**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 | ☐ | Geophysical Survey Permit Exhibit F |
| X | ☐ | Survey Location (including a full-sized navigation chart and GPS coordinates for each proposed track line and turning point)<br>Explanation:_____ |
| X | ☐ | Permit(s) or Authorization from other Federal or State agencies (if applicable)<br>Explanation: *Golden Gate National Recreation Area Permit GOGA-2012-SCI-0006* |
| X | ☐ | 21-Day Written Notice of Survey Operations to Statewide Geophysical Coordinator/ |
| X | ☐ | U.S. Coast Guard Local Notice to Mariners |
| X | ☐ | Harbormaster and Dive Shop Notifications<br>Explanation:_____ |
| X | ☐ | Marine Wildlife Contingency Plan<br>Explanation:_____ |
| X | ☐ | Oil Spill Contingency Plan<br>Explanation:_____ |
| ☐ | X | Verification of California Air Resources Board's Tier 2-Certified Engine Requirement<br>Explanation: *Vehicle engines are gasoline fueled and exempt from Tier 2 Certification* |
| X | ☐ | Verification of Equipment Service and/or Maintenance (must verify sound output)<br>Explanation:_____ |
| ☐ | X | Permit(s) or Authorization from California Department of Fish and Wildlife for surveys in or affecting Marine Protected Area(s) (if applicable).<br>Explanation: *Survey area is not within MPAs* |

._____

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: 2/3/2015
George Tate 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:
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: George Tate
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 six successive monthly surveys of the same area to assess changes in seafloor morphology related to seasonal storms and El Nino Seasonal Oscillations (ENSO), and future anthropogenic influences.

1. Expected Date of Operation: February 24, 2015 to April 30, 2015 Up to three 1 day surveys will be conducted approximately at monthly intervals, as weather and project scheduling permits. At a minimum, one survey will be conducted near the end of the time interval, with up to two additional surveys to document the effects of large wave events on seafloor morphology.
2. Hours of Operation: 7AM to 6PM

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 µPa 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. 1.6m along track, 1.6m across track in 10 m water depth.
   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-20log (R/Ro)-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)

