EcoSystems Management Associates, Inc.
Oceanographic, Geophysics and Underwater Engineering Services

3 December 2013

Mr. Richard Greenwood
California State Lands Commission
200 Oceangate, Suite 1200
Long Beach, CA 90802
Richard.Greenwood@slc.ca.gov

Subject: Proposed Sonar Survey Offshore Palos Verdes

Dear Richard:

Per our phone conversation, please find attached a description of our proposed sonar survey at Palos Verdes. The proposed survey area is located offshore Palos Verdes north of Los Angeles Harbor as shown in Figure 1 (on page 2). The objective of the survey is to locate an area to construct a fish/kelp reef for a scientific pilot study and restoration. The reef location area should be clear from any hard substrate, and the sandy bottom should have a maximum sand thickness of 2-3 feet (ft) over bedrock. The proposed sonar survey will image the bottom using side scan sonar equipment (Klein 590) and a shallow sub-bottom profiling system (Custom made sub-bottom profiler with four 4T61 Massa Transducers) to determine the sub-surface geology of the bottom up to a depth less than 10 ft. The side scan sonar and the sub-bottom profiling will be towed about 15-20 ft behind the boat. During the survey, the bathymetry of the area will be surveyed using a single beam Eco-sounder (Bathy-500MF). The area to be surveyed lies between 10 m and 25 m water depth. The survey will be completed within two to three days, weather permitted.

All of the sonar equipment, which will be used during this survey, is low energy. A description of the characteristics of the equipment to be used in this survey is provided in the table on page 2. This acquisition design has been used successfully for many, many years. Side scan sonar and sub-bottom profiling will be carried out on separate days.

EcoSystems Management Associates, Inc. (ECO-M) maintains a permit for conducting offshore geophysical surveys with the California State Lands Commission and provides pre-cruise information required by the State for minimizing impacts to marine life. Furthermore, survey timing and location are coordinated with local government agencies and fisheries to avoid interference with recreational and commercial boating.

During the survey operations, several procedures will be implemented to eliminate impacts on marine mammals, including daylight operations to enable marine mammal observers aboard the boat to identify marine life that may enter the area of the seismic operations and cease the acoustic source firing until the safety zone is cleared. The safety zone for typical marine mammals, such as seals and dolphins, was 150 ft for the 2009 Santa Cruz survey (located in the Monterey Bay Marine Sanctuary) and 2 km for whales. The source energy level for this equipment is low energy, and the potential for impact on marine life is insignificant, especially

when compared to other marine operations such as commercial shipping and recreational boating, which occur regularly over most of the year.

SURVEY DATE

The target dates for the survey are approximately 26-29 of December 2013 or early January 2014, depending on wave and weather conditions (3-day window).

Length of time operating acoustic profiling equipment: Less than two 10-hour daylight periods. At a speed of about 3 knots, the actual survey time when the acoustic source is operating should be less than about 12 hours total. Transit time, deployment and retrieval of equipment, and time making turns between tracklines will fill the remaining hours of the planned survey dates.

EQUIPMENT LIST

1. Survey Eco-sounder (Bathy-500MF);
2. Side Scan Sonar (Klein 590);
3. Sub-bottom Profiler (Custom made with four 4T61 Massa Transducers); and
4. Trimble GPS antenna and differential GPS receiver.

EQUIPMENT SPECIFICATIONS

The characteristics of the marine acoustic energy source for the proposed project are presented in the table below:

Source	Frequency (kHz)	Maximum output (dB re 1upa at 1 m)	Deployment Depth (m)	Tow Speed	Beam Width	Signal Duration
Eco-sounder	200 kHz	230 (rms)	1	2-3 kn	3°-10°	0.1 ms
Side Scan System Klein 590	400 kHz	220 (rms)	1	2-3 kn (towed)	H: 0.5^o and V: 40°	25-400 µsec
Sub-bottom Profiler	3.5 kHz	214 (peak value)	<1 m	2-3 kn (towed)	55°	330 µsec

Sincerely,

ECOSYSTEMS MANAGEMENT ASSOCIATES, INC.

Hany Elwany, Ph.D.
President

EXHIBIT G

California State Lands Commission Presurvey Notice Requirements for Permittees to Conduct Geophysical Survey Activities

All parts of the Presurvey Notice must be adequately filled out and submitted to the CSLC staff a minimum of twenty-one (21) calendar days prior to the proposed survey date to ensure adequate review and approval time for CSLC staff. Note that one or more of the items may require the Permittee to plan well in advance in order to obtain the necessary documentation prior to the Notice due date (e.g., permits from other State or Federal entities).

Please use the boxes below to verify that all the required documents are included in the Presurvey Notice. If "No" is checked for any item, please provide an explanation in the space provided. If additional space is needed, please attach separate pages.

Yes	No	
☑	☐	Geophysical Survey Permit Exhibit F
☐	☑	Permit(s) or Authorization from other Federal or State agencies (if applicable) Explanation: _____
☑	☐	21-Day Written Notice of Survey Operations to Statewide Geophysical Coordinator/
☑	☐	U.S. Coast Guard Local Notice to Mariners/
☑	☐	Harbormaster and Dive Shop Notifications Explanation: _____
☑	☐	Marine Wildlife Contingency Plan Explanation: _____
☑	☐	Oil Spill Contingency Plan Explanation: _____
☑	☐	Notification of Geophysical Survey Equipment Used Explanation: _____
☑	☐	Verification of Equipment Service and/or Maintenance (no older than 12 months; must verify sound output) Explanation: Echosounder and side scan sonar equipment are very low energy, and we have used them successfully in recent projects; sub-bottom profiler is checked in November 2013, by Mr. Jim Ross of Ross Laboratories, Inc. (Tel :206-324-3950) and returned to us on 4 December 2013.
☐	☑	Permit(s) or Authorization from California Department of Fish and Wildlife for surveys in or affecting Marine Protected Area(s) (if applicable) Explanation: Survey area is away (1.2 miles) from the nearest MPA.

