

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.

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 | |
|--------------------------|--------------------------|---|
| X | <input type="checkbox"/> | Geophysical Survey Permit Exhibit F |
| X | <input type="checkbox"/> | Survey Location (including a full-sized navigation chart and GPS coordinates for each proposed track line and turning point) Explanation: _____ |
| X | <input type="checkbox"/> | Permit(s) or Authorization from other Federal or State agencies (if applicable) Explanation: <i>Monterey Bay National Sanctuary Permit # MBNMS-2014-029, California State Parks permit (9/23/2015)</i> |
| X | <input type="checkbox"/> | 21-Day Written Notice of Survey Operations to Statewide Geophysical Coordinator/ |
| X | <input type="checkbox"/> | U.S. Coast Guard Local Notice to Mariners |
| X | <input type="checkbox"/> | Harbormaster and Dive Shop Notifications Explanation: _____ |
| X | <input type="checkbox"/> | Marine Wildlife Contingency Plan Explanation: _____ |
| X | <input type="checkbox"/> | Oil Spill Contingency Plan Explanation: _____ |
| <input type="checkbox"/> | X | Verification of California Air Resources Board's Tier 2-Certified Engine Requirement Explanation: <i>Vehicle engines are gasoline fueled and exempt from Tier 2 Certification</i> |
| X | <input type="checkbox"/> | Verification of Equipment Service and/or Maintenance (must verify sound output) Explanation: _____ |
| <input type="checkbox"/> | X | Permit(s) or Authorization from California Department of Fish and Wildlife for surveys in or affecting Marine Protected Area(s) (if applicable). Explanation: <i>Survey area is not within nearby Soquel Canyon or Portuguese Ledge MPAs</i> |

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: 11/04/2015

Jenny White

Jurisdiction: Federal ___ State X Both ___

USGS Pacific Coastal and Marine Geology

If State: Permit #PRC 8394

400 Natural Bridges Drive

Region: III

Santa Cruz, CA 95060

Area: Santa Cruz, CA

GEOPHYSICAL SURVEY PERMIT

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

U.S.G.S. Pacific Coastal and Marine Geology (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: N/A
- 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: Jenny White
- 2) CSLC representative: Richard Greenwood

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.

This notice is for up to three two-day surveys and one week-long survey to assess changes in seafloor morphology related to seasonal storms and El Nino Seasonal Oscillations (ENSO), and future anthropogenic influences. The shorter surveys will be conducted just before and after significant weather events while the longer survey is planned towards the end of our operational window.

1. Expected Date of Operation: November 25, 2015 to May 31, 2016. A series of two-day surveys will be conducted just prior and following storm events. A more comprehensive survey will be completed in the Spring as weather and project scheduling permits.
2. Hours of Operation: 7AM to 5PM

3. Vessel Names: CPS Duke, CPS Eddie (Personal Watercraft - Jet Skis)
4. Vessel Official Number: USGS-9004807, USGS- 9004808
5. Vessel Radio Call Sign: None Assigned
6. Vessel Captain's Name: Timothy Elfers, Daniel Hoover
7. Vessel will monitor Radio Channel(s): 82a,16
8. Vessel Navigation System: Differential GPS
9. Equipment to be used:
 1. Odom Echotrac Bathymetric Echo Sounder
 - a. Frequency (Hz, kHz): 200 kHz
 - b. Source level: (dB re 1 μ Pa at 1 meter (m) (rms): 93 dB RMS
 - c. Number of beams, across track beam width, and along track beam width:
1 beam, 9° conical beam. 5m along track, 5m across track
 - d. Pulse rate and length: 4.5-13.5 pps at 34-500 μ seconds depending on water depth.
 - e. Rise time: 7 μ seconds
 - f. Estimated distances to the 190 dB, 180 dB, and 160 dB re 1 uPa (rms) isopleths,
190 dB: <1M ; 180 dB: <1M ; 160 dB: <1M

These estimates are based on the underwater sound propagation equation:

$$RSPL = SL - 20 \log(R/R_0) - AR,$$

where

RSPL = received sound potential level

SL = RMS source level re. 1 uPa (rms) based on manufacturer's specifications

R = Distance

R₀ = Reference Distance (1 m)

A = sound absorption coefficient
 - g. Deployment depth: 0.25 m
 - h. Tow speed: 4 knots
 - i. Approximate length of cable tow: 0 m.

Applicant's Representative:

Daniel Hoover
 US Geological Survey
 400 Natural Bridges Drive
 Santa Cruz, CA 95060
 831-460-7544

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

The survey area is bounded by the coordinates:

36° 57.0895 -122° 2.4157
 36° 57.0673 -122° 1.4531
 36° 57.6394 -122° 1.4101
 36° 57.2452 -121° 58.7762
 36° 58.5835 -121° 56.3683
 36° 57.7599 -121° 53.9188
 36° 48.5081 -121° 47.2887
 36° 48.4132 -121° 47.8063
 36° 57.1926 -121° 54.4797
 36° 57.4013 -121° 56.9910
 36° 56.8031 -121° 58.9604
 36° 56.7313 -122° 2.3667

The track line coordinates are:

| Line No. | Start Line | | End Line | |
|----------|------------|------------|----------|------------|
| | LAT | LON | LAT | LON |
| Line0103 | 36.95313 | -122.04112 | 36.94635 | -122.04033 |
| Line0104 | 36.95285 | -122.03839 | 36.94639 | -122.03880 |
| Line0105 | 36.95222 | -122.03542 | 36.94611 | -122.03682 |
| Line0106 | 36.95201 | -122.03293 | 36.94575 | -122.03370 |
| Line0107 | 36.95201 | -122.02987 | 36.94540 | -122.03028 |
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| Line0117 | 36.96233 | -122.02181 | 36.96163 | -122.02149 |
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| Line0284 | 36.83762 | -121.80507 | 36.83506 | -121.81259 |
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| Line0290 | 36.83129 | -121.80192 | 36.82888 | -121.80912 |
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| Line0293 | 36.82492 | -121.79914 | 36.82267 | -121.80578 |
| Line0294 | 36.82306 | -121.79755 | 36.82062 | -121.80447 |
| Line0295 | 36.82094 | -121.79639 | 36.81874 | -121.80295 |
| Line0296 | 36.81907 | -121.79490 | 36.81688 | -121.80120 |
| Line0297 | 36.81697 | -121.79365 | 36.81531 | -121.79960 |
| Line0298 | 36.81495 | -121.79133 | 36.81378 | -121.79826 |
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| Line0301 | 36.80818 | -121.78971 | 36.80745 | -121.79586 |

**Marine Wildlife Mitigation Plan
Storm Impact Study Bathymetric Survey
Monterey Bay, CA.**

(November 25, 2015 – May 31, 2016)

1.0 INTRODUCTION

This marine wildlife mitigation plan is prepared in compliance with the USGS Pacific Coastal and Marine Science Center's existing State Geophysical Permit PRC 8394. This plan is intended to provide guidance to USGS vehicle operators and scientific field personnel collecting geophysical data for the Pacific Coastal and Marine Science Center (PCMSC) in Santa Cruz, CA to avoid significant impacts to marine wildlife that may occur during regular geophysical surveys.

1.1 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 (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 identified in this document to conduct scientific data acquisition in federal waters offshore of the California coast.

1.2 Geophysical Survey Purpose and Objectives

The USGS Pacific Coastal and Marine Science Center will study and evaluate the effects of storms on important geological resources and processes of the northern Monterey Bay, California. The primary coastal feature that will be studied is the beach sediments that make up the region's littoral cell.

The beaches of the northern Monterey Bay have strong seasonal dynamics and respond to wave forcing and coarse-grained sediment supplies that come primarily from coastal streams and rivers (Figure 2; Hicks and Inman, 1987; Dingier and Reiss, 2002; Warrick and Barnard, 2012). The sediments of these beaches are commonly the first—and in some places the final—defenses against coastal flooding during winter storms, and these sediments provide important recreational and ecological resources (Dugan et al, 2003). The goal of the second proposed effort is to build a better understanding of the dynamics of littoral sediment—both onshore and offshore of the beach—so that better predictions of coastal change and coastal flooding can be made for the Monterey Bay region. Focus will be placed on mapping nearshore topography and bathymetry in high-resolution; focus will also be placed on mapping regions near sediment sources such as rivers and creeks and near important coastal resources along the Santa Cruz littoral cell.

This work will allow the USGS to evaluate the important patterns, processes and effects of the geological systems in the northern Monterey Bay, and this work would continue the beneficial research relationships between the USGS and the Monterey Bay National

Marine Sanctuary (e.g., Eittreim et al., 2002; Storlazzi et al, 2007; Storlazzi et al., 2013). We are particularly interested in the effects of storms during El Nino winters (such as 2015-16), when seasonally higher water levels and larger waves have historically had significant impacts on the beaches in the region.

PCMSC will contact 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. Whale activity is moderate at the moment. The peak whale season is February - May in the Monterey Bay. Whale activity in the area has decreased in the past month. At the center of northernmost survey line, the survey area will be no closer than 400 meters of a known pinniped haul out site at Point Santa Cruz. Additionally, one day prior to survey activities, the NOAA Long Beach office, local whale watching operations 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.

A review of environmental responsibility of project operations will be conducted by the chief scientist in charge of the survey operations prior to commencing the first day of operations. 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 during the geophysical survey 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. A copy of this document will be provided to the crew of our survey vehicles.

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. Sounds - such as splashing, vocalizations (by animals and birds), and blowing (breathing).
- b. Visual indications - 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

1.3 Survey Schedule and Layout

The Project schedule will be from November 25, 2015 through May 31, 2016. However, the proposed individual surveys will be conducted in response to local storm and large wave events that are weather dependent. The first such event is expected to occur around mid-December 2015 to January 2016. The proposed mapping areas are along the sandy-beach fronted shorelines of the northern Monterey Bay; the survey vehicles will not be used near rocky reefs and kelp beds. For safety reasons, the survey vehicles are always used in tandem—two at a time— with personnel support on the adjacent beach. Depending on survey date, the survey vehicles will be launched from either Santa Cruz Harbor or Moss Landing Harbor and will transit at safe speeds to the survey locations. Surveys will be conducted during high tides, and across-shore transects will be surveyed from the surf zone (about 1 m depth) to 1-2 km offshore. Survey vehicle operators will operate on survey lines only when conditions are safe and swimmers, paddlers, and wildlife are not present. Data collected in this region are critical however, as most of the sand movement in nearshore areas occurs at shallow depths (*cf.* Figure 2). Sediment volume changes will be calculated from profile data to determine the rates of net sediment transport between different reaches of the beach, as well as the rates of net on- or offshore transport. This will aid in determining littoral drift rates and in constructing a sediment budget for the system. We propose to conduct not more than three two-day surveys starting as early as November 2015 and a more comprehensive week-long survey later in the Spring. Exact timing of all surveys will be weather and schedule dependent.