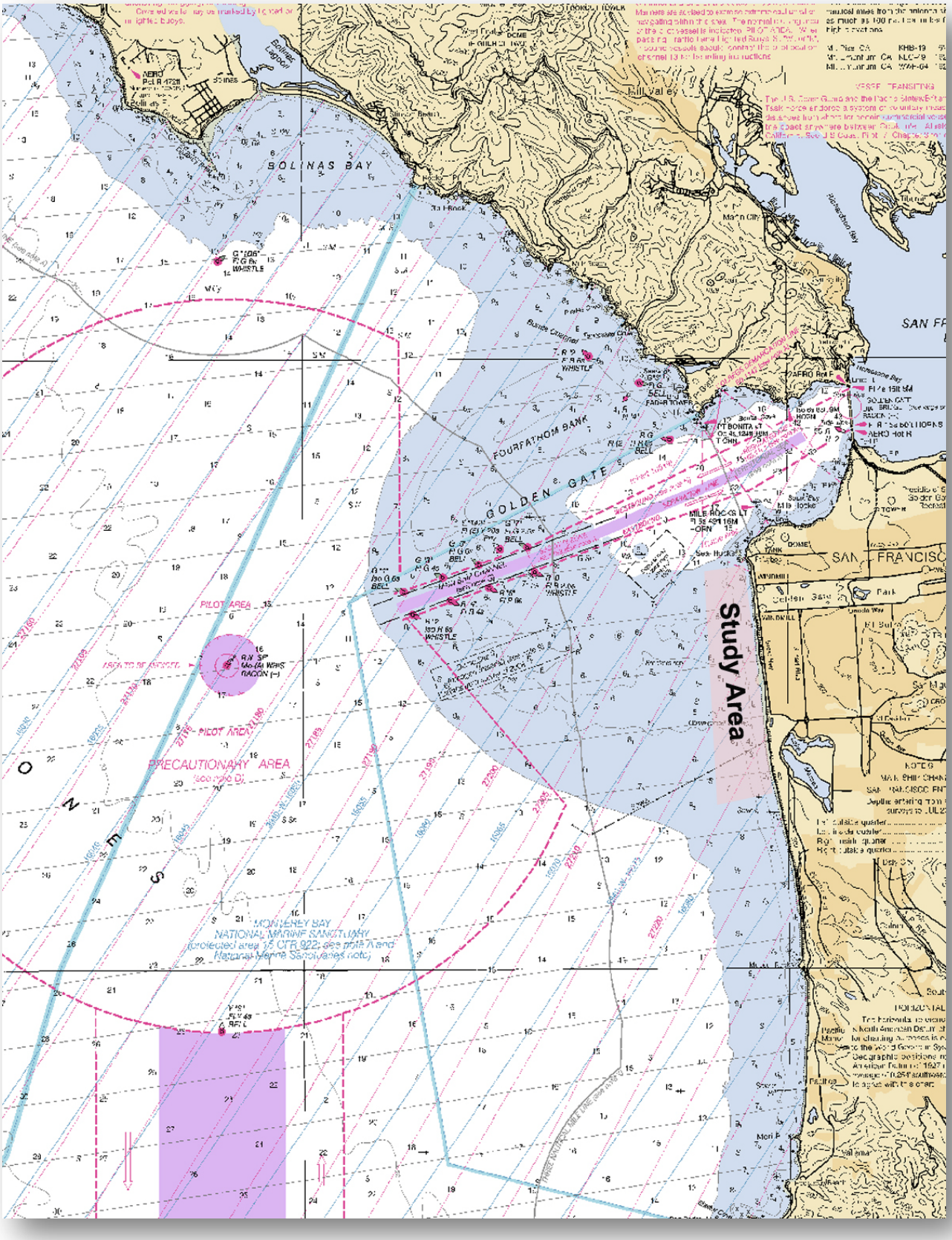
      A= sound absorption coefficient

   g. Deployment depth: 0.25 m
   h. Tow speed: 4 knots
   i. Approximate length of cable tow: 0 m.