NOTE: CSLC staff will also require verification that current biological information was obtained and transmitted as outlined in Section 5 of this permit

EXHIBIT F

PRESURVEY NOTIFICATION FORM

Applicant/Permittee's Mailing Address

_____
_____
_____
_____

Date: 4 December 2013

Jurisdiction: Federal _____ State _____ Both _____

If State: Permit #PRC _____

Region: _____

Area: _____

GEOPHYSICAL SURVEY PERMIT

Check one: __x____ New survey _____ Time extension of a previous survey

___ECO-M_(Applicant/Permittee) will conduct a geophysical survey offshore California in the survey area outlined on the accompanying navigation chart segment. If you foresee potential interference with commercial fishing or other activities, please contact the person(s) listed below:

FEDERAL WATERS (outside 3 nautical miles)

1) Applicant's representative
2) Federal representative (e.g., Bureau of Ocean Energy Management [BOEM] or National Science Foundation [NSF])

NOTE: Any comments regarding potential conflicts in Federal waters must be received by the Applicant's Representative and lead Federal agency within ten (10) days of the receipt of this notice.

STATE WATERS (Inside 3 nautical miles)

1) Permittee's representative
2) CSLC representative

NOTE: Any comments regarding potential conflicts in State waters should be received as soon as possible by the Permittee's representative, no more than fifteen (15) days after the receipt of this notice.

1. Expected Date of Operation_26-29 Dec 2013 or 5-15 Jan 2014 (3 days survey-weather permitted)__
2. Hours of Operation___0600-1600 hrs_____
3. Vessel Name__Farallon_____
4. Vessel Official Number CA Registration CF8977HJ_____
5. Vessel Radio Call Sign_N/A – no longer required by Feds_____
6. Vessel Captain's Name Tim Norall_____
7. Vessel will monitor Radio Channel(s) 16_____

8. Vessel Navigation System GPS

9. Equipment to be used Echosounder (Bathy 500 MF), side scan sonar (Klein 590) sub-bottom profiler (custom made with four 4T61 Massa Transducers)

   a. Frequency (Hz, kHz) 200 kHz, 400 kHz, 3.5kHz

   b. Source level (dB re 1 μPa at 1 meter (m) [root mean square (rms)]) 230, 220, 214

   c. Number of beams, across track beamwidth, and along track beamwidth 1,1,4 beamwidth 10°, H. 0.5°- V 40°, 55°

   d. Pulse rate and length 0.1 ms, 25-400 μsec, 330 μsec,

   e. Rise time 0.05 ms, 12.5-200 μsec, 165 μsec

   f. Estimated distances to the 190 dB, 180 dB, and 160 dB re 1 μPa (rms) isopleths The table below gives distance between the source and for various dB values:

Source	Dist. To160 dB (m)	Dist. To 180 dB (m)	Dist. To190 dB (m)
Echo-Sounder	95	47	28
Side-Scan	33	8	3
Sub Bottom Profiler	223	22	7

   g. Deployment depth 1 m, 8m, 2m

   h. Tow speed 3 knots

   i. Approximate length of cable tow less than 10m

Applicant's Representative:
Dr. Hany Elwany
President, EcoSystems Management Assoc.
2166 Avenida de la Playa, Suite E
La Jolla, CA, 92037
hany@coastalenvironments.com

California State Lands Representative
Richard B. Greenwood
Statewide Geophysical Coordinator
200 Oceangate, 12th Floor
Long Beach, CA 90802-4331
(562) 590-5201

BOEM Representative
Joan Barminski
Chief, Office of Reservoir & Production
770 Paseo Camarillo
Camarillo, CA 93010
(805) 389-7707

Other Federal Representative (if not BOEM):