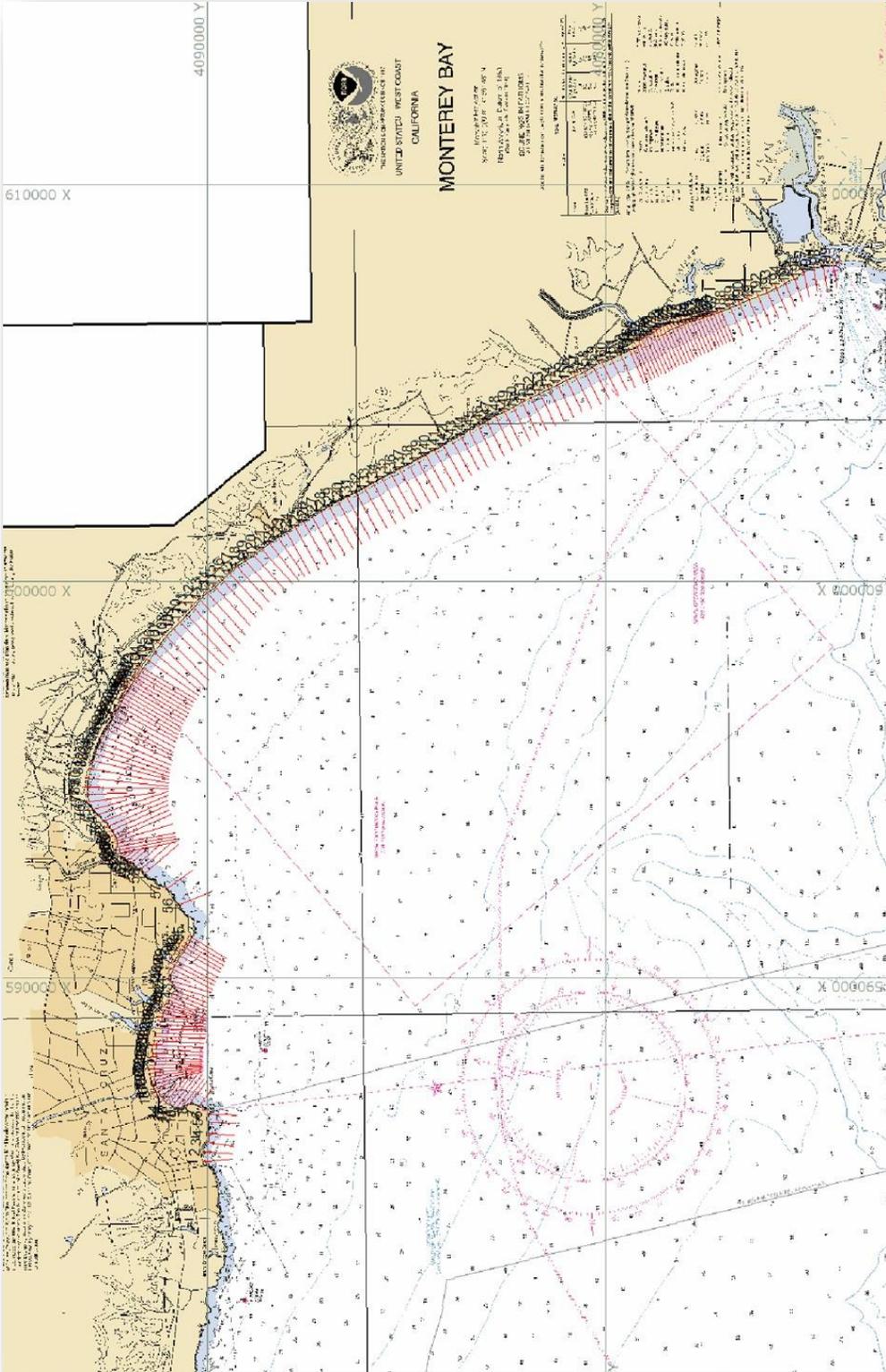


Figure 1. Regional Map of Survey Area

2.0 Survey Equipment and Activities

The beach mapping would utilize two USGS Coastal Profiling Systems (CPS), which consist of a personal watercraft instrumented with GPS-based mapping systems and fathometers (Figure 3a). The CPS are identical to the systems used in previously permitted research in the MBNMS (see Storlazzi et al., 2007). CPS are not operated in high surf (generally greater than 5 feet) or in difficult weather conditions such as fog or rain. All CPS operators are USGS employees, insured, and safety-certified by the U.S. Department of Interior.

PCMG proposes to use the following equipment to collect the required data:

- Odom Echotrac CV100 echo sounder using a 200 kHz, 9° downward conical beam transducer

The proposed survey will require the use of a marine vehicle and in-water equipment that generate noise during data acquisition. The results of modeling of the noise generated by the survey equipment is shown in Table 1. Those results indicate that operational source level used for these surveys are less than 160 dB at any range.

Table 1. Distances to Received Pressure Levels from Equipment Sound Source

| Sounder System | Frequency (kHz) | Source Level (dB peak) | Source Level (dB rms) | Distance to SL160 dBrms (meters) | Distance to SL 180 dB (rms) (meters) | Distance to SL190 dB (rms) (meters) |
|----------------------------------|-----------------|------------------------|-----------------------|----------------------------------|--------------------------------------|-------------------------------------|
| Odom Echotrac CV100 Echo Sounder | 200 kHz | 109 | 93 | <1 | <1 | <1 |

These estimates are based on the underwater sound propagation equation:

$$RSPL = SL - 20 \log(R/R_0) - AR$$

where,
 RSPL= Recieved sound potential level
 SL= RMS source level re. 1 uPa (rms) based on manufacturer's specifications
 R= Distance
 Ro= Reference Distance (1 m)
 A= sound absorption coefficient

The greatest distance from the sound source to the 160 dB level (<1 m) for the proposed equipment) is considered the "safety zone" for this equipment. However, because the operating frequency of 200 kHz is above the cutoff hearing threshold for marine mammals, CSLC has determined that the observance of the "safety zones" is not a requirement for this survey (personal communication, K. Keen, CSLC).

3.0 Marine Wildlife

3.1 Marine Wildlife

The following discusses the marine wildlife that have been recorded within the project region, those taxa that are most likely to be within the larger project region during survey operations, and methods that will be instituted by the vehicle operator to reduce or eliminate potential impacts to marine wildlife during transit and survey operations.

Table 2 provides information on the seasonal variations in the marine wildlife that are expected to be or have been reported within the Project area.

Table 2: Abundance Estimates for Marine Mammals and Reptiles of California Unless Otherwise Indicated

| Common Name Scientific Name | Population Estimate | Current Population Trend |
|--|---|-------------------------------|
| REPTILES | | |
| Cryptodira | | |
| Olive Ridley turtle <i>Lepidochelys olivacea</i> | 1.39 million (Eastern Tropical Pacific)** | Increasing |
| Green turtle <i>Chelonia mydas</i> | 3,319-3,479** (Eastern Pacific Stock) | Increasing |
| Loggerhead turtle <i>Caretta caretta</i> | 1,000 (California)** | Decreasing |
| Leatherback turtle <i>Dermochelys coriacea</i> | 178 (California)** | Decreasing |
| MAMMALS | | |
| Mysticeti | | |
| California gray whale <i>Eschrichtius robustus</i> | 18,017 (Eastern North Pacific Stock) | Fluctuating annually |
| Fin whale <i>Balaenoptera physalus</i> | 2,624 (California/Oregon/Washington Stock) | Increasing off California |
| Humpback whale <i>Megaptera novaeangliae</i> | 1,878 (California/Oregon/Washington Stock) | Increasing |
| Blue whale <i>Balaenoptera musculus</i> | 2,046 (Eastern North Pacific Stock) | Unable to determine |
| Minke whale <i>Balaenoptera acutorostrata</i> | 202 (California/Oregon/Washington Stock) | No long-term trends suggested |
| Northern right whale <i>Eubalaena japonica</i> | 17 (based on photo-identification) (Eastern North Pacific Stock) | No long-term trends suggested |
| Sei whale <i>Balaenoptera borealls</i> | 83 (Eastern North Pacific Stock) | No long-term trends suggested |
| Odontoceti | | |
| Short-beaked common dolphin <i>Delphinus delphis</i> | 343,990 (California/Oregon/Washington Stock) | Unable to determine |
| Long-beaked common dolphin <i>Delphinus capensis</i> | 17,127 (California Stock) | Unable to determine |
| Dall's porpoise <i>Phocoenoides dalli</i> | 32,106 (California/Oregon/Washington Stock) | Unable to determine |
| Harbor porpoise <i>Phocoena phocoena</i> | 1,478 (Morro Bay Stock) | Increasing |
| Pacific white-sided dolphin <i>Lagenorhynchus obllquidens</i> | 21,406 (California/Oregon/Washington Stock) | No long-term trends suggested |

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| | | |
|---|---|--|
| Risso's dolphin <i>Grampus griseus</i> | 4,913 (California/Oregon/Washington Stock) | No long-term trends suggested |
| Short-finned pilot whale <i>Globicephala macrorhynchus</i> | 465 (California/Oregon/Washington Stock) | No long-term trends suggested |
| Bottlenose dolphin <i>Tursiops truncatus</i> | 684 (California/Oregon/Washington Offshore Stock) | No long-term trends suggested |
| | 290 (California Coastal Stock) | No long-term trends suggested |
| Northern right whale dolphin <i>Liissopelphis borealis</i> | 6,019 (California/Oregon/Washington Stock) | No long-term trends suggested |
| Sperm whale <i>Physeter macrocephalus</i> | 751 (California/Oregon/Washington Stock) | No long-term trends suggested |
| Killer whale <i>Orcinus orca</i> | 85 (Eastern North Pacific Southern Resident Stock) | Decreasing |
| | 162 (Eastern North Pacific Offshore Stock) | No long-term trends suggested |
| Pinnipedia | | |
| California sea lion <i>Zalophus californianus</i> | 141,842 (U.S. Stock) | Unable to determine; increasing in most recent three year period |
| Northern fur seal <i>Callorhinus ursinus</i> | 5,395 (San Miguel Island Stock) | Increasing |
| Guadalupe fur seal <i>Arctocephalus townsendi</i> | 3,028 (Mexico Stock) Undetermined in California | Increasing |
| Northern (Steller) sea lion <i>Eumetopias jubatus</i> | 2,479 California Stock | Decreasing |
| Northern elephant seal <i>Mirounga angustirostris</i> | 74,913 | Increasing |
| Pacific harbor seal <i>Phoca vitulina richardsi</i> | 31,600 | Stable |
| Fissipedia | | |
| Southern sea otter <i>Enhydra lutris nereis</i> | 2,711* | Unable to determine |

Estimates provided by National Marine Fisheries Service (NOAA Fisheries 2011) *

Estimate provided by USGS (2010)

** Estimates provided by National Marine Fisheries Service (NMFS) (2004), Marquez, et al. (2002), Eguchi et al. (2007), Benson et al. (2007), and NMFS (2007). Estimates are based on number of current numbers of nesting females.

During the transit periods, there is a potential for encountering marine wildlife. Table 3 lists those species that are likely to occur in the survey area

Table 3. Marine Wildlife Species and Most Likely Periods of Occurrence within the Survey Area

| Family Common Name | Month of Occurrence ^{<1)} | | | | | | | | | | | |
|--|---------------------------------------|---|---|---|---|---|---|---|---|---|---|---|
| | J | F | M | A | M | J | J | A | S | O | N | D |
| REPTILES | | | | | | | | | | | | |
| Cyrodira | | | | | | | | | | | | |
| Olive Ridley turtle (T) ⁽²⁾ | | | | | | | | | | | | |
| Green turtle (T) ^{(1),(2)} | | | | | | | | | | | | |
| Loggerhead turtle (T) ⁽²⁾ | | | | | | | | | | | | |
| Leatherback turtle (E) ⁽²⁾ | | | | | | | | | | | | |
| MAMMALS | | | | | | | | | | | | |
| Mysticeti | | | | | | | | | | | | |
| California gray whale | | | | | | | | | | | | |
| Blue whale (E) | | | | | | | | | | | | |
| Fin whale (E) | | | | | | | | | | | | |
| Humpback whale (E) | | | | | | | | | | | | |
| Minke whale | | | | | | | | | | | | |
| Sei whale (E) | | | | | | | | | | | | |
| Northern right whale (E) | | | | | | | | | | | | |
| Odontoceti | | | | | | | | | | | | |
| Short-beaked common dolphin | | | | | | | | | | | | |
| Dall's porpoise | | | | | | | | | | | | |
| Harbor porpoise | | | | | | | | | | | | |
| Long-beaked common dolphin | | | | | | | | | | | | |
| Pacific white-sided dolphin | | | | | | | | | | | | |
| Risso's dolphin | | | | | | | | | | | | |
| Sperm whale | | | | | | | | | | | | |
| Short-finned pilot whale | | | | | | | | | | | | |
| Bottlenose dolphin | | | | | | | | | | | | |
| Northern right whale dolphin | | | | | | | | | | | | |
| Killer whale | | | | | | | | | | | | |
| Pinnipedia | | | | | | | | | | | | |
| Northern fur seal ⁽³⁾ | | | | | | | | | | | | |
| California sea lion | | | | | | | | | | | | |
| Northern elephant seal ⁽⁴⁾ | | | | | | | | | | | | |
| Pacific harbor seal | | | | | | | | | | | | |
| Guadalupe fur seal (T) | | | | | | | | | | | | |
| Steller sea lion | | | | | | | | | | | | |
| Fissipedia | | | | | | | | | | | | |
| Southern sea otter (T) ⁽⁵⁾ | | | | | | | | | | | | |
| Relatively uniform distribution | | | | | | | | | | | | |
| | Not expected to occur | | | | | | Most likely to occur due to seasonal distribution | | | | | |

(E) Federally listed endangered species.