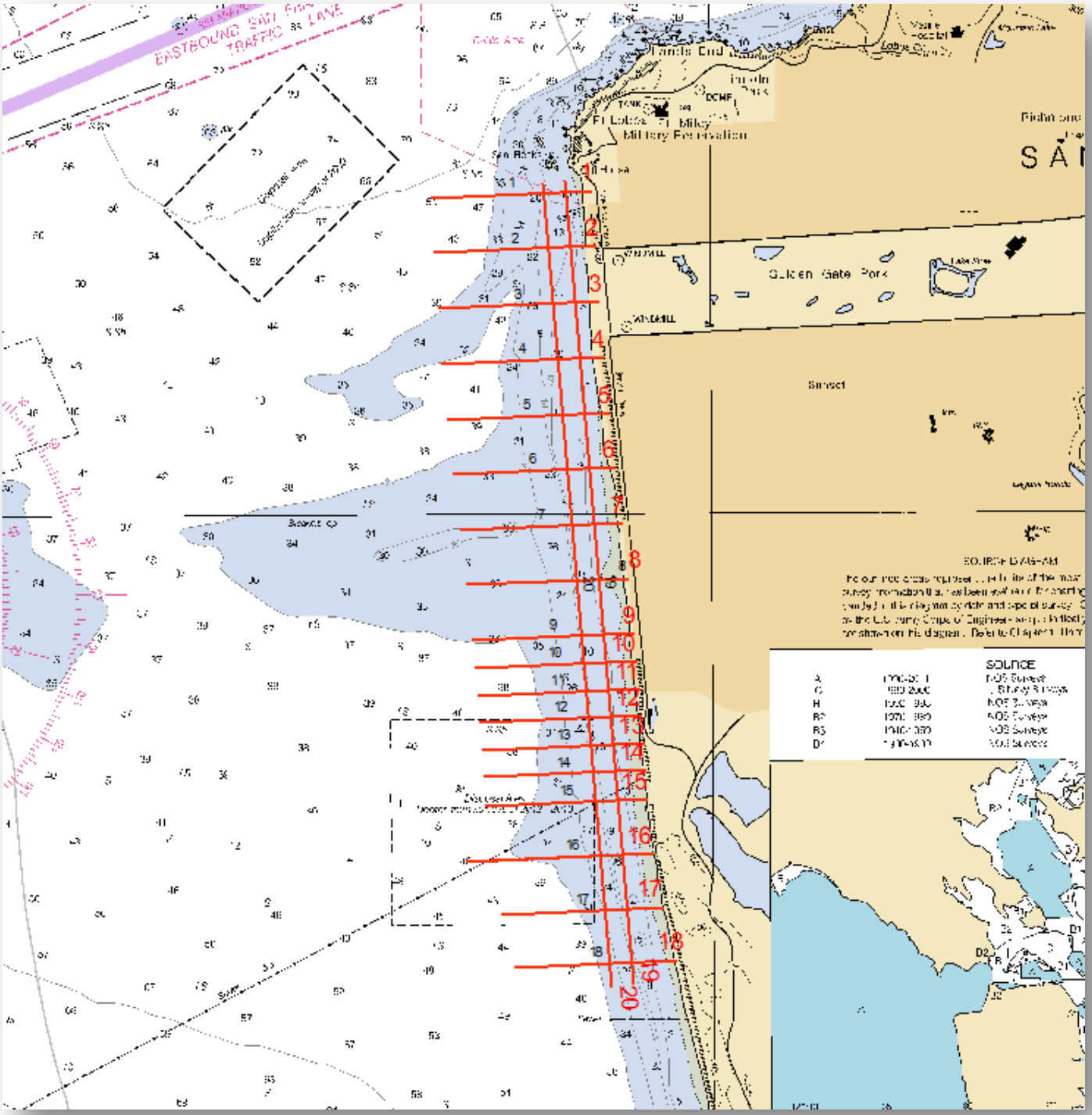
Applicant's Representative:
Daniel Hoover
US Geological Survey
400 Natural Bridges Drive
Santa Cruz, CA 95060
831-460-7544

