distress observed
5/12/2016	17:52	Sub-bottom profiler	common dolphin	10	1	Fast swimming with vessel	No distress observed

Date	Time	Survey Operation/Equipment	Species	Number Observed	Distance from Sound Source (m)	Behavior	Distress / Implemented Avoidance Action
5/13/2016	06:38	Transit	California sea lion	1	5	Slow swimming	No distress observed
5/13/2016	07:11	Sub-bottom profiler	California sea lion	2	3-12	Feeding	No distress observed
5/13/2016	7:40	Sub-bottom profiler	California sea lion	1	50	Slow swimming	No distress observed
5/13/2016	08:00	Transit	California sea lion	2	50	Milling/feeding	No distress observed
5/13/2016	09:05	Sub-bottom profiler	common dolphin	50	5	Swimming with vessel	No distress observed but preemptively decreased equipment energy level to 50%
5/13/2016	10:30	Sub-bottom profiler	common dolphin	3	1	Fast swimming	No distress observed
5/13/2016	10:55	Sub-bottom profiler	common dolphin	20	150	Fast swimming	No distress observed
5/13/2016	11:03	Sub-bottom profiler	common dolphin	10	1	Slow swimming	No distress observed
5/13/2016	11:14	Sub-bottom profiler	common dolphin	1	50	Slow swimming	No distress observed
5/13/2016	12:51	Sub-bottom profiler	common dolphin	10	2	Fast swimming	No distress observed
5/14/2016	08:25	Multibeam and Sidescan sonar	California sea lion	1	10	Slow swimming	No distress observed
5/14/2016	08:45	Multibeam and Sidescan sonar	common dolphin	15	100-500	Fast swimming/Feeding	No distress observed
5/14/2016	09:55	Multibeam and Sidescan sonar	common dolphin	20	5-300	Fast swimming/feeding	No distress observed
5/14/2016	10:05	Multibeam and Sidescan sonar	humpback whale	1	75	Slow swimming/diving	Requested vessel to slow down; No distress observed

Date	Time	Survey Operation/Equipment	Species	Number Observed	Distance from Sound Source (m)	Behavior	Distress / Implemented Avoidance Action
5/14/2016	12:07	Multibeam and Sidescan sonar	unidentifiable whale	1	150	Slow swimming/diving	No distress observed
5/15/2016	08:35	Multibeam and Sidescan sonar	California sea lion	1	8	Slow swimming/following vessel	No distress observed
5/15/2016	10:05	Multibeam and Sidescan sonar	common dolphin	100	5-200	Bow riding and following vessel	No distress observed
5/15/2016	11:25	Multibeam and Sidescan sonar	common dolphin	40	5->500	Following vessel/milling	No distress observed
5/15/2016	12:00	Multibeam and Sidescan sonar	Humpback whale	1	30	Slow swimming	Not within vessel path; No distress observed
5/15/2016	12:20	Multibeam and Sidescan sonar	humpback whale	1	15	Slow swimming/diving on port bow	Requested vessel slow down and notified survey crew of potential data termination. Whale resurfaced on starboard bow. No distress observed or shut down required.
5/15/2016	12:38	Multibeam and Sidescan sonar	California sea lion	1	20	Stationary/logging	No distress observed
5/16/2016	06:36	Transit	California sea lion	1	25	Slow swimming	No distress observed
5/16/2016	08:05	Multibeam and Sidescan sonar	California sea lion	1	20	Feeding	No distress observed

Date	Time	Survey Operation/Equipment	Species	Number Observed	Distance from Sound Source (m)	Behavior	Distress / Implemented Avoidance Action
5/16/2016	09:03	Multibeam and Sidescan sonar	Common dolphin	12	15	Fast swimming/following vessel	No distress observed
5/16/2016	09:45	Multibeam and Sidescan sonar	California sea lion	1	45	Fast swimming/porpoising	No distress observed
5/16/2016	13:01	Multibeam and Sidescan sonar	California sea lion	2	30	Slow swimming	No distress observed
5/17/2016	08:42	Multibeam and Sidescan sonar	California sea lion	1	45	Stationary/resting	No distress observed