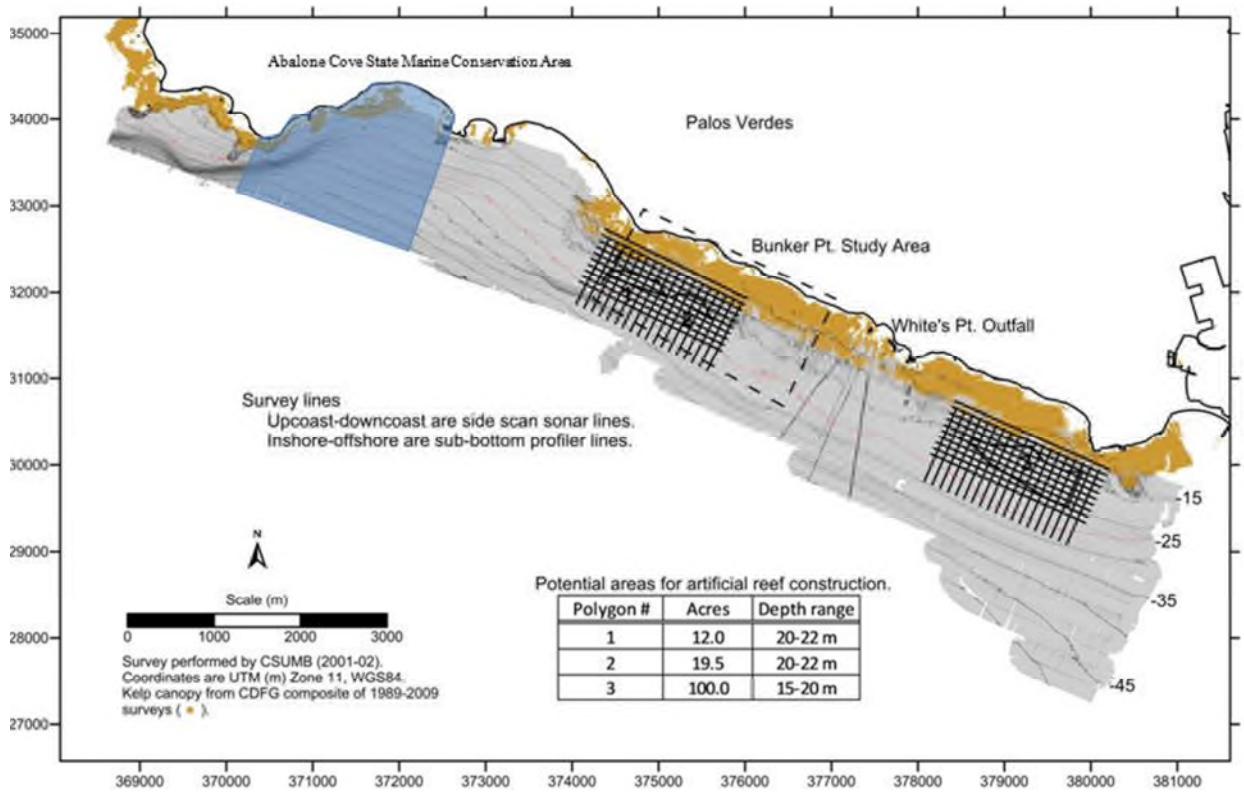

Figure 1. Distance between the MPA Abalone Cove State Marine Conservation Area (blue) and the proposed survey area (gridded/boxed dotted line) is approximately 1.2 miles. California NAD83 Zone 6 is indicated on the northern (vertical) and eastern axes (horizontal).

ECOSYSTEMS MANAGEMENT ASSOCIATES, INC.

MARINE WILDLIFE CONTINGENCY PLAN

Submitted to

California State Lands Commission
Mineral Resources Management Division
200 Oceangate, 12th Floor
Long Beach, CA 90802-4331

by

EcoSystems Management Associates, Inc.
2166 Avenida de la Playa, Suite E
La Jolla, CA 92037

13 December 2013

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ECOSYSTEMS MANAGEMENT ASSOCIATES, INC.

MARINE WILDLIFE CONTINGENCY PLAN

1.0 INTRODUCTION

This plan is intended to serve as a guide to operations to avoid significant impacts to marine wildlife that may occur during a geophysical survey. This plan is prefaced by a brief description of the project and the regulatory basis for marine wildlife protection followed by:

- The species likely to be present during the survey and the special status species of concern;
- A proposed operational plan for the company performing the survey, EcoSystems Management Associates, Inc. (ECO-M), to exercise caution while marine wildlife is present; and
- The procedure to follow should a collision occur between the survey vessel and marine wildlife.

2.0 REGULATORY BASIS

Species that are either currently in danger or soon likely to be in danger of extinction throughout all or a portion of its range are protected by the Endangered Species Act of 1973. The United States Fish and Wildlife Service (USFWS), and the National Oceanic and Atmospheric Administration Fisheries (NOAA), National Marine Fisheries Service (NMFS) implement the Endangered Species Act. During the consultation with NMFS to issue a permit for the offshore geophysical survey, it was determined no incidental take permits are required to use the equipment and conduct the fieldwork. Regarding the consultation, the U.S. Army Corps of Engineers determined proposed activities may affect, but were not likely to adversely affect listed species (i.e., informal consultation). NMFS and USFWS have concurred with this statement.

NMFS also implements the Marine Mammal Protection Act of 1972, which protects all marine mammals within U.S. waters from intentional killing or harassment. Any accidental contact with marine wildlife during the course of the survey will be promptly reported to the NMFS Stranding Coordinator, Southwest Region, Long Beach.

The California State Lands Commission (CSLC) protects the natural environment for scenic and wildlife habitat values for the public trust. State agencies require marine mammal monitoring for any survey operations. The marine mammal population in general includes whale species, porpoises, dolphins, pinnipeds, and others. Some species are migrants that pass through central California waters on their way to calving or feeding grounds elsewhere, some are seasonal visitors that remain for weeks or months; others are resident for much or all of the year.

3.0 OPERATIONAL MEASURES FOR REDUCING IMPACTS TO MARINE MAMMALS AND TURTLES

ECO-M's project operations will utilize the following procedural techniques to limit the imposition of survey activities on any marine animals known to be within a sphere of influence. The survey vessel will have personnel on board during operations that are NOAA-approved marine wildlife monitors. The monitors will have authority to influence the operation of the vessel in regard to marine wildlife interaction but will be contravened by the captain of the vessel in matters of vessel and crew safety.

3.1 Pre-Survey Activities

ECO-M contacted the NOAA Long Beach Office staff and local whale-watching operations to acquire information on the current composition and relative abundance of marine wildlife offshore as well as any pinniped haul out sites. From these sources, it was determined that whale activity is low at the moment, as the peak whale season is February – March. However, a sperm whale was observed approximately one mile offshore of Point Vicente this month (American Cetacean Society, Los Angeles Chapter, 2013). According to NOAA (personal communication with Monica DeAngelis, a Marine Mammal Biologist with the NOAA West Coast Region), this area is not near any known pinniped haul out sites. This was conveyed to the vessel operator and crew, survey party chief, and onboard Marine Wildlife Monitors (MWMs). Additionally, one day prior to survey activities, the NOAA Long Beach office, local whale watching operations, and the American Cetacean Society, LA Chapter, will be contacted to get an update on marine wildlife sightings in the area. This information will be conveyed to the captain and crew prior to the survey.

An initial or board review of environmental responsibility of project operations will be undertaken at the beginning of each segment of the project. When new personnel will be in the crew, this training will be repeated at least for those new to the crew. They will be made aware of their individual responsibility and will be shown how to be aware of possible environmental impacts and how to mitigate them within the geophysical survey vessel's operations. Information relating to seasonality, as an indication of the types of animals that might be in our survey area, at the time of survey work will also be presented to the crew(s). A copy of this document will be provided to each member of the geophysical survey team, as well as the crew of our survey vessel.