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




**Regional Map of Study Area**




**Detail Map of Study Area**

The survey area is bounded by the coordinates:

37° 46.609 -122° 31.798
37° 42.595 -122° 31.798
37° 46.609 - 122° 30.187
37° 42.595 -122° 30.187

The track line coordinates are:

| | Start Line | | End Line | |
|---|---|---|---|---|
| Line No. | LAT | LON | Lat | Lon |
| 1 | 37.77630 | -122.51200 | 37.77578 | -122.52854 |
| 2 | 37.77180 | -122.51164 | 37.77127 | -122.52830 |
| 3 | 37.76728 | -122.51130 | 37.76676 | -122.52797 |
| 4 | 37.76276 | -122.51091 | 37.76223 | -122.52758 |
| 5 | 37.75827 | -122.51040 | 37.75774 | -122.52707 |
| 6 | 37.75381 | -122.50983 | 37.75329 | -122.52650 |
| 7 | 37.74932 | -122.50906 | 37.74880 | -122.52572 |
| 8 | 37.74483 | -122.50847 | 37.74431 | -122.52513 |
| 9 | 37.74039 | -122.50791 | 37.73986 | -122.52457 |
| 10 | 37.73814 | -122.50767 | 37.73761 | -122.52433 |
| 11 | 37.73587 | -122.50740 | 37.73535 | -122.52406 |
| 12 | 37.73368 | -122.50720 | 37.73315 | -122.52386 |
| 13 | 37.73144 | -122.50693 | 37.73091 | -122.52359 |
| 14 | 37.72923 | -122.50682 | 37.72870 | -122.52348 |
| 15 | 37.72689 | -122.50663 | 37.72636 | -122.52329 |
| 16 | 37.72244 | -122.50606 | 37.72192 | -122.52272 |
| 17 | 37.71811 | -122.50503 | 37.71758 | -122.52169 |
| 18 | 37.71380 | -122.50374 | 37.71327 | -122.52040 |
| 19 | 37.71180 | -122.50825 | 37.77713 | -122.51496 |
| 20 | 37.71157 | -122.51049 | 37.77690 | -122.51720 |

**Marine Wildlife Mitigation Plan**
**Ocean Beach Bathymetric Surveys**

**(February 24 - April 30, 2015)**

# 1.0 INTRODUCTION

This marine wildlife mitigation plan is prepared in compliance with the USGS Pacific Coastal and Marine Geology 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 Geology Science Center (PCMG) 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 is studying the effects of waves, currents and human activity on the coastline and adjacent seabed off of Ocean Beach, San Francisco. Ocean Beach is subject to large waves from winter storms and strong currents associated with tidal exchange with nearby San Francisco Bay; as a result the area is extremely dynamic. The shoreline of Ocean Beach has been slowly retreating since the mid-1990's, with accelerated rates in certain areas (Wiegel, 2001). The U.S. Army Corps of Engineers, San Francisco City Department of Public Works and Department of the Environment, National Park Service, members of the USGS, and a citizens group have joined to form the Ocean Beach Task Force in an effort to address this problem. In 2004, we began conducting research and monitoring in Ocean Beach and other areas around the mouth of San Francisco Bay to obtain quantitative data on beach behavior and on processes affecting sediment transport.