(T) Federally listed threatened species.

(1) Not Used

(2) Rarely encountered, but may be present year-round. Greatest abundance during July through September.

(3) Only a small percent occur over continental shelf (except near San Miguel rookery, May-November).

(4) Common near land during winter breeding season and spring molting season.

(5) Only nearshore (diving limit 100 feet).

Sources: Bonnell and Dailey (1993), NOAA Fisheries (2011), NCCOS (2007)

4.0 ONBOARD MITIGATIONS

4.1 Fishing Gear Clearance

In addition to submitting the required Notice to Mariners that will advise commercial fishers of pending on-water activities, prior to the start of each survey day the vehicles will traverse the proposed survey corridor for that day to note and record the presence of deployed fishing gear. No survey lines within 30 m (100 ft) of the observed fishing gear will be completed. The survey crew will not remove or relocate any fishing gear; removal or relocation will only be accomplished by the owner or by an authorized CDFG agent.

4.3 Marine Wildlife Monitoring

NOAA does not require exclusion/safety zones to be monitored. The operational source level for these survey operations is 93 dB RMS at 200 kHz, well below the maximum 160 dB sound level considered safe for operating in the proximity of marine mammals. Because there is only one CPS operator on board the survey vehicle during survey operation, their primary responsibilities during survey operations is the safe operation of the vehicle and operation of the data acquisition system, it is not possible for them to log wildlife observation data. However, the operator will provide a narrative of any sightings or encounters with marine wildlife during the day's survey operations and these narratives will be provided in the summary report for each survey.

4.3 Mitigations During Transit and Survey

The research vehicles will transit during day-light hours from Santa Cruz harbor. During transits, there is a potential for encountering marine wildlife and the vehicle operators will take every precaution to avoid close proximity to wildlife. During transits, the vehicle will maintain a minimum distance of 100 m (1,640 ft.) from observed animals. If the vehicle operator observes a marine mammal within the path of the transiting vehicle, they will immediately slow the vehicle and/or change course in order to avoid contact.

Cetaceans (whales) vary in their swimming patterns and duration of dives and therefore all shipboard personnel will be watchful as the vehicle crosses the path of a whale or anytime whales are observed in the area.

If whales are observed during transits, the vehicle operator will institute the following measures:

- Maintain a minimum distance of 100 m from sighted whales;
- Do not cross directly in front of or across the path of sighted whales;
- When transit directions is parallel to whale path, maintain constant speed that is not greater than the whales speed, or alter transit direction away from whale path;
- Do not position the vehicle in such a manner to separate female whales from their

calves;

- If a whale engages in evasive or defensive action, slow the vehicle and move away from the animal until the animal calms or moves out of the area.

During survey operations, the vehicle will maintain survey a speed of approximately 4 knots and will maintain a heading that coincides with survey track lines. If marine wildlife is observed within the vicinity of the vehicle, the vehicle operator will take precautions to avoid collision, ending and restarting the track line survey if necessary.

If a collision with marine wildlife occurs, the vehicle operator will document the conditions under which the accident occurred, including the following:

- Location of the vehicle when the collision occurred (latitude and longitude);
- Date and time;
- Speed and heading of the vehicle;
- Observed conditions (e.g., wind speed and direction, swell height, visibility in miles or kilometers, and presence of rain or fog);
- Species of marine wildlife contacted; and
- Organization, vehicle ID and name of master in charge of the vehicle at time of accident.

In accordance with NOAA requirements, after a collision, the vehicle should stop, if safe to do so. The vehicle may proceed after confirming that it will not further damage the animal by doing so. The vehicle will then communicate by radio or telephone all details to the vehicle's base of operations. The PCMG Marine Operations Superintendent will contact the Stranding Coordinator, NMFS, Southwest Region, Long Beach, to obtain instructions. Alternatively, the vehicle captain may contact the NMFS Stranding Coordinator directly using the marine operator to place the call or directly from an onboard telephone, if available to:

**NOAA Southwest Regional Stranding
Coordinator
National Marine Fisheries Service
501 West Ocean Blvd, Suite 4200
Long Beach, CA 90802-4213
562-980-4017
Contact: Sarah Wilkin
Email: sarah.wilkin@noaa.gov**

It is unlikely that the vehicle will be asked to stand by until NOAA or CDFG personnel arrive, however this will be determined by the Stranding Coordinator. According to the MMPA, the vehicle operator is not allowed to aid injured marine wildlife or recover the carcass unless requested to do so by the NOAA Stranding Coordinator.

Although NOAA has primary responsibility for marine mammals in both state and federal waters, the CDFG will 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:

| | | |
|---|--|--|
| <p>Federal Sarah Wilkin, Stranding Coordinator Southwest Region National Marine Fisheries Service Long Beach, California (562)980-4017</p> | <p>State Enforcement Dispatch Desk California Department of Fish and Game Long Beach, California (562)590-5132</p> | <p>State California State Lands Commission Mineral Resources Management Division Long Beach, California (562) 590-5071</p> |
|---|--|--|

4.4 Operational Measures

Soft Start

The soft-start technique required for sonar equipment operating above the hearing threshold for marine mammals at 200 kHz is predicated on research investigations of low frequency side lobes for 200 kHz sonar systems (Deng et al., 200 kHz Commercial Sonar Systems Generate Lower Frequency Side Lobes Audible to Some Marine Mammals, PLOS ONE, 2014). This work was based on a measured 90 kHz sub harmonic at 141 dB re. 1µPA @ 1m generated by a 200 kHz sonar signal at 195 dB re. 1µPA @ 1m and a marine mammal hearing threshold of 70 dB . Modeling of our system's equivalent source levels based on their measurements, our echo sounder would generate a 90 kHz harmonic at 69 dB re. 1µPA @ 1m, which is below the hearing threshold of concern, within 1 m from the vehicle. We conclude from this that a soft start technique has no practical application for our survey operations. However, we none the less intend to take a conservative approach by increasing power upon startup at a 25% increase in power from zero to our operational power level of 93 dB over a five minute period.

Wildlife Monitoring

Marine wildlife monitoring will not be required by onboard personnel for these operations, but the operator will provide a narrative of any observations that occur within the survey area.. Because the survey echo sounder operated above 200 kHz, no safety zone is required. However, USGS will take the following precautionary measures:

- Not approach within 300 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;
- Pinniped haul out site location is given in Table 4.
- The vehicle will continuously monitor the daily survey area to ascertain the presence, species and location of any marine wildlife is apparent in the intended survey area. The

vehicle master and onboard personnel will be watchful whales or marine mammals are observed in the area. The vehicle 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 vehicle will operate at a constant speed that is not faster than that of the animals;
- 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 vehicle will reduce speed or stop until the animal calms or moves out of the area.

Table 4 Pinniped Haul Out Locations

| LOCATION | SPECIES | LATITUDE | LONGITUDE |
|----------------------------------|---------------------|----------|-----------|
| Point Santa Cruz, Santa Cruz, CA | California Sea Lion | 36.95 | -122.03 |
| Soquel Point, Santa Cruz, CA | California Sea Lion | 36.95 | -122.98 |
| Cement Ship, Aptos, CA | California Sea Lion | 36.97 | -122.91 |

Vehicle Speed

The CPS operator will refrain from erratic operating behavior when transiting to the survey site and shall operate at, or less than, a speed of approximately 4 knots once on survey station.

Limitations on equipment usage

Limitations on the frequency, pulse length, and pulse rate will be implemented to reduce potential harmful noises. The shortest possible pulse length and lowest pulse rate (pings per second) will be used, dependent on water depth.

4.5 Monitoring Reporting

A Post Survey Field Operations and Compliance Report will be submitted to CSLC staff as soon as possible but no more than 30 days after the completion of survey activities.

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**MANAGEMENT OF ACCIDENTAL DISCHARGE AND VESSEL INCIDENTS
DURING OFFSHORE GEOPHYSICAL SURVEYS**

1.0 INTRODUCTION

The survey operations will be conducted using two USGS personal watercraft (jet skis) that comprise our Coastal Profiling Systems (CPS). Because of the vehicle's small size, it is anticipated that response to any operational spills will be quickly identified and response will be initiated quickly and efficiently by the vehicle operator. Oil spills in United States (U.S.) marine waters shall be reported immediately.

2.0 OPERATIONAL SPILLS

Operational spills might involve one or more of the following substances carried on board the vehicles: (i) fuel and (ii) lube oil. The vehicles are equipped with woven polypropylene sheets (5 sheets) for rapid absorption of surface oil and protective gloves (1 pair), and a disposal bag (1). This oil spill materials are located in the forward cabinet of the vehicle. This spill kit is rated to clean up .25 gallons of liquid. All of the liquids (listed below) that could cause a hazardous spill are either in the fuel tank or in the vehicle engine. Spill occurrence will likely be during fueling, in the event of grounding or if any instance occurred that punctured the gas tank. In the event a spill occurred in the engine compartment, 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 .25 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 master 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 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 vehicle operator 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 VESSEL FUELING

All vessel fueling will be conducted at an approved docking facility. No cross vessel fueling will be performed. Appropriate spill avoidance measures during filling procedures will be observed. Refueling of the CPS is not allowed at the shoreline unless there is a compelling reason to do so and sufficient spill response equipment to address a spill is on site (i.e., sorbent and containment materials equal to approximately one-third the capacity of the fuel tank).

5.0 PRIORITY ACTIONS TO ENSURE PERSONNEL AND VESSEL SAFETY

Safety of vehicle operators and the vehicles are paramount. In the event that a crewman's injuries require outside emergency assistance, the PCMG safety officer shall be contacted immediately and emergency personnel contacted. While awaiting emergency assistance, the on board vessel master or qualified vessel crew personnel will render first aid and/or CPR. The nearest emergency medical facilities for this area is:

Dominican Hospital Emergency Department
1555 Soquel Dr, Santa Cruz, CA 95065
(831) 462-7710

6.0 MITIGATING ACTIVITIES

If safety of both the vessel and the personnel has been addressed, the vessel master 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 leak proof 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.

7.0 EMERGENCY CONTACTS FOR STATE AND FEDERAL AGENCIES

Emergency numbers for U.S.C.G. for the San Francisco and Central Coast Areas are:

Pacific SAR Coordinator - Alameda: 510-437-3700

Rescue Coordination Center, Alameda: 510-437-3700

Any oil spill in U.S. marine waters shall be reported immediately to the following state and agencies:

| | |
|---|--|
| West Coast Oil Spill hot-line | 800-OELS-911, <i>or</i> |
| Department of Fish and Game CalTIP (Californians Turn In Poachers & Polluters) | 888-CFG-CALTip (888-334-2258). <i>and</i> |
| 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. Spill location
- c. What was spilled (oil, gas, diesel, etc.)
- d. Estimated size of spill
- e. The date & time spill was identified (same day).
- f. Any oiled or threatened wildlife
- g. Source of spill, if known
- h. Activity observed 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 Southern California area, these include the following contacts:

Oiled Wildlife Care Network
1-877-UCD-OWCN

Animal Advocates
323-651-1336

California Wildlife Center
310-458-9453

South Bay Wildlife Rehab
310-378-9921

**U.S. GEOLOGICAL SURVEY
PACIFIC COASTAL AND MARINE GEOLOGY SCIENCE CENTER
GEOPHYSICAL SOUND SOURCE SYSTEMS MAINTENANCE RECORD**

Odom Echotrac CV-100 Echo Sounder - 200 kHz Serial # 26067

1.0 Introduction

The USGS Pacific Coastal and Marine Science Center (PCMSC) owns and operates a broad range of geophysical sound sources, seafloor mapping systems, geologic and geotechnical sediment sampling systems, and oceanographic instrument systems. This requires considerable technical and operational support to successfully undertake and complete its field programs. Operational and technical support for these systems is provided by the PCMSC Marine Operations Facility (Marfac) in Santa Cruz, CA. Our Marfac group is staffed by a team of ten ocean engineers, electronics technicians, and marine engineering technicians. They operate, maintain and repair all geophysical and oceanographic systems used to support all of PCMSC's scientific field operations.