All personnel will be expected to be consistently aware that they are to be alert to any presence of marine wildlife while they are performing their duties. There are a number of signs/indications of marine wildlife presence and each crew member will be responsible to maintain vigilance for those signs within the constraints of their project duties. Some of those indications are:

a. <u>Sounds</u> - such as splashing, vocalizations (by animals and birds), and blowing (breathing).

b. <u>Visual indications</u> - birds aggregating, changes in water character such as areas of rippled water, white water caused by splashing, changes in color or shape of the ocean surface,

spume, the disturbance of the normal sea view that can be caused by animals floating, rolling, diving, or leaping.

c. Smell - on occasion marine organisms can be associated with smell from breath or defecation.

d. Electronic observation - often the presence of schools of "bait fish" can be seen on some of the geophysical survey equipment. That presence, along with an increasing number of schools, can suggest that this area could possibly be associated with increased feeding activity of marine mammals and thereby suggest that increased awareness efforts should be undertaken. Under these circumstances, ECO-M's personnel will be alerted to be more observant.

3.2 Marine Wildlife Monitors

At all times during survey activities, one to two marine wildlife monitors (MWMs) will be present on the vessel. The qualifications of the MWM is located in Appendix A of this document. The onboard MWM shall have the authority to stop operations if a mammal or turtle is observed is observed within the specified safety zone. The MWM will be present at the highest practical vantage point on the vessel and will use binoculars to observe the surrounding area. We are requesting to have one MWM instead of two present on our boat. Are reasons are: 1) the geophysical survey data will occur in nearshore ocean bottom areas where the likelihood of encountering marine mammals is less, 2) the small size of the vessel (27 ft.) will allow one MWM to effectively monitor the radius around our survey area, and 3) the small size of the vessel combined with our crew and survey gear will not allow for adequate room for an additional observer. After speaking to Justin Greenman, Assistant Stranding Coordinator at the NOAA Long Beach office, migrating whales are more likely to be found further offshore (1/2 mile or more), however, they can occasionally come closer in to shore to the coves to rest. The offshore extend of our survey boundary will be 0.6 miles from shore, therefore the likelihood of encountering a migratory marine mammal within this area is low. However, in order to avoid any contact with marine mammals within our survey area, we will make contact with local whale watching operations (Harbor Breeze out of Long Beach and the American Cetacean Society, LA Chapter), which whale watch at Point Vicente (located north of survey area), and request a heads up if migrating whales are spotted near shore and are heading south. We will make contact with these organizations two weeks before the survey, again one day before the survey, then on the day of the survey via VHF radio to request information on migratory whale sightings. We believe this method, coupled with the MWM and the specified radii will avoid any negative contact with marine mammal species.

3.3 Operational Measures

Operational measures to reduce impacts to marine mammals or turtles will include: 1) soft-start technique, 2) acoustic safety zone radii, 3) slow vessel speeds, 4) avoidance of pinniped haul out sites, and 4) limitations on equipment usage.

Soft Start Technique

The soft-start technique will involve initiating each piece of equipment at the lowest practical sound level, increasing the output in such a manner as t increase in steps not exceeding approximately 6 decibels per 5-minute period. During this time, MWMs will monitor the safety zone for marine mammal or turtle sightings.

Acoustic safety zone radius

The safety zone monitoring will follow the protocols outlined in Exhibit H of the Permit (PRC 8536.9), which sets a safety zone of 95 m for the single beam echosounder, 600 m for the side-scan sonar, and 223 m for the sub-bottom profiler and boomer system. In the event a pinniped haul out site is located within 300 m of the survey boundary, ECO-M will take the following measures:

- Not approach within 91 m of the haul-out site (consistent with NMFS guidelines);
- Expedite survey activity in this area in order to minimize the potential for disturbance of pinnipeds on land;
- Have the MWM monitor pinniped activity onshore as the vessel approaches, observing and reporting on the number of pinnipeds potentially disturbed

Initially, ECO-M will make a circuit of the survey area to ascertain if any marine wildlife is apparent in the intended survey area(s). This being done, there are three specific measures to be taken in the event that the vessel appears to be approaching marine mammals on one of the pre-established and specific survey transects. *One:* Stop vessel operations and wait until the animals have passed (this is in case animals are transiting the area). The mammal monitor shall observe and determine if migrating cetaceans are in the area. The captain will not knowingly cause complications with their intended migratory path. *Two:* Shift to another pre-established survey transect thereby avoiding close encounters (this is for animals that are occupying a given area for a period of time). *Three:* Do not begin the survey until observed animals in the survey area have departed or are at such a distance (as noted above) that they will be out of the range of ECO-M's influence. If the marine mammal monitor should sight marine wildlife within the path of the vessel, he/she will report the sighting to the vessel operator. The vessel will then slow down and continue a course that parallels that of the marine mammal. The marine mammal monitor shall have the authority to halt any operations or redirect the vessel that poses an immediate threat to marine wildlife. Onboard personnel will be watchful as the vessel crosses this path or anytime whales are observed in the area. The vessel operator shall observe the following guidelines:

- Make every effort to maintain distance from sighted marine mammals and other marine wildlife;
- Do not cross directly in front of (perpendicular to) migrating whales or any other marine mammal or turtle;
- When paralleling marine mammals or turtles, the vessel will operate at a constant speed that is not faster than that of the whales;
- Care will be taken to ensure female whales are not separated from their calves; and,

- If a whale engages in evasive or defensive action, the vessel will reduce speed or stop until the animal calms or moves out of the area.

Vessel speed

To obtain good, clean data, normal survey speeds are usually maintained between 2 and 3 knots. This speed is significantly slow in relation to transit speeds maintained by marine mammals and is only a little above the speed necessary to maintain steerage.