Targeted bathymetric surveys will build on our earlier research by extending our beach and subtidal monitoring program to near-decadal and hopefully longer timescales. The ultimate goal of this project is to identify and quantify the physical processes that control nearshore and beach morphology, enabling the various government agencies involved to make the most informed management decisions possible.

PCMG 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 San Francisco Bay Region. 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 window will be from February 24 through April 30, 2015. At least one survey will be conducted near the end of the project period to document the aggregate effect of winter waves on nearshore bathymetry. Up to two additional surveys may be conducted in response to large wave events if they occur. The most likely period for these surveys is February through March. For safety reasons, the survey vehicles are always used in tandem—two at a time— with personnel support on the adjacent beach. Permits and permissions for beach use have been obtained from the National Park Service (Permit GOGA-2012-SCI-0006). Survey vehicles will be launched from Fort Baker, on the north side of the Golden Gate, and will transit at safe speeds to the survey locations. Surveys normally will be conducted during spring 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 ( 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.

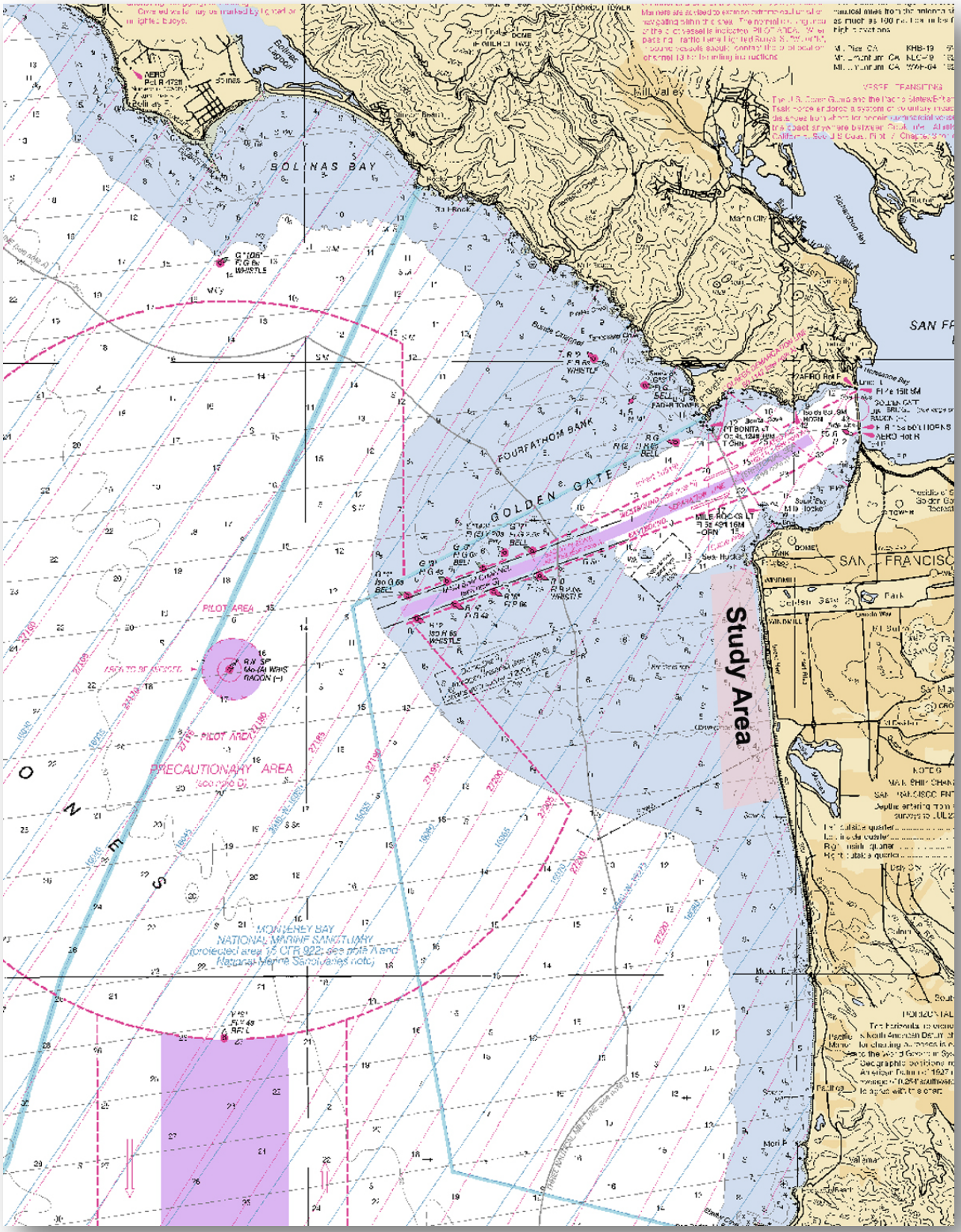



**Figure 1. Regional Map of Survey Area**

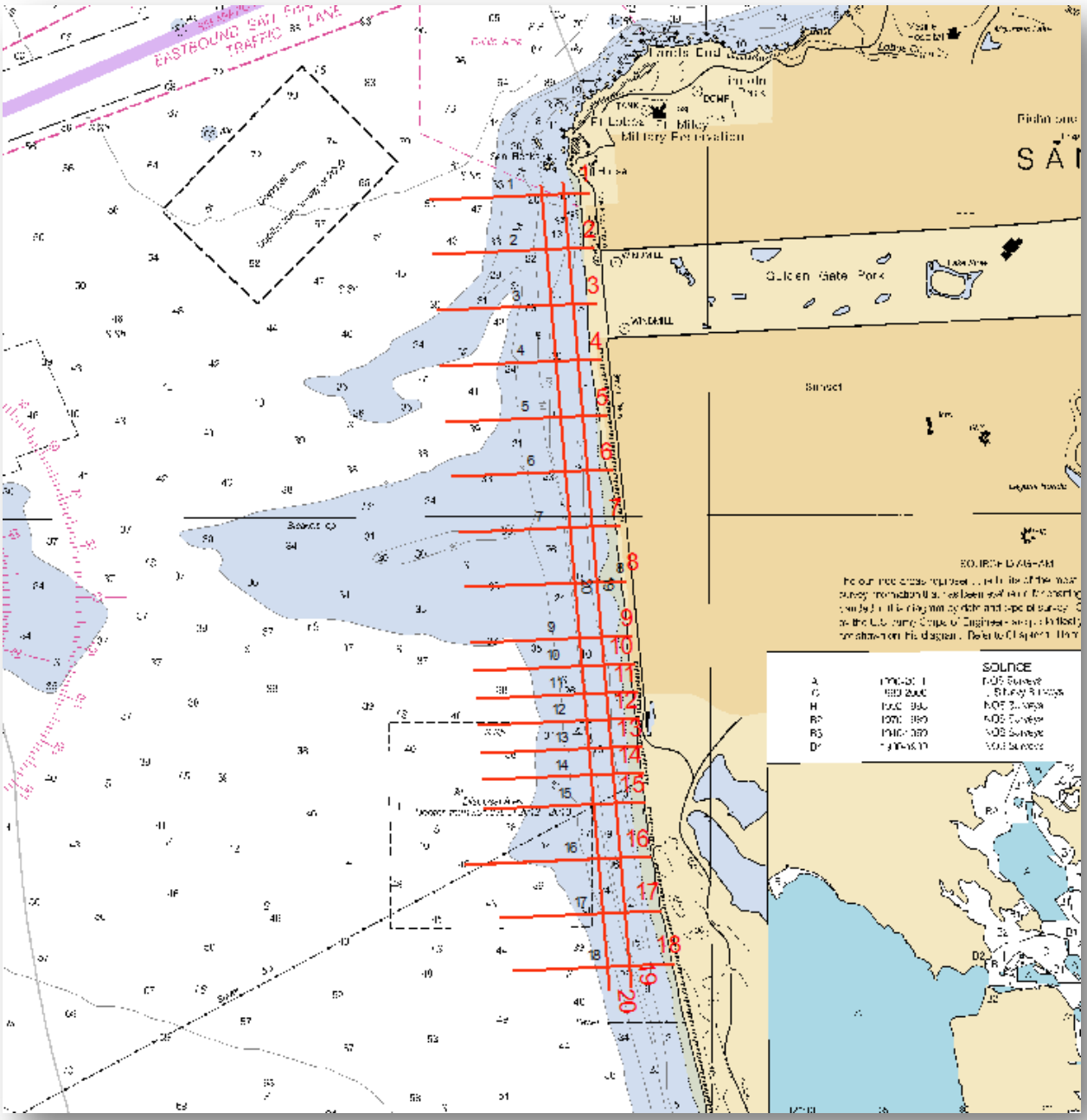



**Figure 2. Detail Map of Survey Area**

## 2.0 Survey Equipment and Activities

Nearshore mapping would utilize two USGS Coastal Profiling Systems (CPS), which consist of a personal watercraft instrumented with GPS-based mapping systems and fathometers. 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 toSL160 dBrms (meters) | Distance to SL 180 dB (rms) (meters) | Distance toSL190 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-20log (R/Ro)-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 *Lepidochelys olivacea* | 1.39 million (Eastern Tropical Pacific)** | Increasing |