The Odom Echotrac ECTV-100 echo sounder is owned and operated by PCMSC. This system has been thoroughly checked, tested and calibrated according to the manufacturer's (Teledyne Odom) recommended procedures. This system is comprised of the Echotrac CV-100 Acquisition Controller/Power supply (Serial # 26067) and a 200 kHz transducer, Model # SMBB200-9. The results of this evaluation confirms the echo sounder system to be operating at Teledyne Odom's stated specifications in all regards.

System checkout includes physical inspection of all components, cables, connectors and electronics for any signs of corrosion, wear or damage, all necessary cleaning and full functionality checks.

These procedures were followed by a full at-sea check of all system parameters in order to confirm system performance meets specs. The Odom Echotrac CV-100 is fully compliant with Teledyne Odom stated capabilities and specifications.



Jenny White, Marine Superintendent

11/7/15
Date



Geophysical System Certification

ODOM ECHOTRAC CV-100

| | |
|----------|-----------|
| Date | 11/2/2015 |
| Serial # | 26067 |

Power Supply (2417-0001-REVC)

| | |
|-------------------------|---|
| Input Voltage (DC +24V) | √ |
| +12V (TP8) | √ |
| +24V (J3 Pin 1, 3) | √ |
| +5V (J3 Pin 2, 4) | √ |

Communication (2416-0019-REVA)

| | |
|------------|---|
| +5V (TP2) | √ |
| +24V (TP1) | √ |

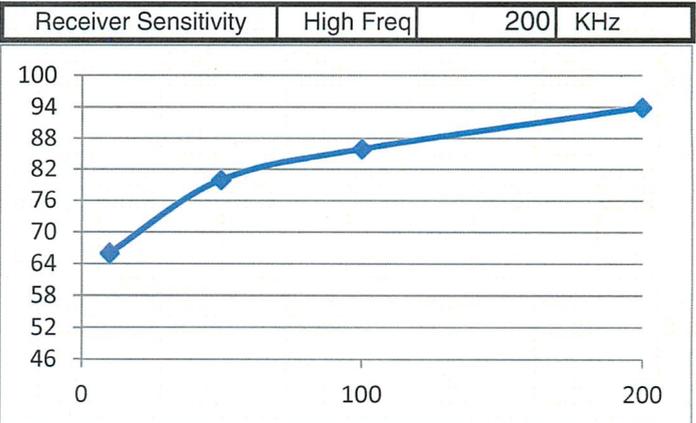
Transceiver Board (2416-0012-REVB)

| | |
|------------|---|
| +12V (TP1) | √ |
| -12V (TP5) | √ |
| -5V (TP4) | √ |
| +5V (TP2) | √ |

Communications

| | |
|-------------------|---|
| Com 1 (Depth I/O) | √ |
| Com 2 (Remote) | √ |
| Com 3 (GPS In) | √ |
| Com 4 (Heave) | √ |
| Ethernet | √ |

| | |
|------------------------|----------------|
| Reverse Polarity Alarm | √ |
| Total Burn In Time | 24 Hrs Minimum |



High Frequency Transmit Power (50ohm)

| Settings | Low (1) | Med (6) | High (12) |
|----------|---------|---------|-----------|
| Ch1 | 15.31V | 74.40V | 289.10V |

| Board Identification | SN | SW Ver |
|-----------------------|--------|--------|
| Ethernet / Comm I/O | 110625 | |
| Communications CPU | 110193 | 4.06 |
| Power Supply | 111086 | |
| High Freq Transceiver | 110916 | 1.22 |
| High Freq DSP | 110617 | 4.02 |

| Receiver Sensitivity Ch1 | | |
|--------------------------|------------|--|
| Sensitivity | Depth in m | |
| 66 | 10 | |
| 80 | 50 | |
| 86 | 100 | |
| 94 | 200 | |
| FREQ KHz | 200 | |

Jenny White
 Jenny White Marine Operations Superintendent

11/7/15
 Date

**U.S. GEOLOGICAL SURVEY
PACIFIC COASTAL AND MARINE GEOLOGY SCIENCE CENTER
GEOPHYSICAL SOUND SOURCE SYSTEMS MAINTENANCE RECORD**

Odom Echotrac CV-100 Echo Sounder - 200 kHz Serial # 26331

1.0 Introduction

The USGS Pacific Coastal and Marine Science Center (PCMSC) owns and operates a broad range of geophysical sound sources, seafloor mapping systems, geologic and geotechnical sediment sampling systems, and oceanographic instrument systems. This requires considerable technical and operational support to successfully undertake and complete its field programs. Operational and technical support for these systems is provided by the PCMG Marine Operations Facility (Marfac) in Santa Cruz, CA. Our Marfac group is staffed by a team of ten ocean engineers, electronics technicians, and marine engineering technicians. They operate, maintain and repair all geophysical and oceanographic systems used to support all of PCMGSC's scientific field operations.

The Odom Echotrac ECTV-100 echo sounder is owned and operated by PCMSC. This system has been thoroughly checked, tested and calibrated according to the manufacturer's (Teledyne Odom) recommended procedures. This system is comprised of the Echotrac CV-100 Acquisition Controller/Power supply (Serial # 26331) and a 200 kHz transducer, Model # SMBB200-9. The results of this evaluation confirm the echo sounder system to be operating at Teledyne Odom's stated specifications in all regards.

System checkout includes physical inspection of all components, cables, connectors and electronics for any signs of corrosion, wear or damage, all necessary cleaning and full functionality checks.

These procedures were followed by a full at-sea check of all system parameters in order to confirm system performance meets specs. The Odom Echotrac CV-100 is fully compliant with Teledyne Odom stated capabilities and specifications.



Jenny White, Marine Superintendent

11/7/15
Date

Geophysical System Certification

ODOM ECHOTRAC ETCV-100

| | |
|----------|-----------|
| Date | 11/2/2015 |
| Serial # | 26331 |

Power Supply (2417-0001-REVC)

| | |
|-------------------------|---|
| Input Voltage (DC +24V) | √ |
| +12V (TP8) | √ |
| +24V (J3 Pin 1, 3) | √ |
| +5V (J3 Pin 2, 4) | √ |

Communication (2416-0019-REVA)

| | |
|------------|---|
| +5V (TP2) | √ |
| +24V (TP1) | √ |

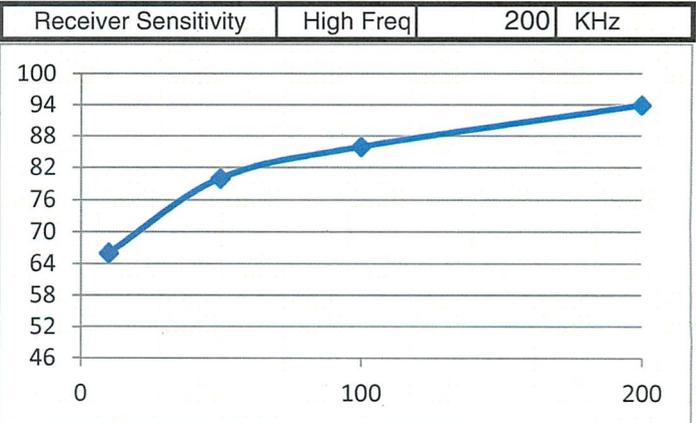
Transceiver Board (2416-0012-REVB)

| | |
|------------|---|
| +12V (TP1) | √ |
| -12V (TP5) | √ |
| -5V (TP4) | √ |
| +5V (TP2) | √ |

Communications

| | |
|-------------------|---|
| Com 1 (Depth I/O) | √ |
| Com 2 (Remote) | √ |
| Com 3 (GPS In) | √ |
| Com 4 (Heave) | √ |
| Ethernet | √ |

| | |
|------------------------|----------------|
| Reverse Polarity Alarm | √ |
| Total Burn In Time | 24 Hrs Minimum |



High Frequency Transmit Power (50ohm)

| Settings | Low (1) | Med (6) | High (12) |
|----------|---------|---------|-----------|
| Ch1 | 16.09V | 80.00V | 306.20V |

| Board Identification | SN | SW Ver |
|-----------------------|--------|--------|
| Ethernet / Comm I/O | 110167 | |
| Communications CPU | 110180 | 4.06 |
| Power Supply | 110100 | |
| High Freq Transceiver | 110763 | 1.22 |
| High Freq DSP | 10983 | 4.02 |

| Receiver Sensitivity Ch1 | |
|--------------------------|------------|
| Sensitivity | Depth in m |
| 66 | 10 |
| 80 | 50 |
| 86 | 100 |
| 94 | 200 |
| FREQ KHz | 200 |

Jenny White
Jenny White Marine Operations Superintendent

11/7/15
Date

George Tate

From: White, Jennifer
Sent: Friday, November 06, 2015 12:03 PM
To: tascuba@live.com; info@asudoit.com; infomb@sevenseasscuba.com; dive@silverprincecharters.com; David Todd; Jim Fields; info@montereybaydiving.com; dive@aquarius2.com; info@aquariusdivers.com
Cc: Keen, Kelly@SLC; richard.greenwood; George Tate
Subject: Pre-survey Notice of Geophysical Survey Operations on Monterey Bay - Dive Shops
Attachments: CSLC EXHIBIT F - Monterey Bay Storm Impacts 2016.docx

PRE SURVEY NOTIFICATION FOR GEOPHYSICAL SURVEY

The USGS Pacific Coastal and Marine Science Center (PCMSC) will be conducting a geophysical survey of the Northern Monterey Bay along beaches from Santa Cruz to Moss Landing, CA under California State Lands Permit #8394. Two personal watercraft will be used to complete a bathymetric survey, each equipped with 200 kHz single beam echo sounder. The survey operational window will be November 27, 2015 to May 31, 2016. During this time, up to three two-day surveys may be completed in response to El Nino weather events.

In keeping with our California State Lands Permit requirements, we are providing you with the attached Geophysical Pre-survey Notice for your information.

Thank you,

Jenny

--

Jenny White
Marine Superintendent
Pacific Coastal and Marine Science Center
U.S. Geological Survey
(831) 818-8915 cell
(831) 460-7485 work

George Tate

From: White, Jennifer
Sent: Friday, November 06, 2015 12:03 PM
To: cizenstark@santacruzharbor.org; razzeca@mosslandingharbor.dst.ca.us;
mcintyre@mosslandingharbor.dst.ca.us; scheibla@ci.monterey.ca.us
Cc: Keen, Kelly@SLC; richard.greenwood; George Tate
Subject: Pre-survey Notice of Geophysical Survey Operations on Monterey Bay - Harbor Masters
Attachments: CSLC EXHIBIT F - Monterey Bay Storm Impacts 2016.docx

PRE SURVEY NOTIFICATION FOR GEOPHYSICAL SURVEY

The USGS Pacific Coastal and Marine Science Center (PCMSC) will be conducting a geophysical survey of the Northern Monterey Bay along beaches from Santa Cruz to Moss Landing, CA under California State Lands Permit #8394. Two personal watercraft will be used to complete a bathymetric survey, each equipped with 200 kHz single beam echo sounder. The survey operational window will be November 27, 2015 to May 31, 2016. During this time, up to three two-day surveys may be completed in response to El Nino weather events.

In keeping with our California State Lands Permit requirements, we are providing you with the attached Geophysical Pre-survey Notice for your information.

Thank you,

Jenny

--

Jenny White
Marine Superintendent
Pacific Coastal and Marine Science Center
U.S. Geological Survey
(831) 818-8915 cell
(831) 460-7485 work

George Tate

From: White, Jennifer
Sent: Friday, November 06, 2015 12:02 PM
To: slc.ogpp@slc.ca.gov; D11LNM@uscg.mil
Cc: Keen, Kelly@SLC; richard.greenwood; George Tate
Subject: Pre-survey Notice of Geophysical Survey Operations on Monterey Bay - Geophysical Coordinator and Notice to Mariners
Attachments: CSLC EXHIBIT F - Monterey Bay Storm Impacts 2016.docx

PRE SURVEY NOTIFICATION FOR GEOPHYSICAL SURVEY

The USGS Pacific Coastal and Marine Science Center (PCMSC) will be conducting a geophysical survey of the Northern Monterey Bay along beaches from Santa Cruz to Moss Landing, CA under California State Lands Permit #8394. Two personal watercraft will be used to complete a bathymetric survey, each equipped with 200 kHz single beam echo sounder. The survey operational window will be November 27, 2015 to May 31, 2016. During this time, up to three two-day surveys may be completed in response to El Nino weather events.

