# BATHYMETRIC AND GEOPHYSICAL SURVEY REPORT

## TAYLOR RANCH OUTFALL FEASIBILITY STUDY
## VENTURA, CALIFORNIA

**Survey Period: July 17, 2014**
**Report Number: 23.00007090 R1**

Prepared for: Simon A. Poulter
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5290 Overpass Road, Suite 217
Goleta, CA 93111

Client Reference: 23.00007090

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| 1 | Issued as Final | E. Stutts | C. Pratt | E. Stutts | August 12, 2014 |
| 0 | Issued as Draft | C. Pratt | A. Tardif | E. Stutts | August 7, 2014 |
| Rev | Description | Prepared | Checked | Approved | Date |

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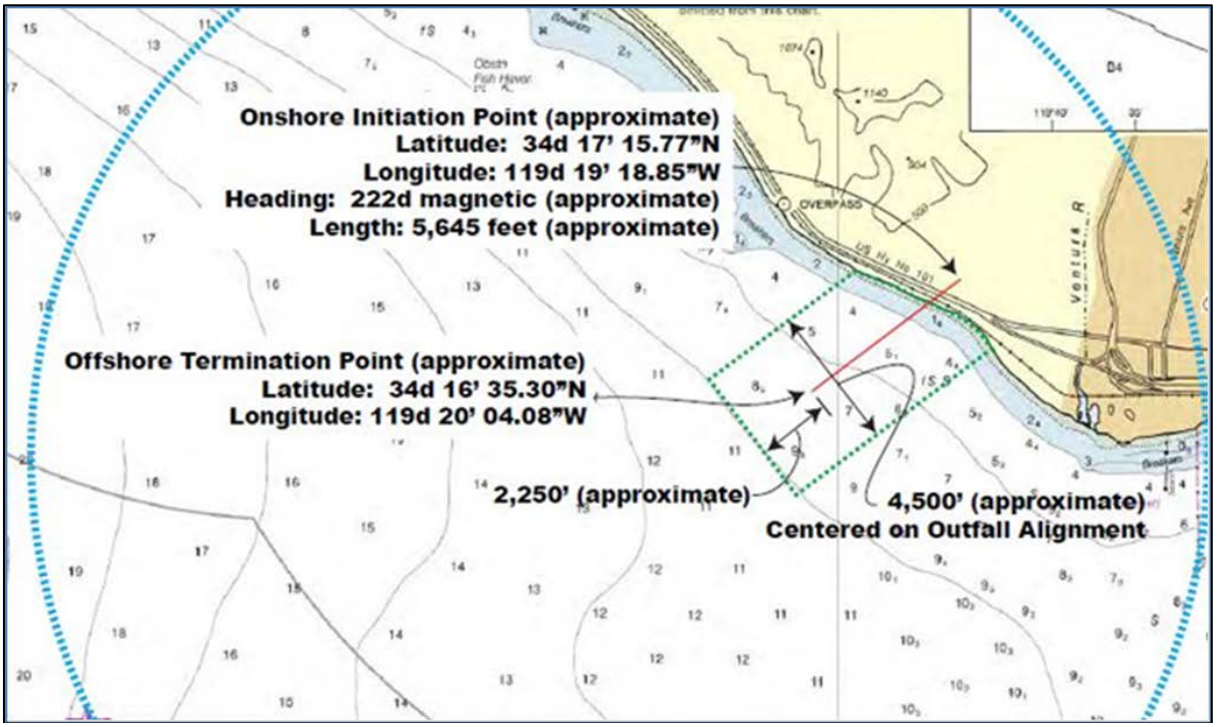
# 1. INTRODUCTION AND SCOPE OF WORK

## 1.1 General

On July 11 and 17, 2014, Fugro West, Inc. (Fugro) conducted an offshore bathymetric and geophysical survey as part of a site investigation supporting the engineering feasibility study for a proposed outfall installation located offshore Ventura, California (Taylor Ranch) for Padre Associates, Inc.

The geophysical survey limits extended from as near to shore as safely possible to approximately 7,000 feet offshore with a survey corridor width of 4,500 feet (2,250 feet each side of proposed outfall alignment) as shown on the Figure 1-1.




*Source: Padre Associates, Inc.*

**Figure 1-1. SURVEY AREA**

A survey consisting of single beam bathymetry, side scan sonar and magnetometer data collection was conducted onboard the *M/V Julie Ann* on July 11 and 17, 2014. Data was acquired along thirty three lines offset 197 feet apart, oriented parallel to the shoreline and extending through the survey area where the proposed alignment is centrally located and intersects each line. Five additional survey lines offset 1,000 feet apart were run perpendicular to the shoreline and considered tie lines.