Limitations on equipment usage

Limitations on the frequency, pulse length, and pulse rate will be implemented to reduce potential harmful noises. For the sub-bottom profiler, the highest frequency band possible will be used and the shortest possible pulse length and lowest pulse rate (pings per second) will be used.

4.0 COLLISION REPORTING

In the event of a collision between the vessel and a marine mammal or reptile, the vessel operator will document the conditions under which the accident occurred. These conditions include:

- Vessel location (latitude, longitude) when the collision occurred;
- Date and time of collision;
- Speed and heading of the vessel at the time of collision;
- Observation conditions (e.g. wind speed and direction, swell height, visibility in miles or kilometers, and the presence of rain, fog) at the time of collision;
- Species of marine wildlife contacted (if known)
- Whether an observer was monitoring wildlife at the time of collision, and;
- Name of the vessel, owner/operator, and captain officer in charge of the vessel at the time of collision.

After a collision, the vessel shall stop, but will continue with operations if it is deemed that no further damage will result to the animal by doing so. The vessel is not obliged to stand by and may proceed after confirming that it will not further damage the animal by doing so. The vessel shall then communicate by radio or telephone all details to the vessel's base of operations. From the vessel's base of operations, a telephone call shall be placed to the Stranding Coordinator, NMFS, Southwest Region, Long Beach. Alternatively, the vessel captain may contact the NMFS Stranding Coordinator directly using a cell phone.

It is unlikely that the vessel will be asked to stand by until NMFS or California Department of Fish & Game (CDFG) personnel arrive, but this shall be determined by the Stranding Coordinator. Under the Marine Mammal Protection Act, the vessel operator is not allowed to aid injured marine wildlife or recover the carcass unless requested to do so by the NMFS Stranding Coordinator.

Collisions with marine wildlife will be reported promptly to the NOAA Fisheries Stranding

Coordinator. The Stranding Coordinator will then coordinate subsequent action, including enlisting the aid of marine mammal rescue organizations, if appropriate.

Although the NOAA Fisheries has primary responsibility for marine mammals in both state and federal waters, CDFG should also be advised that an incident has occurred in state waters affecting a protected species. Reports should be communicated to the federal and state agencies listed below:

FEDERAL

Joe Cordaro, Stranding Coordinator
NOAA Fisheries
Enforcement Dispatch Desk
Southwest Region
Long Beach, CA 90802
(562) 980-4017

STATE

California Department of Fish & Game
Long Beach, CA 90802
(562) 590-5132

California State Lands Commission
Division of Environmental Planning and Management
Sacramento, CA
(946)574-0748
slc.ogpp@slc.ca.gov

5.0 MARINE PROTECTED AREAS

The proposed survey area does not fall into a designated marine protected area (MPA). The Abalone Cove State Marine Conservation Area (Figure 1) is the closest MPA, and is located approximately 2 miles northwest from the survey area.

6.0 REFERENCES

American Cetacean Society, Los Angeles Chapter, 2013. Acs/La Gray Whale Census and Behavior Project. http://www.acs-la.org/daily.htm

California Department of Fish and Game (CDFG). 2013. Guide to southern California marine protected areas. 120 pp.

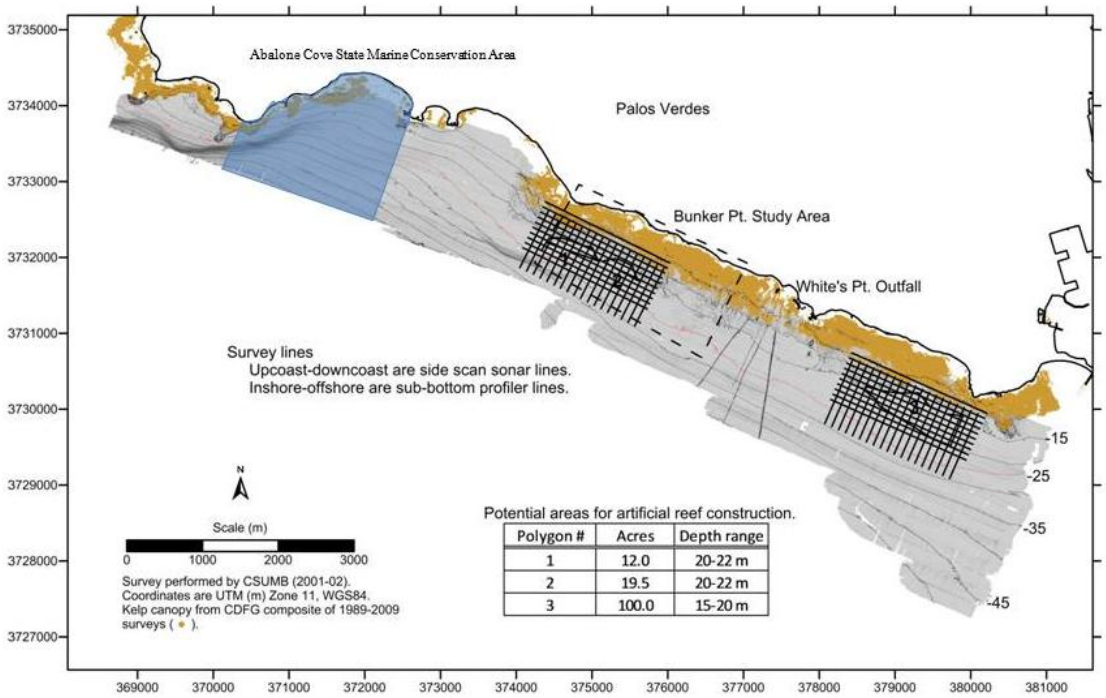

Figure 1. **Location of the Abalone Cove State Marine Conservation Area in relation to the proposed survey area.**

APPENDIX A

MARINE WILDLIFE OBSERVER CERTIFICATION

CERTIFICATE OF TRAINING

This is to certify that

Kelsey Hall

Of

Geomotive / The Marine Team OffShore

has on this date, *August 26, 2007* completed a course in

PROTECTED SPECIES OBSERVER TRAINING

(conducted in accordance with NTL No. 2007-G02 issued by the MMS, effective February 7, 2007)

RHONI LAHN, INSTRUCTOR

Marine Team Offshore
Rose Barton Rose Ash South Molton North Devon
EX36 4RQ United Kingdom
Limited Company: 5947675
Tel: +44 (0) 798 355 6741 T

Figure B-1. Marine wildlife monitor certification

ECOSYSTEMS MANAGEMENT ASSOCIATES, INC.