| Green turtle *Chelonia mydas* | 3,319-3,479** (Eastern Pacific Stock) | Increasing |
| Loggerhead turtle *Caretta caretta* | 1,000 (California)** | Decreasing |
| Leatherback turtle *Dermochelys coriacea* | 178 (California)** | Decreasing |
| **MAMMALS** | | |
| **Mysticeti** | | |
| California gray whale *Eschrichtius robustus* | 18,017 (Eastern North Pacific Stock) | Fluctuating annually |
| Fin whale *Balaenoptera physalus* | 2,624 (California/Oregon/Washington Stock) | Increasing off California |
| Humpback whale *Megaptera novaeangliae* | 1,878 (California/Oregon/Washington Stock) | Increasing |
| Blue whale *Balaenoptera musculus* | 2,046 (Eastern North Pacific Stock) | Unable to determine |
| Minke whale *Balaenoptera acutorostrata* | 202 (California/Oregon/Washington Stock) | No long-term trends suggested |
| Northern right whale *Eubalaena japonica* | 17 (based on photo-identification) (Eastern North Pacific Stock) | No long-term trends suggested |
| Sei whale *Balaenoptera borealls* | 83 (Eastern North Pacific Stock) | No long-term trends suggested |
| **Odontoceti** | | |
| Short-beaked common dolphin *Delphinus delphis* | 343,990 (California/Oregon/Washington Stock) | Unable to determine |
| Long-beaked common dolphin *Delphinus capensls* | 17,127 (California Stock) | Unable to determine |
| Dall's porpoise *Phocoenoides dalli* | 32,106 (California/Oregon/Washington Stock) | Unable to determine |
| Harbor porpoise *Phocoena phocoena* | 1,478 (Morro Bay Stock) | Increasing |
| Pacific white-sided dolphin *Lagenorhynchus obllquldens* | 21,406 (California/Oregon/Washington Stock) | No long-term trends suggested |
| Risso's dolphin *Grampus griseus* | 4,913 (California/Oregon/Washington Stock) | No long-term trends suggested |
| Short-finned pilot whale *Globicephala macrorhynchus* | 465 (California/Oregon/Washington Stock) | No long-term trends suggested |