All acquired data are referenced to NAD83 California Coordinate System, Zone 5 in U.S. Survey Feet. The vertical datum used for deliverables is MLLW (Mean Lower Low Water) based on NOAA predicted tides.

Daily progress reports (DPRs) were generated for each survey day which included daily events, Quality, Health, Safety, & Environmental (QHSE) summary, weather conditions, hours worked, and any Health, Safety & Environmental (HSE) incidents if incurred. Copies of the DPRs are located in Appendix A of this report.

Because the project included offshore surveys using acoustical methods, and the survey area was within California State Lands Commission (CSLC) jurisdiction, a marine mammal observer was onboard and a copy of the final Marine Wildlife Monitoring Report can be found in Appendix B. In accordance with CSLC regulations, a completed copy of Exhibit H taken from Fugro Geophysical Permit PRC 8392.9 has been completed with acknowledgements and included in Appendix C.

A DVD will accompany this report containing digital files as listed in Appendix D. In addition there are two site-specific maps that were constructed with the survey data, Chart 1. Bathymetric Contours and Surficial Features and Chart 2. Side Scan Sonar Mosaic (plotted at 1" = 400') located in Appendix E.

## 1.2 Units and Conventions

Units used on the survey are as follows:

- Linear units are U.S. Survey Feet.
- Angular units are degrees (°).

Time was recorded and noted in field logs in Pacific Time (UTC -08:00).

## 1.3 Abbreviations

| | |
|---|---|
| CSLC | California State Lands Commission |
| DGPS | Differential Global Positioning System |
| DPR | Daily Progress Report |
| GPS | Global Positioning System |
| HSE | Health, Safety, & Environmental |
| KHz | Kilohertz |
| MLLW | Mean Lower Low Water |
| MSEC | Millisecond |
| M/V | Marine Vessel |
| NAD | North American Datum |
| NOAA | National Oceanic and Atmospheric Administration |
| QA / QC | Quality Assurance / Quality Control |
| QHSE | Quality, Health, Safety, & Environmental |
| SVP | Sound Velocity Profile |
| UTC | Coordinated Universal Time |
| WGS84 | World Geodetic System of 1984 |

# 2. METHODS AND RESOLUTION LIMITATIONS

## 2.1 Positioning and Navigation

A wide area DGPS was used to position the survey vessel. A "wide area" application operates with correction values applied to a stand-alone GPS receiver from base stations located over large distances. DGPS corrections were supplied to the system using the STARFIX II network. This differential network is a worldwide system operated by Fugro. STARFIX II broadcasts differential corrections via a communications satellite downlink to field receivers. The differentially-corrected position from the Trimble receiver was passed to an onboard navigation computer running Hypack navigational software.

## 2.2 Bathymetry Data

An Odom CV-100 survey-grade echo sounder was used to acquire single-beam bathymetric data during survey operations. Operating at a high frequency of 200 kHz, the Odom CV-100 collected digital profile records as well as digitized depth information for output to the navigational computer. Digital depth data was logged directly to the navigation computer along with date, time, and position for post processing and mapping.

**Calibrations.** A bar check calibration for speed of sound was carried out prior to commencing survey operations. For the calibration, a flat plate was suspended by a precisely marked line to a known depth below the transducer. Variations between the true bar depth and the observed depth were used to correct observed depths by adjusting the sound velocity on the echo sounder until it read correctly. Draft and index corrections were also compensated through the use of the bar check calibration.

**Processing.** Single beam bathymetric data recorded by the navigation computer during data collection was edited using Hypack 2014 to remove outliers and then cross-referenced against the echo sounder digital chart recordings. The soundings were reduced to MLLW using the predicted tidal data obtained from NOAA and exported as an XYZ file. The XYZ data were subsequently contoured at one foot intervals using Hypack 2014 and these contours were exported for final charting. The contour interval on Chart 1 is one foot with index contours every 5 feet.

## 2.3 Surficial Features and Obstruction Mapping

Seafloor features and obstructions have been interpreted from a side scan sonar system and marine magnetometer. The side scan sonar system consisted of a digital, dual-frequency, EdgeTech 4125 towfish and Kevlar tow cable that were interfaced to the EdgeTech topside unit, which was networked to a data-logging computer and EdgeTech's Discover acquisition software.