OIL SPILL CONTINGENCY PLAN

Submitted to

California State Lands Commission
Mineral Resources Management Division
200 Oceangate, 12th Floor
Long Beach, CA 90802-4331

by

EcoSystems Management Associates, Inc.
2166 Avenida de la Playa, Suite E
La Jolla, CA 92037

10 December 2013

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ECOSYSTEMS MANAGEMENT ASSOCIATES, INC.

MANAGEMENT OF ACCIDENTAL DISCHARGE AND VESSEL PROBLEMS DURING OFFSHORE/ONSHORE GEOPHYSICAL SURVEY

1.0 INTRODUCTION

At the initiation of each project or project phase, a spill management review will be conducted by the vessels captain who is in all cases the responsible authority. It should be pointed out that any oil spill in United States (U.S.) marine waters shall be reported immediately (on the same day). Reporting information is stated in Section 8.0.

2.0 OPERATIONAL SPILLS

Operational spills might involve one or more of the following substances carried on board the vessel: (i) fuel; (ii) lube oil; (iii) hydraulic oil; or (iv) waste oil. The vessel is equipped with a Buffalo Quick-Response Oil Spill Kit, which includes socks for fast spill containment (three 4'' socks), woven polypropylene sheets (15 sheets) for rapid absorption of surface oil and protective gear, protective gloves (1 pair), disposal bag (1), and a set of instructions. This oil spill kit is located in the forward cabin of the vessel. This spill kit is rated to clean up 5 gallons of liquid. All of the liquids (listed below) that could cause a hazardous spill are either in the fuel tank or are located in the engine room of the vessel. Thus, if a spill occurred, these would be contained in the engine room, or if a grounding or instance occurred that punctured the gas tank, this would leak into the water, which is beyond the scope of our cleanup efforts. In the event a spill occurred in the engine room, the oil spill kit would be used to contain the hazardous liquids and the bilge would not be emptied until it could be pumped out at a hazardous waste facility. We do not anticipate a spill of greater than 5 gallons.

(i) Fuel:

A spill kit shall be available for use in the event of a spill. If the fuel is spilled on the deck, it shall be immediately removed, bagged and disposed of at an appropriate hazardous waste reception facility. In the event of spillage in the water, the vessel foreman shall notify the Coast Guard and port facility.

(ii) Lube oil:

A spill kit shall be available for use in the event of a spill. If the oil is spilled on deck or in the machinery space, it shall be immediately removed, bagged and disposed of at an appropriate hazardous waste reception facility. In the event of spillage in the water, the vessel foreman shall notify the Coast Guard and port facility.

(iii) Hydraulic oil:

A spill kit shall be available for use in the event of a spill. If the oil is spilled on deck or in the machinery space, it shall be immediately removed, bagged and disposed of at an appropriate hazardous waste reception facility. In the event of spillage in the water, the vessel foreman shall notify the Coast Guard and port facility.

(iv) Pipe leakage:

The vessel foreman shall check the piping and rubber hose daily for leakage. Where leakage is found, it shall be repaired immediately. In the event of leakage, the vessel deck engineer shall secure valve(s) at the appropriate tank before repairing the leak. Spilled fuel on the vessel shall be immediately removed, bagged and disposed of at an appropriate hazardous waste reception facility. In the event of spillage in the water, the vessel foreman shall notify the Coast Guard and port facility.

3.0 EMPLOYEE TRAINING ON OIL SPILL CONTINGENCY PLAN

Prior to the launching of the vessel for any activities, all captain and crew members on the vessel will have read the Oil Spill Contingency Plan, understand procedures to be implemented in the event of an oil spill, and know where the oil spill kit is located on the vessel.

4.0 SPILLS RESULTING FROM CASUALTIES AND VESSEL PROBLEMS

In the event of a casualty, the vessel foreman's first priority is to ensure the safety of the vessel's personnel and to initiate actions that may prevent escalation of the incident and marine pollution.

(i) Grounding:

The likelihood of grounding, although remote, could occur when the vessel is working near shore. Should an unforeseeable grounding event occur that causes a spill, the vessel foreman shall immediately report the accident to the Coast Guard and port facility. It is mandatory that the survey company immediately report the incident to the California Office of Emergency Services ("OES").

(ii) Fire or explosion:

If a fire or explosion occurs, the Coast Guard and port facility will be notified immediately by the vessel foreman. While awaiting a response from the USCG or local fireboat agencies, all crewmen shall report to the foreman for a head count. In the event that one or more crewmen are missing, the vessel foreman shall so notify the site safety officer and direct a search for the missing crew where practical. If one or more crewmen are injured, the foreman shall render first aid with the assistance of available crewmen. The foreman shall also notify the site safety officer of any injuries sustained as a result of the fire or explosion.

The crew will fight the fire with portable fire extinguishers if this can be done safely. The foreman shall determine if the fire or explosion warrants abandoning the vessel. If it is determined that the vessel is to be abandoned, the crew shall don life vests and safely enter the water or available life raft.

If there is a spill as a result of the fire or explosion, the vessel foreman shall immediately report the incident to the Coast Guard and port facility. It is mandatory that the survey company immediately report the incident to the OES.