In keeping with our California State Lands Permit requirements, we are providing you with the attached Geophysical Pre-survey Notice for your information.

Thank you,

Jenny

--

Jenny White
Marine Superintendent
Pacific Coastal and Marine Science Center
U.S. Geological Survey
(831) 818-8915 cell
(831) 460-7485 work

George Tate

From: White, Jennifer
Sent: Friday, November 06, 2015 12:03 PM
To: Monica DeAngelis - NOAA Federal
Cc: Keen, Kelly@SLC; richard.greenwood; George Tate
Subject: Marine Mammal Activity in the Monterey Bay Area

Hi Monica,

We are planning another survey in the northern Monterey Bay area. We are expecting to conduct up to three two-day bathymetric surveys using personal watercraft under a CA State Lands permit. The surveys will be completed as needed in response to storm events over the winter season from late November to the the end of May. We will be working just offshore of the beaches from Santa Cruz to Moss Landing. I would like any advice you may have regarding recent observations and what animals we are likely to encounter so we can plan and effectively mitigate our operations.

Thank you,

Jenny

--

Jenny White
Marine Superintendent
Pacific Coastal and Marine Science Center
U.S. Geological Survey
(831) 818-8915 cell
(831) 460-7485 work



September 23, 2015

Dr. Patrick Barnard
U.S. Geological Survey
400 Natural Bridges Drive
Santa Cruz, CA 95060

Dear Dr. Barnard:

Enclosed is your renewed permit for bathymetric and topographic beach surveys within selected coastal units of the California State Park System. It is a policy of this office to issue permits annually, so this permit is valid from September 25, 2015 to September 25, 2016. Each year, you may request a renewal of this permit before it expires; we recommend that permit applications be submitted at least 60 days in advance of planned field work. Please consult http://www.parks.ca.gov/?page_id=21557 for guidance in preparing your renewal application.

Please read all of the conditions that apply to this permit very carefully, particularly with regard to your proposed work in the Monterey District park units. *Until further notice, you are prohibited from conducting research activities in Monterey District park units, including Moss Landing SB, Salinas River SB, and Zmudowski SB; once the required District-level review process has been completed, you will be notified by Stephen Bachman, Senior Park and Recreation Specialist, as to whether your research can be permitted as described in your application, or permitted with modifications. Please direct any Monterey District questions to Mr. Bachman at (831) 649-2862.*

For all other locations, you must contact Joanne Kerbavaz, Senior Environmental Scientist, prior to conducting your field work. Ms. Kerbavaz's contact details are attached in the "Contact List for Parks". You must speak to her ahead of time to inform her of your work, and as an opportunity for assistance in gaining access to the parks. She may have local concerns regarding suitable study areas and/or times and *retains final approval authority.*

Federally-threatened Western Snowy Plovers (*Charadrius nivosus nivosus*) are found on many Pacific Coast beaches, and it is important that you and all project participants are aware of our plover protection measures. There may be beaches fenced off to protect nests or broods, areas where permitted State Park monitors must accompany researchers during the nesting season, or particular concerns regarding driving or access to sensitive areas and units designated as Natural Preserves. Please consult directly with the District contacts for any special instructions.

As a reminder, you are required to submit to us a summary report of your activities in the State Park units by September 25, 2016, as well as a final report and any associated data products within one month of their completion. Please keep a copy of this permit with you when in the field.

Sincerely,

Christina Donehower
Environmental Scientist | (916) 653-6656
California Department of Parks and Recreation

SPECIAL PERMIT CONDITIONS:

Drs. Patrick Barnard and Daniel Hoover, U.S. Geological Survey
Bathymetric and topographic beach surveys
Permit valid from 9/25/2015 through 9/25/2016

In addition to the Standard Conditions and Restrictions stated on the Permit to Conduct Scientific Research and Collections, the following conditions are applied:

- 1) Prior to conducting any field work in a given park unit, the Permit Holder must notify the appropriate State Park District contact (see attached Contact List for Parks) and confirm survey locations, access routes, and dates. Two weeks' notice is recommended. The District contact retains final approval authority in all of his/her park units.
- 2) Until further notice, the Permit Holder is prohibited from conducting research activities at all Monterey District park units, including Moss Landing SB, Salinas River SB, and Zmudowski SB, pending review by the Monterey District natural resource manager. Once the required District-level review process is completed for these park units, the Permit Holder will be notified by Stephen Bachman, Senior Park and Recreation Specialist, as to whether research activities as described in the application will be permitted in the Monterey District park units or if the activities could be permitted with modifications.
- 3) The Permit Holder (and his/her field assistants) agrees to abide by all park rules and regulations, including, but not limited to, no-dog and dog-leash requirements and posted area closures necessary to protect federally-threatened Western Snowy Plovers or other sensitive resources. Vehicles or motorized equipment are not allowed on beaches except when and where specifically authorized by State Park personnel.
- 4) Prior to conducting field work, the Permit Holder (and his/her field assistants) will review the two attached brochures, *Western Snowy Plover Sharing the Beach* (<http://www.parks.ca.gov/pages/23071/files/ploverpdf.pdf>) and *Rules and Guidelines for Protecting the Snowy Plover* (<http://www.parks.ca.gov/pages/23071/files/flyerploverhr.pdf>).
- 5) Following sampling, and no later than September 25, 2016, the Permit Holder must submit a summary report of activities conducted in the State Park units to:

Attn: Environmental Program Manager
Natural Resources Division
California Department of Parks and Recreation
P.O. Box 942896
Sacramento, CA 94296-0001
nrd.research@parks.ca.gov

A final report and any associated data products must also be submitted to the above address within one month of their completion.

- 6) The Permit Holder (and his/her field assistants) must carry a copy of this permit at all times while conducting field work.

- 7) The Permit Holder is responsible for obtaining any additional permits or approvals required for research activities conducted beyond State Park System boundaries and/or in National Marine Sanctuaries.

Contact List for Parks

You MUST notify the District contacts identified below prior to activities in their respective park units. Two weeks' notice is recommended. Districts may have particular concerns regarding study design and sampling locations, and they retain final approval authority. Failure to contact may result in loss of sampling opportunity.

MONTEREY DISTRICT

District Office: (831) 649-2836

Stephen Bachman

Stephen.Bachman@parks.ca.gov

(831) 649-2862

Moss Landing SB

Salinas River SB

Zmudowski SB

SANTA CRUZ DISTRICT

District Office: (831) 335-6318

Joanne Kerbavaz

Joanne.Kerbavaz@parks.ca.gov

(650) 726-8805

Lighthouse Field SB

Manresa SB

Natural Bridges SB

New Brighton SB

Seacliff SB

Sunset SB

Twin Lakes SB

APPLICATION AND PERMIT TO CONDUCT SCIENTIFIC RESEARCH AND COLLECTIONS

[Note: Edits in red made by DPR on 9.15.15]

NEW RENEWAL

| FOR DEPARTMENT USE ONLY | |
|---|--|
| APPLICATION NO. | DATE RECEIVED |
| DISTRICT NAME | OECA |
| PERMIT TYPE: | |
| <input type="checkbox"/> Biological | <input checked="" type="checkbox"/> Geological / Soils |
| <input type="checkbox"/> Other: | |
| <input checked="" type="checkbox"/> Summary Report Received | |

Instructions: Applications must be TYPED and signed by all participants upon submission. If more space is needed to complete any item, continue on separate sheet(s). Attach to your application: (1) a Curriculum Vitae (CV) or resume for the Principal Investigator (and for the person overseeing field work, if different from PI); (2) maps, coordinates, and/or GIS files indicating precise locations of proposed work; (3) a full study proposal; and (4) copies of any additional permits required for your research. Complete application packages should be sent to the district office that administers the park unit(s) where the research will take place or to the Natural Resources Division, Sacramento, for multi-district requests.

| | |
|---|---|
| APPLICANT ORGANIZATION U.S. Geological Survey | PHONE NO. (Incl. Area Code) 831-460-7436 |
| ORGANIZATION MAILING ADDRESS / CITY / STATE / ZIP CODE 400 Natural Bridges Drive, Santa Cruz, CA 95060 | E-MAIL ADDRESS |

PRINCIPAL INVESTIGATOR (PI) - ATTACH RESUME OR CV (NOTE: Faculty sponsor must sign as PI for student applicants)

| | | |
|---|----------------------------|--|
| NAME Patrick Barnard | TITLE Coastal Geologist | CELL PHONE NO. (Incl. Area Code) 415-328-2087 |
| MAILING ADDRESS / CITY / STATE / ZIP CODE 400 Natural Bridges Drive, Santa Cruz CA 95060 | | E-MAIL ADDRESS pbarnard@usgs.gov |

PERSON IN DIRECT CHARGE OF FIELD WORK - ATTACH RESUME OR CV IF DIFFERENT FROM PI

| | | |
|---|------------------------|--|
| NAME Daniel J Hoover | TITLE Oceanographer | CELL PHONE NO. (Incl. Area Code) 831-236-8119 |
| MAILING ADDRESS / CITY / STATE / ZIP CODE 400 Natural Bridges Drive, Santa Cruz CA 95060 | | E-MAIL ADDRESS dhoover@usgs.gov |

ADDITIONAL PARTICIPANTS - ATTACH CONTINUATION SHEETS IF NECESSARY

| | | | |
|---|------------------------|--------------------------------------|--|
| 1 | NAME Andrew Stevens | TITLE Oceanographer | CELL PHONE NO. (Incl. Area Code) 650-283-8254 |
| MAILING ADDRESS / CITY / STATE / ZIP CODE 400 Natural Bridges Drive, Santa Cruz CA 95060 | | E-MAIL ADDRESS astevens@usgs.gov | |
| 2 | NAME Jackson Currie | TITLE Physical Scientist | CELL PHONE NO. (Incl. Area Code) 831-402-8666 |
| MAILING ADDRESS / CITY / STATE / ZIP CODE 400 Natural Bridges Drive, Santa Cruz CA 95060 | | E-MAIL ADDRESS jcurrie@usgs.gov | |
| 3 | NAME Tim Elfers | TITLE Engineering Technician | CELL PHONE NO. (Incl. Area Code) 831-332-9685 |
| MAILING ADDRESS / CITY / STATE / ZIP CODE 400 Natural Bridges Drive, Santa Cruz CA 95060 | | E-MAIL ADDRESS telfers@usgs.gov | |
| 4 | NAME Josh Logan | TITLE Physical Scientist | CELL PHONE NO. (Incl. Area Code) 831-334-2221 |
| MAILING ADDRESS / CITY / STATE / ZIP CODE 400 Natural Bridges Drive, Santa Cruz CA 95060 | | E-MAIL ADDRESS jlogan@usgs.gov | |
| 5 | NAME Andrea O'Neill | TITLE Oceanographer | CELL PHONE NO. (Incl. Area Code) 360-430-6003 |
| MAILING ADDRESS / CITY / STATE / ZIP CODE 400 Natural Bridges Drive, Santa Cruz CA 95060 | | E-MAIL ADDRESS aonell@usgs.gov | |
| 6 | NAME Alex Snyder | TITLE Contractor | CELL PHONE NO. (Incl. Area Code) 562-857-5992 |
| MAILING ADDRESS / CITY / STATE / ZIP CODE 400 Natural Bridges Drive, Santa Cruz CA 95060 | | E-MAIL ADDRESS agsnyder@usgs.gov | |
| 7 | NAME Jon Warrick | TITLE Research Geologist | CELL PHONE NO. (Incl. Area Code) 831-566-7206 |
| MAILING ADDRESS / CITY / STATE / ZIP CODE 400 Natural Bridges Drive, Santa Cruz CA 95060 | | E-MAIL ADDRESS jwarrick@usgs.gov | |
| 8 | NAME Sean Vitousek | TITLE Postdoctoral Researcher | CELL PHONE NO. (Incl. Area Code) 808-987-4299 |
| MAILING ADDRESS / CITY / STATE / ZIP CODE 400 Natural Bridges Drive, Santa Cruz CA 95060 | | E-MAIL ADDRESS svitousek@usgs.gov | |