During the survey, the towfish was deployed from the port stern of the *M/V Julie Ann* as the vessel traversed the survey grid. The side scan sonar was operated at frequencies of 400 kHz and 900 kHz at slant ranges of 75 meters.

A Marine Magnetic Corporation SeaSPY marine magnetometer was deployed from the starboard stern of the survey vessel, and run in order to confirm man-made objects versus natural objects. Magnetic anomalies occur when the towed magnetometer sensor passes near an object containing

iron. The size of the magnetic anomaly depends mostly on how close to the iron object the sensor is and the amount (mass) of iron. The size (intensity) of magnetic anomalies is expressed in gammas (or nanoteslas). Total field readings were logged to the navigation computer through the SeaSPY's communications transceiver.

**Processing.** Chesapeake Technology, Inc.'s SonarWiz 5 software was utilized for complete post-processing capabilities. During data processing, the individual sonar data files - each composed of one sonar survey trackline - were first reviewed and corrected for towfish altitude. Navigation data for each file were then edited for errant position fixes and velocity errors. Each line was analyzed individually for debris, rock outcroppings, vegetation, drag marks, and any existing infrastructure. Rock outcroppings were the only surficial features that were detected from the recorded side scan sonar data. In addition, a sonar mosaic was generated as a GeoTiff graphic file and is depicted on Chart 2.

The magnetometer data were imported to SonarWiz 5 along with the side scan sonar data. Any potential magnetic anomalies were compared side by side with the side scan sonar data to detect possible sources for the magnetic anomaly. Once picked, the anomaly was exported to an attributed shape file in ArcGIS for mapping and to a text file for tabulation.

# 3. RESULTS – DATA INTERPRETATION

The following sections discuss the features seen in the surveyed area. This interpretation is primarily aimed at noting any anomalous features. Anomalous features may include man-made objects such as pipelines, debris, and anchors. Other features such as rock outcrops, coarse sediment, seafloor depressions, etc. are also noted where detected.

## 3.1 Bathymetric Data

The bathymetric survey provided bathymetric information for characterizing seafloor conditions. The seafloor elevations in the survey area range from -61 feet in the northwestern corner to -5 feet in the northeastern corner.

From elevation -5 ft to approximately -25 ft elevation the seafloor has approximately a 3:1 slope trending to the southwest. From -25 ft to -61 ft elevations the seafloor gently continues sloping to the southwest.

The offshore termination point of the proposed outfall (as seen in Figure 1-1) is located at -48.5 ft elevation.

## 3.2 Surficial Features

Side scan sonar data was used to acquire seafloor imaging to document the seafloor surficial conditions within the work site by locating potential debris fields, infrastructure, pipelines, cables and natural features. The only surficial features detected from the side scan sonar data were areas of rock outcropping that are located along the nearshore area out to approximately 20 feet water depth running from northwest to the southeastern portion of the survey site where the outcropping then extends to approximately 33 ft water depth. Two isolated areas of outcropping were also detected in this southeastern area of the survey site. The extents of these surficial features were digitized from processed side scan sonar data and inserted onto the Bathymetric Contours and Surficial Features Chart. Additionally, these features are shown on the Side Scan Sonar Mosaic Chart which was constructed from processed side scan sonar data. Both charts are located in Appendix E.

In addition, a Marine Magnetometer survey was utilized as an added tool for detecting the presence of metal objects. One magnetometer anomaly was observed and tabulated on Chart 1 in Appendix E. This anomaly is located nearshore in approximately 11 foot water depth in the northwestern area of the survey site and approximately 650 feet northwest of the proposed outfall alignment. This anomaly does not appear to be associated with any surficial features that may have been detected from the side scan sonar data.

## APPENDICES

A DAILY PROGRESS REPORTS

B MARINE WILDLIFE MONITORING REPORT

C CSLC MITIGATION MONITORING PROGRAM EXHIBIT H

D DIGITAL FILES

E CHARTS

# A DAILY PROGRESS REPORTS

# Ventura Daily Progress Report

Fugro West, Inc.

| | | | |
|---|---|---|---|
| **Client:** | Padre | **Division:** | Fugro West - 97 |
| **Job Description:** | Bathymetric and Geophysical Survey | **Report No.:** | 2 |
| **Vessel:** | Julie Ann | **Date:** | 7/17/2014 |
| **Location:** | Ventura | **Job No.:** | 23.00007090 |
| **Horizontal Datum/Zone:** | WGS-84 | **Proj. Manager:** | Cindy Pratt |
| **Vertical Datum:** | Cali Zone 5 feet | **Telephone:** | 805.650.7000 |