| | | |
|---|---|---|
| Bottlenose dolphin<br>*Turslops truncates* | 684<br>(California/Oregon/Washington Offshore Stock) | No long-term trends suggested |
| | 290 (California Coastal Stock) | No long-term trends suggested |
| Northern right whale dolphin<br>*LIssopelphis borealis* | 6,019<br>(California/Oregon/Washington Stock) | No long-term trends suggested |
| Sperm whale<br>*Physeter macrocephalus* | 751<br>(California/Oregon/Washington Stock) | No long-term trends suggested |
| Killer whale Orcinus orca | 85<br>(Eastern North Pacific Southern Resident Stock) | Decreasing |
| | 162<br>(Eastern North Pacific Offshore Stock) | No long-term trends suggested |
| **Pinnipedia** | | |
| California sea lion<br>*Zalophus californianus* | 141,842<br>(U.S. Stock) | Unable to determine; increasing in most recent three year period |
| Northern fur seal<br>*Callorhinus ursinus* | 5,395 (San Miguel Island Stock) | Increasing |
| Guadalupe fur seal<br>*Arctocephalus townsendi* | 3,028 (Mexico Stock) Undetermined in California | Increasing |
| Northern (Steller) sea lion<br>*Eumetopias jubatus* | 2,479 California Stock | Decreasing |
| Northern elephant seal<br>*Mirounga angustirostris* | 74,913 | Increasing |
| Pacific harbor seal<br>*Phoca vitulina richardsi* | 31,600 | Stable |
| Fissipedia | | |
| Southern sea otter<br>*Enhydra lutris nereis* | 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 ai. (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<br>Common Name | Month of Occurrence [1] | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | J | F | M | A | M | J | J | A | S | O | N | D |
| **REPTILES** | | | | | | | | | | | | |
| **Cyptodira** | | | | | | | | | | | | |
| 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 for this survey. 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 the USCG Golden Gate Station at Fort Baker. 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:

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

## 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 |
|---|---|---|---|
| Sutro Baths, San Francisco, CA | California Sea Lion | 37.78 | -122.50 |
| Seal Rocks, Point Lobos, San Francisco, CA | California Sea Lion | 37.78 | -122.52 |
| Fort Funston, San Francisco, CA | California Sea Lion | 37.73 | -122.51 |

Vehicle Speed

The CPS operator will refrain from erratic operating behavior when transiting to eh 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

# U.S. GEOLOGICAL SURVEY
# PACIFIC COASTAL AND MARINE GEOLOGY SCIENCE CENTER

# 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:

UCSF, Medical Center
505 Parnassus Ave.
San Francisco, CA 94143
(415) 353-1037

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

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

a. Name and telephone number of caller.
b. 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<br>1-877-UCD-OWCN | Animal Advocates<br>323-651-1336 |
| California Wildlife Center<br>310-458-9453 | South Bay Wildlife Rehab<br>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 Geology Science Center (PCMGSC) 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 USGS-owned Odom Echotrac ECTV-100 echo sounder is owned and operated by USGS Pacific Coastal and Marine Geology Science Center (PCMGSC). 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.

11/14/14

George Tate, Marine Operations Superintendant

Date

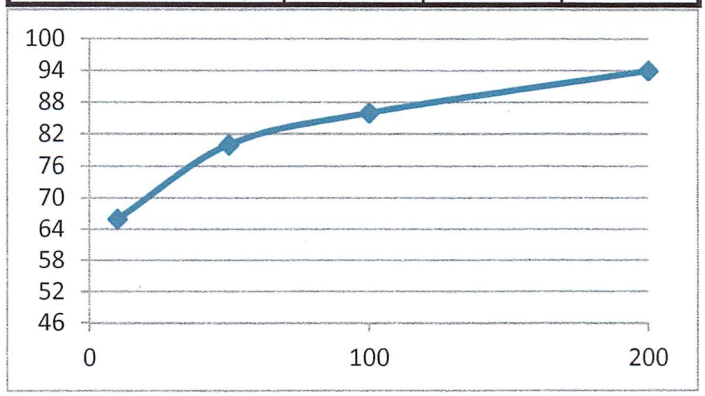
USGS
science for a changing world

USGS Coastal and Marine Geology Program

| Geophysical System Certification | ODOM ECHOTRAC CV-100 |
|---|---|

| | |
|---|---|
| Date | 12/16/2014 |
| Serial # | 26067 |

| Receiver Sensitivity | High Freq | 200 | KHz |
|---|---|---|---|




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) | √ |

High Frequency Transmit Power (50ohm)

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

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 | √ |

| 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 |

George Tate Marine Operations Superintendant

11/14/14
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 Geology Science Center (PCMGSC) 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 USGS-owned Odom Echotrac ECTV-100 echo sounder is owned and operated by USGS Pacific Coastal and Marine Geology Science Center (PCMGSC). 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 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.