APPLICATION AND PERMIT TO CONDUCT SCIENTIFIC RESEARCH AND COLLECTIONS

NEW RENEWAL

| FOR DEPARTMENT USE ONLY | |
|--|---|
| APPLICATION NO. | DATE RECEIVED |
| DISTRICT NAME | CEQA |
| PERMIT TYPE: | |
| <input type="checkbox"/> Biological | <input type="checkbox"/> Geological / Soils |
| <input type="checkbox"/> Other: _____ | |
| <input type="checkbox"/> Summary Report Received | |

Instructions: Applications must be TYPED and signed by all participants upon submission. If more space is needed to complete any item, continue on separate sheets. Attach to your application: (1) a Curriculum Vitae (CV) or resume for the Principal Investigator (and for the person overseeing field work, if different from PI); (2) maps, coordinates, and/or GIS files indicating precise locations of proposed work; (3) a full study proposal; and (4) copies of any additional permits required for your research. Complete application packages should be sent to the district office that administers the park or unit(s) where the research will take place, or to the Natural Resources Division, Sacramento, for multi-district requests.

| | |
|--|-----------------------------|
| APPLICANT ORGANIZATION | PHONE NO. (Incl. Area Code) |
| ORGANIZATION MAILING ADDRESS / CITY / STATE / ZIP CODE | E-MAIL ADDRESS |

**PRINCIPAL INVESTIGATOR (PI) - ATTACH RESUME OR CV
(NOTE: Faculty sponsor must sign as PI for student applicants)**

| | | |
|---|-------|----------------------------------|
| NAME | TITLE | CELL PHONE NO. (Incl. Area Code) |
| MAILING ADDRESS / CITY / STATE / ZIP CODE | | E-MAIL ADDRESS |

PERSON IN DIRECT CHARGE OF FIELD WORK - ATTACH RESUME OR CV IF DIFFERENT FROM PI

| | | |
|---|-------|----------------------------------|
| NAME | TITLE | CELL PHONE NO. (Incl. Area Code) |
| MAILING ADDRESS / CITY / STATE / ZIP CODE | | E-MAIL ADDRESS |

ADDITIONAL PARTICIPANTS - ATTACH CONTINUATION SHEETS IF NECESSARY

| | NAME | TITLE | CELL PHONE NO. (Incl. Area Code) |
|---|--|-------|----------------------------------|
| 1 | Cordell Johnson | | 530-908-3969 |
| | MAILING ADDRESS / CITY / STATE / ZIP CODE | | E-MAIL ADDRESS |
| | 400 Natural Bridges Drive, Santa Cruz CA 95080 | | cordell_johnson@usgs.gov |
| 2 | Amy Foxgrover | | 831-332-1379 |
| | MAILING ADDRESS / CITY / STATE / ZIP CODE | | E-MAIL ADDRESS |
| | 400 Natural Bridges Drive, Santa Cruz CA 95080 | | afoxgrover@usgs.gov |
| 3 | Liv Herdman | | 610-717-4896 |
| | MAILING ADDRESS / CITY / STATE / ZIP CODE | | E-MAIL ADDRESS |
| | 400 Natural Bridges Drive, Santa Cruz CA 95080 | | lherdman@usgs.gov |
| 4 | Christie Hegermiller | | |
| | MAILING ADDRESS / CITY / STATE / ZIP CODE | | E-MAIL ADDRESS |
| | 400 Natural Bridges Drive, Santa Cruz CA 95080 | | chegermiller@usgs.gov |
| 5 | na | na | na |
| | MAILING ADDRESS / CITY / STATE / ZIP CODE | | E-MAIL ADDRESS |
| | na | | na |
| 6 | SeanPaul La Selle | | 206-650-2927 |
| | MAILING ADDRESS / CITY / STATE / ZIP CODE | | E-MAIL ADDRESS |
| | 400 Natural Bridges Drive, Santa Cruz CA 95080 | | slaselle@usgs.gov |
| 7 | Blake Cole | | 310-200-8811 |
| | MAILING ADDRESS / CITY / STATE / ZIP CODE | | E-MAIL ADDRESS |
| | 400 Natural Bridges Drive, Santa Cruz CA 95080 | | bcole@usgs.gov |
| 8 | | | |
| | MAILING ADDRESS / CITY / STATE / ZIP CODE | | E-MAIL ADDRESS |

APPLICATION AND PERMIT TO CONDUCT
SCIENTIFIC RESEARCH AND COLLECTIONS - Continued

U.S. Geological Survey
Patrick Barnard

The Principal Investigator hereby applies to the Department of Parks and Recreation for a permit under Title XIV, California Code of Regulations, Section 4309 and Public Resources Code Section 500165, to conduct investigations on lands of the State of California as follows:

| STATE PARK UNIT(S) TO BE INCLUDED ON PERMIT | COUNTY(IES) |
|---|----------------------|
| Natural Bridges SB, Lighthouse Field SB, Twin Lakes SB, New Brighton SB, Seacliff SB, Manresa SB, Sunset SB, Zmudowski SB, Pajaro River Mouth NP, Moss Landing SB, Salinas River SB, Salinas River Mouth NP, Salinas River Dunes NP | Monterey, Santa Cruz |

1. PROJECT TITLE
Episodic, seasonal, and longer-term variations in beach morphology and sediment transport in northern Monterey Bay, California

2. PROJECT PURPOSE
Determine beach and adjacent subtidal seafloor topography/bathymetry to document event-driven (e.g., El Nino), seasonal and longer-term trends in accretion and erosion. Observed changes in sand distribution over time will be used to improve our understanding of the processes responsible for coastline evolution in northern Monterey Bay, and models of coastline evolution that will be used to predict future changes.

3. DESCRIPTION OF PROJECT LOCATION(S) (Also attach maps, coordinates, and/or GIS files for each distinct location.)
Beaches and adjacent ocean waters to 12m depth from just west of Lighthouse Point in Santa Cruz to Moss Landing (see attached study outline and figures)

4. METHOD OF ACCESS (Describe methods to be used for accessing study sites after arrival at the park unit(s).)
Driving (4WD vehicles and ATV) for shore safety support of bathymetric surveys and beach topographic surveys, walking for beach topographic surveys in some areas.

**APPLICATION AND PERMIT TO CONDUCT
SCIENTIFIC RESEARCH AND COLLECTIONS - Continued**

U.S. Geological Survey
Patrick Barnard

| |
|---|
| <p>6. SUMMARY OF FIELD METHODS AND ACTIVITIES</p> <p>Beach topographic data will be collected using several methods: an ATV-mounted GPS driven over beach surface (waterline to dune or bluff toe), static (tripod mounted) or mobile (ATV mounted) LIDAR survey of selected areas, and backpack-mounted GPS walking surveys in areas unsuitable for access. Bathymetric surveys will be performed along preestablished lines using 2 PWCs with a GPS/echosounder survey system (see attached for details. For bathymetric surveys, shore support is provided by 2 personnel with a 4WD vehicle or ATV, with the vehicle moving intermittently/slowly along the shoreline to keep the personnel adjacent to the PWCs. See attached project summary for additional details.</p> |
| <p>8. TYPES OF SPECIMENS TO BE COLLECTED (List species, quantity, size, and condition.)</p> <p>GPS and LIDAR data only</p> |
| <p>7. EXPECTED DURATION OF THE PROJECT (Specify overall project start and end dates and start and end dates of field investigations.)</p> <p>Project started in Sept 2014 and is planned to continue for an initial 5 years, funding permitting. The long term goal is to continue the program indefinitely to provide long-term data on beach and coastline evolution.</p> |
| <p>8. PLACE AT WHICH LABORATORY WORK WILL BE PERFORMED (Institution, address, and responsible official name, phone number, and e-mail address)</p> <p>USGS, 400 Natural Bridges Drive, Santa Cruz, CA 95080. Dan Hoover 831-480-7544</p> |
| <p>9. FACILITY THAT HAS AGREED TO CURATE SPECIMENS COLLECTED UNDER THIS PERMIT (Institution, address, and responsible official name, phone number, and email address)</p> <p>Same</p> |
| <p>10. LOCATION OF DATA AND DATA PRODUCTS COLLECTED UNDER THIS PERMIT (Specify institution name and/or website where data, maps, reports, GIS files, photos, and other data products (not specimens) will reside after the project is completed.)</p> <p>Same</p> |
| <p>NOTE: APPLICATION IS INCOMPLETE UNTIL SIGNED. ALL PARTICIPANTS MUST SIGN ON PAGES 4-6.</p> |

PERMIT TO CONDUCT SCIENTIFIC RESEARCH AND COLLECTIONS
ALL PARTICIPANTS MUST SIGN & CARRY THIS PERMIT AT ALL TIMES WHILE CONDUCTING FIELD RESEARCH COLLECTIONS

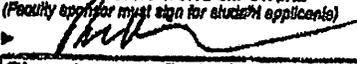
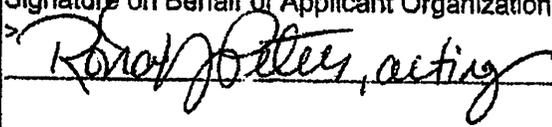
STANDARD CONDITIONS AND RESTRICTIONS

The Department of Parks and Recreation desires to further scientific research within its jurisdiction through cooperation and partnerships with researchers to the extent possible within the Department's mission to provide long-term protection and management of ecological processes and natural resource elements.

- General classroom collection is not allowed under this or any other permit.
- This permit applies only to non-cultural materials, and is limited to the kind, number, and sizes of specimens described on this form. Archeological and paleontological material may NOT be collected under this permit.
- The collections shall be used for scientific or interpretive purposes only, and shall not be used for commercial purposes. Collections shall be property of the Department of Parks and Recreation. Curated collections shall be maintained by the institution listed on page 3, item number 9. Collections can be transferred to another location with prior approval from the Department.
- The collecting must be done away from roads, trails, and developed areas, unless such localities are specified in the permit. Collection shall be done in an inconspicuous manner, and shall not cause damage to the environment. Because of the scarcity or importance of some specimens, the Department of Parks and Recreation may designate other restrictions necessary for the preservation of the area.
- Samples collected in areas designated as sensitive may require prior surveys conducted by a State Park resource specialist, and/or a State Park resource specialist may be assigned to the project as a monitor. At the discretion of the responsible approver, the Permittee may be required to schedule surveys and/or reserve a project monitor and pay for the State Park resource specialist's time and expenses should these services be required.
- The Permittee shall submit a summary of information gathered to the applicable District where the investigations took place, and to the Chief, Natural Resources Division, Department of Parks and Recreation, in Sacramento. The Department further requires that the Permittee make available to the Department any material published as a result of this permit. Upon completion, a copy of such published material shall be submitted to: Natural Resources Division, Department of Parks and Recreation, PO Box 942898, Sacramento, CA 94298-0001.
- The Permittee is to contact the appropriate District Superintendent (or designee) before beginning any field activities, and to present a copy of this permit, together with evidence of additional licenses and permits, if required.
- All participants conducting activities approved by this permit shall inspect their shoes, clothing, vehicles, tools, and equipment for the presence of organic matter and soil, and if present, shall clean these items prior to entering and upon leaving the park to minimize potential spread of invasive species.
- If collections and/or field research are not carried out to the satisfaction of the Department, this permit may be immediately cancelled.
- 0. All applicable laws and regulations must be observed by participants in exercising the privileges granted in this permit. It is the responsibility of the Permittee to obtain any additional permits or approvals required for research/collection activities, and to know the boundaries and managing authority of specially designated protected areas or sanctuaries.

11. Applicant Organization shall be responsible for any damage to State land or property in connection with the activity for which the Permit is issued. *RUP USGS 9/18/15*
12. The Permittee, and all participants, are responsible for knowing and complying with all general rules and regulations for use of Department lands as well as any specific conditions or regulations for the permit and subject property.
13. Applicant Organization agrees to comply with the indemnity and insurance requirements of the Indemnity/Insurance Addendum hereby incorporated by reference as Exhibit A. Activities under this permit shall not commence until proof of the required insurance is submitted to the Department. *RUP USGS 9/18/15*

I have read the Standard Conditions and Restrictions above and agree to comply with any additional special conditions.

| | | |
|--|---|-----------------|
| PRINCIPAL INVESTIGATOR'S SIGNATURE <i>(Faculty sponsor must sign for student applicants)</i>  | PRINTED NAME Patrick Barnard | DATE 9/9/15 |
| Signature on Behalf of Applicant Organization  | Printed Name Mark Sojge Pacific Regional Director | Date 9/10/15 |

It is the responsibility of the Principal Investigator to ensure that all participants comply with all standard and special conditions and sign DPR 68. It is the responsibility of BOTH the Principal Investigator and responsible DPR approver authority to keep a copy of signatures for all participants on file.