**Personnel**

| Position/Task | Name | Hours |
|---|---|---|
| PARTY CHIEF | Herb Tovar | 12 |
| SENIOR SURVEYOR | | |
| MBES ENGINEER | | |
| GEOPHYSICAL TECH | Mark Williams | 12 |
| GEOPHYSICAL TECH | | |
| SURVEY TECHNICIAN | | |
| SURVEY TECHNICIAN | | |

| Weather | |
|---|---|
| 0600 | Calm |
| 1200 | 1 ft wind chop |
| 1800 | |
| 2400 | |
| **General Conditions** | |
| | |

**QHSE Summary**

| | Induction | Toolbox Meeting | Ships Drill | 1st Aid | Illness | Medical Treatmnt | HOC Cards | Near Miss | Restricted Work | Lost Work | Incidents |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Today** | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| **This Month** | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Project** | 1 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

**HSE Incidents to Report:**

None

**Event Log**

| Time | Event |
|---|---|
| 0600 | Load Julie Ann/ Depart Ventura office |
| 0615 | Launch Julie Ann |
| 0630 | Safety meeting - Deploy and retrieve geophysical gear |
| 0700 | Depart Ventura Harbor/ Transit to location |
| 0730 | Arrive on location/ Bar check/ Deploy gear/ Test and tune |
| 0745 | Begin data acquisition |
| 1345 | End data acquisition/ Transit to Ventura Harbor |
| 1515 | Arrive at Ventura Harbor/ Recover Julie Ann |
| 1530 | Transit to Ventura office |
| 1545 | Data processing |
| 1800 | End of day |
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**Estimated Percentage Complete:** 100 %

**Technical, Personnel or Equipment Issues to Note:**

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|---|
| None |

**Signed**

**Lead Hydrographer**

**Approved**

**Client Representative**

# Ventura Daily Progress Report

Fugro West, Inc.

| | | | |
|---|---|---|---|
| **Client:** | Padre | **Division:** | Fugro West - 97 |
| **Job Description:** | Bathymetric and Geophysical Survey | **Report No.:** | 1 |
| **Vessel:** | Julie Ann | **Date:** | 7/11/2014 |
| **Location:** | Ventura | **Job No.:** | 23.00007090 |
| **Horizontal Datum/Zone:** | WGS-84 | **Proj. Manager:** | Cindy Pratt |
| **Vertical Datum:** | Cali Zone 5 feet | **Telephone:** | 805.650.7000 |

**Personnel**

| Position/Task | Name | Hours |
|---|---|---|
| PARTY CHIEF | Herb Tovar | 5 |
| SENIOR SURVEYOR | | |
| MBES ENGINEER | | |
| GEOPHYSICAL TECH | Mark Williams | 5 |
| GEOPHYSICAL TECH | | |
| SURVEY TECHNICIAN | | |
| SURVEY TECHNICIAN | | |

| Weather | |
|---|---|
| 0600 | 15 knts 2-3ft wind chop and swell |
| 1200 | |
| 1800 | |
| 2400 | |
| **General Conditions** | |
| | |

**QHSE Summary**

| | Induction | Toolbox Meeting | Ships Drill | 1st Aid | Illness | Medical Treatmnt | HOC Cards | Near Miss | Restricted Work | Lost Work | Incidents |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Today** | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| **This Month** | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Project** | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

**HSE Incidents to Report:**

None

**Event Log**

| Time | Event |
|---|---|
| 0600 | Load Julie Ann/ Depart Ventura office |
| 0615 | Launch Julie Ann |
| 0630 | Safety meeting - Deploy and retrieve geophysical gear |
| 0700 | Depart Ventura Harbor/ Transit to location |
| 0730 | Arrive on location/ weather marginal |
| 0745 | Begin data acquisition |
| 0945 | End data acquisition/Poor data quality/ Unable to hold line/ Transit to Ventura Harbor |
| 1030 | Arrive at Ventura Harbor/ Recover Julie Ann |
| 1050 | Transit to Ventura office |
| 1100 | Arrive Ventura office |
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**Estimated Percentage Complete:** 5 %