11/14/14

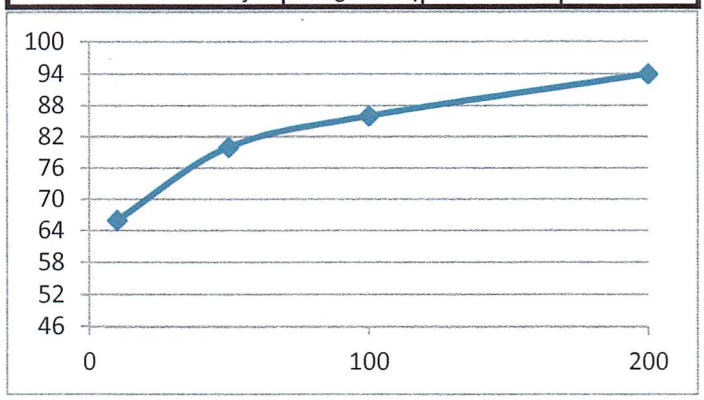
George Tate, Marine Operations Superintendant — Date

USGS
science for a changing world
USGS Coastal and Marine Geology Program

| *Geophysical System Certification* | **ODOM ECHOTRAC ETCV-100** |
|---|---|

| | |
|---|---|
| Date | 12/16/2014 |
| Serial # | 26331 |

| Receiver Sensitivity | High Freq | 200 | KHz |
|---|---|---|---|




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) | √ |

High Frequency Transmit Power (50ohm)

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

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 | √ |

| 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 |

**George Tate** **Marine Operations Superintendant**

11/14/14
**Date**

## George Tate

**From:** George Tate
**Sent:** Tuesday, February 03, 2015 5:04 PM
**To:** George Tate; hdc@harbordive.com; andersonscuba@aol.com
**Cc:** Greenwood, Richard@SLC; Keen, Kelly@SLC
**Subject:** Pre-survey Notice of Geophysical Survey Operations at San Francisco's Ocean Beach - Dive Shops
**Attachments:** CSLC EXHIBIT F - Ocean Beach Surveys.pdf

**PRE SURVEY NOTIFICATION FOR GEOPHYSICAL SURVEY**

The USGS Pacific Coastal and Marine Geology Science Center (PCMGSC) will be conducting a geophysical survey off of Ocean Beach, San Francisco, CA under California State Lands Permit #8394. The operations to be conducted will be a bathymetric survey using a 200 kHz single beam echo sounder mounted on a personal watercraft (jet ski). The survey operational window will be from February 24 to September 30, 2015. Two personal watercraft will be used to conduct cross shore transects from within the surf zone out to 12m from shore. Up to three 1 day surveys will be conducted approximately at monthly intervals, as weather and project scheduling permits. At a minimum, one survey will be conducted near the end of the time interval, with up to two additional surveys to document the effects of large wave events on seafloor morphology.

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

Best regards,

George Tate
*Deputy Center Director for Operations*
*Pacific Coastal and Marine Geology*
*U.S. Geological Survey*
*Pacific Science Center*
*400 Natural Bridges Drive , Santa Cruz, CA 95060*

*831.460.7484 voice*
*831.421.9209 FAX*
*831.234.7399 cell*

## George Tate

**From:** George Tate
**Sent:** Tuesday, February 03, 2015 5:04 PM
**To:** George Tate; slcogpp@slc.ca.org; D11LNM@uscg.mil
**Cc:** Greenwood, Richard@SLC; Keen, Kelly@SLC
**Subject:** Pre-survey Notice of Geophysical Survey Operations at San Francisco's Ocean Beach - Geophysical Coordinator and Notice to Mariners
**Attachments:** CSLC EXHIBIT F - Ocean Beach Surveys.pdf

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Best regards,

George Tate
*Deputy Center Director for Operations*
*Pacific Coastal and Marine Geology*
*U.S. Geological Survey*
*Pacific Science Center*
*400 Natural Bridges Drive , Santa Cruz, CA 95060*

*831.460.7484 voice*
*831.421.9209 FAX*
*831.234.7399 cell*

## George Tate

**From:** George Tate
**Sent:** Tuesday, February 03, 2015 5:04 PM
**To:** George Tate; harbormaster@smharbor.com; jhaynes@santacruzharbor.org
**Cc:** Greenwood, Richard@SLC; Keen, Kelly@SLC
**Subject:** Pre-survey Notice of Geophysical Survey Operations at San Francisco's Ocean Beach - Harbor Masters
**Attachments:** CSLC EXHIBIT F - Ocean Beach Surveys.pdf

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