PERMIT TO CONDUCT SCIENTIFIC RESEARCH AND COLLECTIONS
SPECIAL CONDITIONS

See attached letter & conditions.

FOR DEPARTMENT USE (REVIEW/APPROVAL)

| | | |
|--|---|-----------------|
| REVIEWED BY ▶ <i>[Signature]</i> | DISTRICT ENVIRONMENTAL SCIENTIST CHRISTINA DONEWOWER | DATE 9/23/15 |
| REVIEWED BY ▶ | DISTRICT SUPERINTENDENT / MANAGER | DATE |
| DPR APPROVAL SIGNATURE ▶ <i>[Signature]</i> | PRINTED NAME / TITLE Laurie Archambault / EPM | DATE 9-24-15 |

*NOTE: If all park units in single DPR District, Superintendent has approval authority. For more than one DPR District, Natural Resources Division EPM must approve.

PERMIT VALID FROM: 9/25/15 TO: 9/25/16

EXHIBIT A

DPR 65 – Collection Permit Indemnity/Insurance Addendum

This agreement is an addendum to the scientific collection permit application for the U.S. Geological Survey (USGS). The USGS permit for bathymetric and beach topographic surveys associated with the project, "Episodic, seasonal, and longer-term variations in beach morphology and sediment transport in northern Monterey Bay, California" shall not become effective until the requirements of this addendum are completed.

Indemnity Agreement

The USGS agrees to be responsible for damages to persons or property caused by the negligent acts or omissions of USGS employees acting within the scope of their employment in accordance with the Federal Tort Claims Act, codified at 28 USC 2671 et seq. If found liable in a federal court of competent jurisdiction, the USGS agrees to pay attorney's fees to the extent permitted under federal law.

Insurance Requirement

This Permit shall not be approved until the Applicant Organization provides the required proof of insurance. Except as otherwise provided, before beginning permit activities, the Applicant Organization shall submit to the District Superintendent or his/her designee an Insurance Accord or Certificate, showing that the Applicant Organization has the insurance coverage for the permit activity. All insurance companies must carry a rating acceptable to the DGS Office of Risk and Insurance Management.

The USGS is part of the Federal Government of the United States. It may not use appropriated funds, without express statutory authority, to purchase insurance. As a result, the Government is essentially a self-insurer with respect to (1) loss of, or damage to, Government property and (2) damage to persons or property caused by employee acts or omissions while acting within the scope of their employment in accordance with the Federal Tort Claims Act (codified at 28 USC 2671 et seq.).

Workers' Compensation: USGS warrants that it is self-insured for purposes of Worker's Compensation.

If Applicant Organization is self-insured in whole or in part as to any of the above described types and levels of insurance coverage, Applicant Organization shall provide the State with written acknowledgment of this fact at the time of the submission of the Permit application. The State may require financial information to justify Applicant Organization's self-insured status. If at any time after the execution of this Permit, Applicant Organization abandons its self-insured status, Applicant Organization shall immediately notify the State of this fact and shall comply with all of the terms and conditions of this Section pertaining to required policies of insurance.

I hereby certify that I am a representative of Applicant Organization authorized to agree to the above indemnification and insurance requirements of this permit.

(Authorized Representative Signature)

Mark Sogge

(Date)

9/18/15

(Printed Name) Mark Sogge

(Title) Pacific Regional Director, USGS



United States Department of the Interior

U.S. GEOLOGICAL SURVEY

Office of the Regional Director

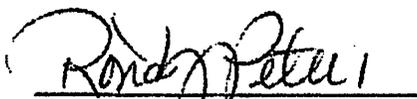
Pacific Region

6000 J Street, CSUS, Placer Hall, Suite 5000

Sacramento, California 95819-6129

To Whom It May Concern:

The validity and interpretation of this Agreement are subject to interpretation under Federal Law. Each party agrees to be responsible for the activities, including the negligence of their employees or agents. Under Federal law in effect at the time of the signing of this agreement, USGS is precluded from indemnifying, holding harmless, and defending the Collaborator for the activities set out in this agreement. Federal law does provide, however, through the Federal Tort Claims Act (28 U.S.C. §2671 et seq.), a means of addressing claims for personal injuries or property damage caused by the negligent or wrongful act or omission of any employee of the United States while acting within the course of his or her employment. Consistent with this legal authority, the USGS shall be liable, to the extent allowed by the Federal Tort Claims Act, for claims for personal injuries or property damage resulting from the negligent acts or wrongful act or omission of any USGS employee while, acting within the scope of his employment arising out of this Agreement. Federal agencies are self-insured as explained in the Appropriations Law Manual, Volume 1, Chapter 4.10, pages 175-179. Federal agencies may not use appropriated funds, without express statutory authority, to purchase insurance. As a result, the Government is essentially a self-insurer with respect to (1) loss of, or damage to, Government property and (2) damage to persons or property caused by employee acts or omissions while acting within the scope of their employment in accordance with the Federal Tort Claims Act (codified at 28 USC 2671 et seq.). USGS warrants that it is self-insured for purposes of Worker's Compensation.

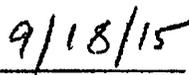


Certifying USGS Official

Rona Y. Peters

Regional Management Officer

Pacific Region, USGS



Date



UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL OCEAN SERVICE

Monterey Bay National Marine Sanctuary
99 Pacific Street, Bldg 455A
Monterey, CA 93940

September 22, 2015

Dr. Jonathan Warrick
U.S. Geological Survey
Pacific Coastal and Marine Science Center
400 Natural Bridges Drive
Santa Cruz, CA 95060

Dear Dr. Warrick:

The National Oceanic and Atmospheric Administration, Office of National Marine Sanctuaries Program (ONMS) has approved the issuance of permit amendment number MBNMS-2014-029-A1 to conduct activities in Monterey Bay National Marine Sanctuary (sanctuary) for research purposes. This amendment supercedes all previous permits or amendments for this activity. Activities are to be conducted in accordance with the permit application and all supporting materials submitted to the sanctuary, and the detailed terms and conditions of permit number MBNMS-2014-029-A1 (enclosed).

You are responsible for reviewing and understanding all terms and conditions of this amendment. However, the changes made in this amendment from the previous permit or amendment can be summarized as follows:

- Extend permit for one year to September 30, 2016.
- Limit seafloor sediment sampling in the Northern Monterey Bay to 20 samples rather than 100 samples.
- Deploy and recover two additional tripods to investigate oceanographic processes. These additional tripods will be identical in size and instrumentation as the tripod deployed and recovered under the existing permit. However, the two new tripods would be deployed and recovered in the Central Monterey Bay to measure the flow of Salinas River sediment across the shelf and into the Monterey Canyon. The proposed sites are located in 30-50 m water depths and lie between the Salinas River mouth and the canyon.

This permit is not valid until signed and returned to the ONMS. Retain one signed copy and carry it with you while conducting the permitted activities. Additional copies must be signed and returned, by either mail or email, to the following individuals within 30 days of issuance and before commencing any activity authorized by this permit:



Sophie De Beukelaer
Research Permit Coordinator
Monterey Bay National Marine Sanctuary
99 Pacific Street, Bldg 455A
Monterey, CA 93940
Sophie.debeukelaer@noaa.gov

National Permit Coordinator
NOAA Office of National Marine Sanctuaries
1305 East-West Highway (N/ORM6)
SSMC4, 11th Floor
Silver Spring, MD 20910
nmspermits@noaa.gov

Your permit contains specific terms, conditions and reporting requirements. Review them closely and fully comply with them while undertaking permitted activities.

If you have any questions, please contact Sophie De Beukelaer at 831-647-1286. Thank you for your continued cooperation with the ONMS.

Sincerely,



Paul Michel
Superintendent

Enclosure





UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL OCEAN SERVICE

Monterey Bay National Marine Sanctuary
99 Pacific Street, Bldg 455A
Monterey, CA 93940

MONTEREY BAY NATIONAL MARINE SANCTUARY RESEARCH PERMIT

Permittee:

Dr. Jonathan Warrick
U.S. Geological Survey
Pacific Coastal and Marine Science Center
400 Natural Bridges Drive
Santa Cruz, CA 95060

Permit Number: MBNMS-2014-029-A1

Effective Date: October 1, 2015

Expiration Date: September 30, 2016

Project Title: Storm impacts to the shoreline and seabed of the northern Monterey Bay

This permit is issued for activities in accordance with the National Marine Sanctuaries Act (NMSA), 16 USC §1431 *et seq.*, and regulations thereunder (15 CFR Part 922). All activities must be conducted in accordance with those regulations and law. No activity prohibited in 15 CFR Part 922 is allowed except as specified in the activity description below.

Subject to the terms and conditions of this permit, the National Oceanic and Atmospheric Administration (NOAA), Office of National Marine Sanctuaries (ONMS) hereby authorizes the permittee listed above to conduct research activities within Monterey Bay National Marine Sanctuary (MBNMS or sanctuary). All activities are to be conducted in accordance with this permit and the permit application received August 13, 2014, and supplemental information received August 28, September 3, September 15, 2014, and September 18, 2015. The permit application is incorporated into this permit by reference; provided, however, that if there are any conflicts between the permit application and the terms and conditions of this permit, the terms and conditions of this permit shall be controlling.

Permitted Activity Description:

The following activities are authorized by this permit:

- 1) Alteration of the seafloor to install and remove three (3) sensor-mounted tripods, and collect approximately 20 sediment grab samples (approximately 1000 cubic centimeters each);
- 2) Flying motorized aircraft below 1,000 feet above ground level in low overflight restriction zone (Moss Landing to Pescadero Point); and
- 3) Operation of motorized personal watercraft (MPWC) outside of designated MPWC zones.

See Special Terms and Conditions for more detail.

No further violation of sanctuary regulations is allowed.



Permitted Activity Location:

The permitted activity is allowed only in the following location(s):

- 1) Northern Monterey Bay (alteration of seafloor);
- 2) Moss Landing to Pescadero Point (low overflights); and
- 3) Salinas River mouth to Swift St, Santa Cruz (operation of MPWCs)

Special Terms and Conditions:

1. All authorized activities may be conducted from October 1, 2015 through September 30, 2016. All equipment shall be removed no later than the expiration date of this permit. The permittee may request an amendment from the MBNMS Superintendent in advance of this expiration date, to extend the effective date of this permit.
2. Permitted activities shall include the following:
 - a. Installation, maintenance, and recovery of individual scientific instruments, anchors, and anchoring materials;
 - b. Collection of sediments;
 - c. Operation of motorized aircraft (Cessna 182; Tail Number N5473N) within low overflight restriction zones during daylight hours, operated by Ecoscan Resource Data from Watsonville, California;
 - d. Operation of two (2) motorized personal watercraft (MPWC) outside of designated MPWC zones; and
 - e. The permit holder shall contact the MBNMS Research Permit Coordinator (sophie.debeukelaer@noaa.gov) 14 days prior to conducting any project modifications or future research projects that may be prohibited by MBNMS regulations, and shall receive written approval prior to conducting operations, to ensure these new activities meet the intent of Special Condition 2a through 2d above.
3. The equipment and support structures authorized by this permit shall be used in accordance with the methods and objectives identified in the permit application and Special Conditions included here. Disturbance of any other sanctuary resources is prohibited.
4. No activity authorized by this permit shall disturb or impact any historical or marine archaeological resources of the sanctuary. If historical or marine archaeological resources are encountered at any time, the permittee shall cease all further activities under this permit and immediately contact the MBNMS Superintendent.
5. All equipment authorized for installation under this permit shall be removed when such equipment is no longer in use, or sooner if directed by the MBNMS Superintendent if such equipment is causing or may cause unacceptable harm to sanctuary resources or qualities. Intentional abandonment of equipment or any item is prohibited. In the event that any mooring or equipment are damaged or dislocated due to weather or any other

cause, the permittee shall use all available means to locate and recover the affected item(s). The location and description of any equipment abandoned or lost in the sanctuary for any reason shall be noted in the summary report with an explanation why the equipment was not recovered.