**Technical, Personnel or Equipment Issues to Note:**

| |
|---|
| None |

**Signed**

**Approved**

**Lead Hydrographer**

**Client Representative**

# B MARINE WILDLIFE MONITORING REPORT

padre associates, inc.
ENGINEERS, GEOLOGISTS & ENVIRONMENTAL SCIENTISTS

August 6, 2014
Project No. 1102-1852

Fugro West, Inc.
4820 McGrath Street, Suite 100
Ventura, CA 93003-7778

Attention: Mr. Jeff Carothers

Subject: **Marine Wildlife Monitoring Report**
**Taylor Ranch Outfall Feasibility Study Bathymetric and Geophysical Survey**

Dear Mr. Carothers:

Padre Associates, Inc. (Padre) is pleased to provide this monitoring report for the bathymetric and geophysical data collection survey (survey) performed for the Taylor Ranch Outfall Feasibility Study located in Ventura, California (Figure 1). The survey was conducted in accordance with the procedures outlined in the California State Lands Commission (CSLC)-approved survey-specific Marine Wildlife Contingency Plan (MWCP). The information included in this monitoring report is provided in support of Fugro West's (Fugro) Field Operations Report. This monitoring report summarizes observations made by Padre's onboard marine wildlife monitor (monitor) during vessel transit to and from the survey area, and during the bathymetric and geophysical data collection. The survey was conducted on July 11 and July 17, 2014. The survey was completed during daylight hours in water depths from approximately 3 to 18 meters (m) (10 to 60 feet [ft]). No nighttime operations were conducted during the survey.