(iii) Collision:

A collision is unlikely to cause a spill unless the vessel sinks or the fuel tank is "holed." If it is determined that the vessel is to be abandoned, the crew shall don life vests and safely enter the water or available life raft.

If the collision causes a spill from the fuel tank, the foreman shall immediately report the incident to the site safety officer, Coast Guard, and port facility. It is mandatory that the survey company immediately report the incident to the OES.

(iv) Vessel submerged/foundered:

If the vessel is submerged or foundered to the extent that it, or parts of it, is submerged, all measures shall be taken to evacuate all persons on board. Avoid contact with any spilled oil. Alert other vessels/vessels and/or the nearest coastal state for assistance in rescuing lives and the vessel as far as possible.

5.0 SPILLS RESULTING FROM VESSEL FUELING

All vessel fueling will be conducted on land at a gas station or at an approved docking facility. No cross vessel fueling will be performed.

6.0 PRIORITY ACTIONS TO ENSURE PERSONNEL AND VESSEL SAFETY

Safety of vessel personnel and the vessel are paramount. In the event that a crewman's injuries require outside emergency assistance, the site safety officer shall be contacted immediately and emergency personnel contacted. While awaiting emergency assistance, the survey company's vessel personnel will render first aid and/or CPR.

7.0 MITIGATING ACTIVITIES

If safety of both the vessel and the personnel has been addressed, the vessel foreman shall care for the following issues:

- Assessment of the situation and monitoring of all activities as documented evidence.
- Care for further protection of the personnel, use of protective gear, assessment of further risk to health and safety.
- Containment of the spilled material by absorption and safe disposal within leakproof containers of all used material onboard until proper delivery ashore, with due consideration to possible fire risk.
- Decontamination of personnel after finishing the cleanup process.

All personnel shall refer to the MSDS's on board for additional information.

8.0 MEASURES TO BE TAKEN IN THE EVENT OF CASUALTY

(i) Response to collision

The vessel foreman and crew shall ensure that the following actions are taken.

- When there is no immediate danger to their own vessel and crew, rescue crew of the other vessel.
- Investigate the damaged area of the vessel and the ingress of water and take emergency measures to prevent the damage from becoming worse.
- When ingress of water is found as a result of damage investigation, take necessary measures to prevent water from coming in, or pump out the water already taken in, according to the position and amount of water taken in. Such measures include the closing of water-tight doors, inserting wooden plugs, use of collision mats, cement box, strengthening of bulkhead, and use of water discharge pumps.
- When water penetration is severe even after countermeasures are taken and there is a danger of the vessel sinking, consider intended grounding on an appropriate shore.

(ii) Response to grounding

If the vessel runs aground, the vessel foreman and crew shall muster and the following steps should be taken immediately.

(1) Eliminate all avoidable sources of ignition and ban all smoking on board.

Further actions:

(1) Carry out a visual inspection of the vessel to determine the severity of the situation.
(2) Take soundings around the vessel to determine the nature and gradient of the seabed.
(3) Check difference in the tidal ranges at the grounding site.
(4) Evaluate tidal current in the grounding area.

Having assessed the damage that the vessel has sustained, and taking into account the effects of hull stress and stability, the foreman should decide whether any action can be taken to

avoid further spillage, such as:

(1) Transfer of cargo and bunkers internally. If the damage is limited—for example, to one or two tanks—consideration should be given to transfer of liquid from damaged to intact tanks.
(2) Review existing and forecasted weather conditions to see if they will adversely affect the vessel.
(3) Evaluate the possibility of transferring cargo to barges or other vessels, and request such assistance accordingly.
(4) Trim or lighten the vessel sufficiently to avoid damage to intact tanks, thereby avoiding additional pollution from spillage of oil or noxious liquid substance.

The foreman should obtain information about the situation, including the following.

(1) Tides and currents
(2) Weather, including wind, state of sea and swell.
(3) Any weather forecast changes.
(4) Nature of the bottom.
(5) Depth of water around the vessel, the calculated buoyancy needed to refloat, draught, and trim after refloating.
(6) Condition of the vessel, including stresses on the hull.

Strict safety precautions should be taken before entering any empty space, in order to avoid any risks from toxic fumes or oxygen deficiency.

Soundings should be taken around the vessel to determine the extent of the grounding/stranding as accurately as possible. If the sea is too rough for accurate sounding, it may be possible to measure the distance from the seabed to the main deck. By marking this on a longitudinal section from the general arrangement drawings, the extent of grounding can be determined.

If the vessel is structurally intact, an immediate attempt may be made to refloat her with or without assistance. In deciding whether to make an immediate attempt to refloat, the foreman should consider the use of the tugs and ground tackle as well as the possible damage that might be caused to the vessel.

Immediate refloating may be the best course to adopt even if the vessel has sustained bottom damage. However, if there are signs of excessive hogging, sagging or of undulations in the sides of the hull, more careful consideration is required before attempting to refloat the vessel. In these circumstances, lightening of the vessel may reduce the risk of further damage and pollution.

(iii) Response to submerged/foundered

The vessel foreman and crew shall muster and ensure that the following actions are taken

immediately.

- If the vessel is wrecked to the extent that it or parts of it are submerged, take all measures to evacuate all persons on board.
- Avoid contact with any spilled oil.
- Alert other vessels and/or the nearest coastal state for assistance in rescuing lives.
- All openings in hull and superstructures are to be checked for watertight integrity. Ensure that all water doors, sewage and other relevant damage control valves are closed.
- Fill bottom tanks with ballast low side first.
- Should the situation appear to be deteriorating, urgency or distress messages should be dispatched as appropriate.

The nearest hospital to our survey area is the San Pedro Urgent Care Facility, located at 1499 W. 1st St. San Pedro, California 90732. The number is: 310-241-2590.