6. All items (e.g. batteries, data recorders, etc.) removed from instrument packages attached to mooring arrays or platforms must be carried to the surface and stored or disposed of properly ashore. At no time may batteries be exposed to the sea or discarded within the sanctuary.
7. If contacted by MBNMS Sanctuary Integrated Monitoring Network (SIMoN) staff, the permittee agrees to provide project metadata from these permitted activities to the MBNMS Sanctuary Integrated Monitoring Network via a web-based interface. The permittee shall provide the information to the MBNMS within three (3) months of the request date. See <http://www.sanctuariesimon.org> for more information.
8. The permittee shall submit a final report of all activities conducted under this permit to the MBNMS Permit Coordinator **no later than October 31, 2016**. The report should include information regarding daily activities such as location (latitude and longitude) of samples, location of low overflight activities, location of MPWC activities, discovery or disturbance of historical artifacts, problems encountered, equipment lost, etc. The annual report shall also include a synopsis of research results to date.
9. This activity may also require permission from other agencies. The enclosed permit is not valid until all other necessary permits and/or authorizations are obtained. Any direct or incidental harassment of marine mammals requires a permit from the National Marine Fisheries Service (contact Monica DeAngelis at 562-980-3232) and/or U.S. Fish and Wildlife Service (contact Douglass Cooper at 805-644-1766). Direct or incidental harassment of seabirds requires a permit from the U.S. Fish and Wildlife Service. Deployment of mooring or surface buoys may require authorization from the US Coast Guard (contact Rachel Zamora at (510) 437-2984). Research conducted within California state waters or California state marine protected areas (MPA) may require permission from the California Department of Fish and Wildlife (contact Brian Owens at brian.owens@wildlife.ca.gov). Drilling into rock or installing devices may require permission from the California State Lands Commission (contact Grace Kato at 916-574-1227 or grace.kato@slc.ca.gov).
10. The permittee may be required to pay any or all expenses associated with the locating of and/or removal by NOAA or its designee of any equipment that is not recovered by the permittee.

Sediment Sampling and Equipment Installation

11. Collection of sediments from the seafloor is authorized using a Van-Veen grab sampler, or similar.

12. All equipment authorized for installation under this permit (including, but not limited to, anchors weighing less than 500 pounds, mooring lines, tackle, buoys, individual instruments, batteries, and platforms) shall be removed when such equipment is no longer in use.

Low Overflights

13. All motorized aircraft activities shall be conducted using a Cessna 182, operated by Ecoscan Resource Data from Watsonville, California (Tail Number N5473N), during daylight hours.
14. When operating within overflight restriction zones authorized aircraft shall operate at or above 500 feet above ground level (AGL) except as specified below:
- Año Nuevo Island: authorized aircraft shall fly at an altitude not less than 650 feet AGL when conducting overflight operations, within one nautical mile of Año Nuevo Island.
 - Elkhorn Slough and Pescadero Marsh: authorized aircraft shall fly at an altitude not less than 650 feet AGL over the waters Elkhorn Slough and Pescadero Marsh.
 - The authorized aircraft shall operate at or above 300 feet AGL when operating greater than one nautical mile from the shoreline.
 - The authorized aircraft shall operate at or above 500 feet AGL if marine mammals are observed in the area.
 - For location and description of MBNMS overflight restriction zones, see: <http://montereybay.noaa.gov/resourcepro/regmaps.html>
15. Authorized pilots shall minimize repeated overflights in any one area of the Sanctuary and remain at less than 1,000 feet AGL for only as long as necessary to complete survey operations.
16. The aircraft shall increase altitude to a non-threatening distance at the request of Sanctuary Superintendent or designee, in they conclude that flight operations are in danger of creating a disturbance to seabirds, marine mammals, or other natural resources of the Sanctuary.
17. Not less than one week prior to any aerial survey within the MBNMS, the permit holder must notify the contacts below of the applicable Sanctuary permit number, the purpose of the flight, the flight plan (including scheduled times of flight), the aircraft tail number, radio contact frequency, and call sign.

The following **pre-survey notifications are required:**

| POINT OF CONTACT | AFFILIATION | CONTACT INFORMATION |
|---------------------|------------------------------|--|
| Sophie De Beukelaer | MBNMS Research Permits | Sophie.DeBeukelaer@noaa.gov |
| Scott Kathey | MBNMS Regulatory Coordinator | scott.kathey@noaa.gov |
| Terry Kiser | Año Nuevo State Reserve | terry.kiser@parks.ca.gov |

Motorized Personal Watercraft (MPWC)

18. MPWC operator shall refrain from erratic operating behavior when transiting to the survey site and shall operate at, or less than, a speed of approximately two meters per second (4 knots) once on survey station.
19. Refueling of the MPWC shall only occur within a harbor, or other appropriate refueling station. Refueling of the MPWC is not allowed at the shoreline unless there is a compelling reason to do so and sufficient spill response equipment to address a spill is on site (i.e., sorbent and containment materials equal to approximately one-third the capacity of the fuel tank).
20. MPWC may be landed on the shoreline within the Sanctuary only when safe, shall not disturb marine mammal or bird, and only where towing or driving MPWC to survey area is impractical (e.g., remote areas). Shoreline landings shall be kept to a minimum. Permittee shall be responsible for any incidental damages incurred to property or environment due to shoreline landings.
21. Not less than 24-hrs prior to any operation of MPWC outside of designated MPWC Zone, the permit holder must notify the contacts below of the applicable Sanctuary permit number, the purpose of the survey, the survey plan (including scheduled times of MPWC operation), and general description of the MPWC (e.g., color, make/model, number of seats, other descriptive characteristics). For location and description of MBNMS MPWC Zones, see: <http://montereybay.noaa.gov/resourcepro/regmaps.html>.

The following **pre-survey notifications are required:**

| POINT OF CONTACT | AFFILIATION | CONTACT INFO |
|---------------------|------------------------------|--|
| Sophie De Beukelaer | MBNMS Research Permits | Sophie.DeBeukelaer@noaa.gov |
| Scott Kathey | MBNMS Regulatory Coordinator | scott.kathey@noaa.gov |
| Chief Petty Officer | US Coast Guard, Monterey | 831-647-7312 |

General Terms and Conditions:

1. Within 30 (thirty) days of the date of issuance, the permittee must sign and date this permit for it to be considered valid. Once signed, the permittee must send copies, via mail or email, to the following individuals:

Sophie De Beukelaer
Research Permit Coordinator
Monterey Bay National Marine Sanctuary
99 Pacific Street, Bldg 455A
Monterey, CA 93940
Sophie.DeBeukelaer@noaa.gov

National Permit Coordinator
NOAA Office of National Marine Sanctuaries
1305 East-West Highway (N/ORM6)
SSMC4, 11th Floor
Silver Spring, MD 20910
nmspermits@noaa.gov

2. It is a violation of this permit to conduct any activity authorized by this permit prior to the ONMS having received a copy signed by the permittee.
3. This permit may only be amended by the ONMS. The permittee may not change or amend any part of this permit at any time. The terms of the permit must be accepted in full, without revision; otherwise, the permittee must return the permit to the sanctuary office unsigned with a written explanation for its rejection. Amendments to this permit must be requested in the same manner the original request was made.
4. All persons participating in the permitted activity must be under the supervision of the permittee, and the permittee is responsible for any violation of this permit, the NMSA, and sanctuary regulations for activities conducted under, or in junction with, this permit. The permittee must assure that all persons performing activities under this permit are fully aware of the conditions herein.
5. This permit is non-transferable and must be carried by the permittee at all times while engaging in any activity authorized by this permit.
6. This permit may be suspended, revoked, or modified for violation of the terms and conditions of this permit, the regulations at 15 CFR Part 922, the NMSA, or for other good cause. Such action will be communicated in writing to the applicant or permittee, and will set forth the reason(s) for the action taken.
7. This permit may be suspended, revoked or modified if requirements from previous ONMS permits or authorizations issued to the permittee are not fulfilled by their due date.
8. Permit applications for any future activities in the sanctuary or any other sanctuary in the system by the permittee might not be considered until all requirements from this permit are fulfilled.
9. This permit does not authorize the conduct of any activity prohibited by 15 CFR § 922, other than those specifically described in the "Permitted Activity Description" section of this permit. If the permittee or any person acting under the permittee's supervision conducts, or causes to be conducted, any activity in the sanctuary not in accordance with the terms and conditions set forth in this permit, or who otherwise violates such terms and conditions, the permittee may be subject to civil penalties, forfeiture, costs, and all other remedies under the NMSA and its implementing regulations at 15 CFR Part 922.

10. Any publications and/or reports resulting from activities conducted under the authority of this permit must include the notation that the activity was conducted under National Marine Sanctuary Permit MBNMS-2014-029-A1 and be sent to the ONMS officials listed in general condition number 1.
11. This permit does not relieve the permittee of responsibility to comply with all other federal, state and local laws and regulations, and this permit is not valid until all other necessary permits, authorizations, and approvals are obtained. Particularly, this permit does not allow disturbance of marine mammals or seabirds protected under provisions of the Endangered Species Act, Marine Mammal Protection Act, or Migratory Bird Treaty Act. Authorization for incidental or direct harassment of species protected by these acts must be secured from the U.S. Fish and Wildlife Service and/or NOAA Fisheries, depending upon the species affected.
12. The permittee shall indemnify and hold harmless the Office of National Marine Sanctuaries, NOAA, the Department of Commerce and the United States for and against any claims arising from the conduct of any permitted activities.
13. Any question of interpretation of any term or condition of this permit will be resolved by NOAA.

Your signature below, as permittee, indicates that you accept and agree to comply with all terms and conditions of this permit. This permit becomes valid when you, the permittee, countersign and date below. Please note that the expiration date on this permit is already set and will not be extended by a delay in your signing.

Dr. Jonathan Warrick
Research Geologist
U.S. Geological Survey

Date


Paul Michel
Superintendent
Monterey Bay National Marine Sanctuary


Date

2 document(s) attached:
Location of MBNMS overflight restriction zones
Location of MBNMS motorized personal watercraft zones

123°0'W

122°30'W

122°0'W

121°30'W

Overflight Prohibition Zones

Motorized aircraft are prohibited from flying below 1000 feet in any of the four prohibition zones within the Monterey Bay National Marine Sanctuary



Airports



Overflight Prohibition Zones



Monterey Bay National Marine Sanctuary

0 10 20
Miles



This is a digital representation of the boundaries as defined by the Code of Federal Regulations. Not intended for navigation or legal purposes.

Monterey Bay National Marine Sanctuary

Pescadero Point

3 Nautical Miles

Santa Cruz County

Point Santa Cruz

Pajaro River

5 Nautical Miles

Moss Landing

Carmel River

Salinas River

Bixby Bridge

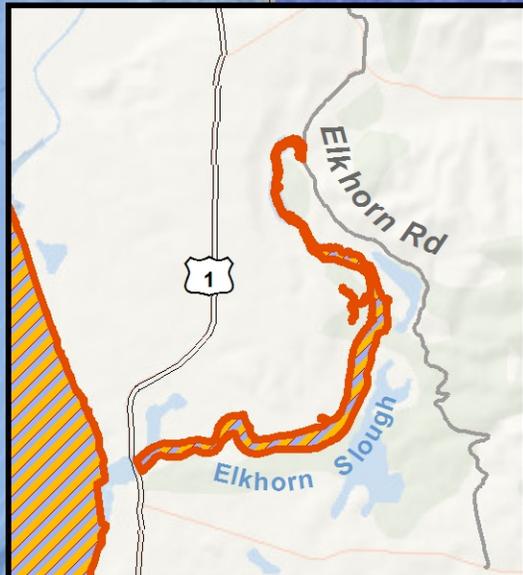
3 Nautical Miles

Monterey County

San Luis Obispo County

Cambria

35° 33.29'



37°30'N

37°0'N

36°30'N

36°0'N

35°30'N

37°30'N

37°0'N

36°30'N

36°0'N

35°30'N

123°0'W

122°30'W

122°0'W

121°30'W

121°0'W