9.0 REPORTING AN OIL SPILL TO STATE AND FEDERAL AGENCIES

Any oil spill in U.S. marine waters shall be reported immediately (on the same day) to the state and federal phone numbers below:

West Coast Oil Spill hot-line	800-OILS-911, *or*
Department of Fish and Game CalTIP	888-CFG-CALTip
(Californians Turn In Poachers & Polluters)	(888-334-2258). *and*
U.S. Coast Guard National Response Center	800-424-8802
California Office of Emergency Services (OES)	800-OILS-911 or 800-852-7550.

During the phone call, the following information will be given over the phone.

a. Name and telephone number of caller.
b. Where did you see the spill?
c. What do you think was spilled (oil, gas, diesel, etc.)?
d. Can you estimate the size of the spill?
e. The date & time you saw this spill? (PLEASE report on the same day).
f. Did you see any oiled or threatened wildlife?
g. Do you have any information or thoughts about who spilled the material?
h. What, if any, activity did you observe at the spill site?

After taking the necessary actions, the spill will be reported in writing to the Governor's Office of Emergency Services on their forms.

Additionally, California Department of Fish and Game certified wildlife rescue/response organizations will be contacted about the spill. In the Palos Verdes area, these include the following contacts:

Oiled Wildlife Care Network
1-877-UCD-OWCN

Animal Advocates
323-651-1336

California Wildlife Center
818-222-2658

South Bay Wildlife Rehab
310-378-9921

All Wildlife Rescue & Education
562-434-0141

10.0 DIVER CHECKLIST

Prerequisites:

1. Copy of dive manual shall be at work site.
2. Site safety has reviewed work plan.
3. A written pre-job brief has been approved by the manager or designee.
4. All prerequisites required in the dive manual have been met.
5. Verify that a rescue plan is in place.
6. All procedures, drawings, and work documents are available.
7. All video and communication equipment is operable.
8. All diver qualifications are active.
9. Any known hazards have been identified.
10. Verify that all hazard barriers are in place.
11. Verify that waves and tidal conditions will not impact diving operations.
12. A diving supervisor shall be present at all times while the diver is in the water.

Diver Equipment Checkout:

1. Ensure that there are two sources of breathing air available.
2. Ensure that air compressor fuel tank and oil levels are full prior to diving.
3. Ensure that breathing air compressors are not located in an area where the induction of harmful gases is possible.
4. Ensure that the Dive Supervisor inspects the diver's equipment per their daily equipment checklist.
5. Ensure that diver communication equipment checkout is performed.

Placing a Diver in the Water:

1. Notify the control room prior to commencing dive activities. Also:
   a. Verify method of communication to be used with the control room.
   b. Notify control room at conclusion of daily dive activities.
2. Verify that standby divers are in the immediate area and in a state of preparedness to enter the water within two minutes.

3. If SCUBA equipment is used, two divers shall be in the water.
4. Remove the diver from the water if any operational changes are encountered.

10 December 2013

Ms. Kelly Keen
Environmental Scientist
Division of Environmental Planning and Management
California State Lands Commission
100 Howe Avenue, Suite 100 South
Sacramento, CA, 95825
kelly.keen@slc.ca.gov

Subject: AIR-1: ENGINE TUNING, ENGINE CERTIFICATION, AND FUELS

Dear Kelly:

As per your request, we are providing the necessary documentation for the Mitigation Measure (MM) AIR-1: Engine Tuning, Engine Certification, and Engine Fuels. Our vessel is a 27 ft. 1982 Farallon. In 2011, this vessel was repowered with a 5.7 GS Volvo Penta engine, which is a gas powered engine. Additionally, this vessel has a three-star engine rating.

According to Section 93118.5 of the Airborne Toxic Control Measure for Commercial Harbor Craft, under Subchapter 7.5 of the Airborne Toxic Control Measures of the California Air Resources Board, only diesel engines are required to comply with the CARB Tier 2 Certification (http://www.arb.ca.gov/regact/2010/chc10/frochc931185.pdf). Under Section (b) Applicability, it states the following:

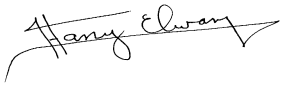
> *"(1) Except as provided in subsections (b) and (c), this section applies to any person who sells, supplies, offers for sale, purchases, owns, operates, leases, charters, or rents any new or in-use* ***diesel fueled harbor craft*** *that is operated in any of the Regulated California Waters"*

Regarding the NO_x emissions, MM AIR-1 states that daily NO_x emissions should not exceed 100 pounds based on engine certification emission factors. This can be accomplished with Tier 2 engines if daily fuel use is 585 gallons or less. Our vessel only holds 150 gallons and has an efficiency of about 2 miles per gallon. Thus, on our survey, we expect to cover approximately 10-15 miles total, for an estimated maximum fuel consumption of 30 gallons.

Figure 1 on the following page provides the new engine rebuild documentation from the Boat Grotto, the company that provided the service on this vessel. The Boat Grotto is a certified Volvo Penta mechanic.

Sincerely,

ECOSYSTEMS MANAGEMENT ASSOCIATES, INC.



Hany Elwany, Ph.D.
President

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December 10, 2013

Hany Elwany, Ph.D.
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hany@coastalenvironments.com
www.coastalenvironments.com

Dear Dr. Elwany,

We appreciate the opportunity to checkout your following hydrographic survey systems.

1. Echo-Souder Bathy 500 MF
2. Klein 590 side scan sonar
3. Custom sub-bottom profiler system with 4T61 Massa Transducer.

Other than some mechanical repairs to the sub bottom tow fish and a new data cable, all systems are working well and meet the original manufacturers specifications.

I hope we have the opportunity to work with you again. Please let me know if we can answer any questions or be of help.

Sincerely,

James D. Ross
Ross Laboratories. Inc.
206.324.3950
Email: jim@rosslaboratories.com