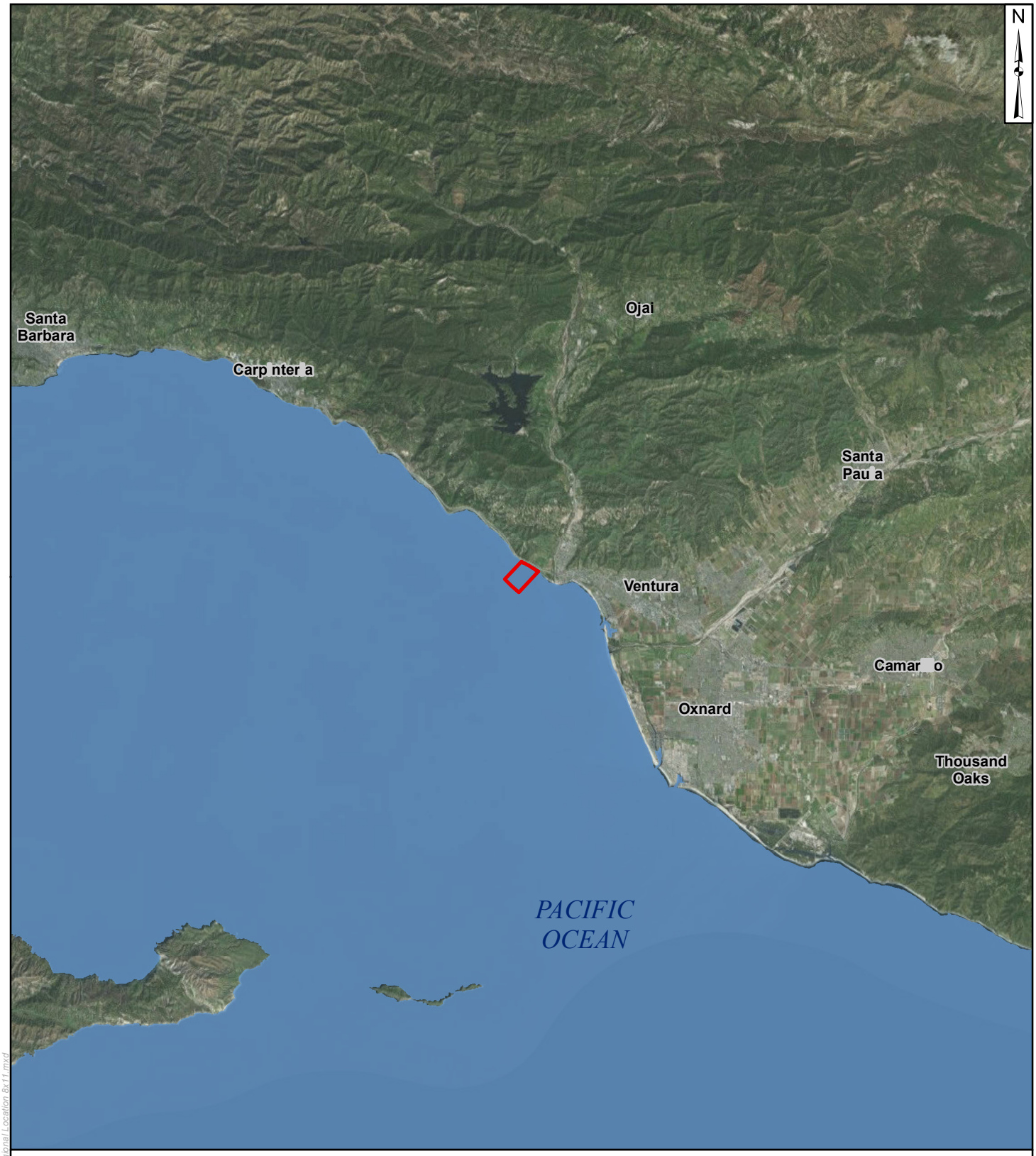
## SURVEY METHODS AND EQUIPMENT

The survey utilized the S/V *Julie Ann*, a 7.9 m (26 ft) vessel owned and operated by Fugro. During the observation period, geophysical equipment consisted of a single beam bathymetry system, a side scan sonar, and a magnetometer. The survey vessel mobilized from Ventura Harbor.

## MARINE WILDLIFE MONITORING METHODOLOGY

### *Transit Periods*

While the survey vessel was in transit between Ventura Harbor and the survey site, the monitor was located in the wheel house where observations of marine wildlife could be made within an approximately 200 degree view, centered on the direction of vessel travel. Marine wildlife observed while in transit were noted in the monitor's log. The vessel operator was informed by the monitor of animal sightings, and whether potential conflicts were observed.




LEGEND:

Marine Survey Area

0 3 6
MILES

*Source: TIGER, ESRI Online Basemap*
*Coordinate System: NAD 1983 StatePlane California V FIPS 0405 Feet*
*Notes: This map was created for informational and display purposes only*

Z:\Kristin\GIS Maps\Map Project\Taylor Ranch\Regional Location 8x11.mxd

padre associates, inc.
ENGINEERS, GEOLOGISTS & ENVIRONMENTAL SCIENTISTS

PROJECT NAME:
TAYLOR RANCH OUTFALL FEASIBILITY STUDY
VENTURA COUNTY, CA

PROJECT NUMBER: 1102-1852

DATE: August 2014

# REGION AND SITE MAP

FIGURE 1

*Survey Periods*

Once onsite and prior to initiating data collection, the monitor was located amidships and surveyed the surrounding area while the survey crew readied the equipment for deployment. Once the survey equipment was deployed, the monitor and survey chief coordinated the startup of the equipment. Observations were made utilizing 10 X 50 reticular binoculars. In accordance with the requirements in the existing CSLC-issued geophysical and geologic sampling permit No. 8392.9, a safety zone was not established since equipment was operated at frequencies above 200 kilohertz.

When marine wildlife was observed within the survey area, the survey chief was informed and warned of possible alteration or termination of the data collection if the wildlife displayed unusual behavior. The monitor continued monitoring and recording the presence and activities of marine wildlife throughout data collection and also during vessel maneuvering when the equipment was "turned off". All observations were noted in the monitor's log.

*Fishing Gear Clearance*

In accordance with Section 4.2 of the survey-specific MWCP, prior to the initiation of the data collection, the monitor noted the presence of commercial fishing gear within the survey area. For each fishing buoy observed within the survey site, the location, the buoy number and water depth were recorded in the monitor's log.

**RESULTS**

Observations were made during the transit between Ventura Harbor and the survey site during each of the survey days. No marine mammal species were observed during vessel transit. Observations recorded by the monitor during survey activities included California sea lion (*Zalophus californianus*), common dolphin (*Delphinus* sp), bottlenose dolphin (*Tursiops truncates*), and an unidentified dolphin.

The following tables detail the observations recorded by the onboard monitor during the survey. Table 1 lists the observations during transit activities, and Table 2 details observations made during the survey period.

**Table 1 - Marine Wildlife Observations During Vessel Transit**

| Date | Total Transit Time | Marine Wildlife Observed During Transit | Action Taken/Notes |
|---|---|---|---|
| July 11, 2014 | 50 minutes (min) | None observed | No action required. |
| July 17, 2014 | 50 min | None observed | No action required. |

**Table 2 - Marine Wildlife Observations During Survey**

| Date | Total Survey Time | Marine Wildlife observed in Safety Zone | Action Taken/Notes |
|---|---|---|---|
| July 11, 2014 | 1 hour (hr) 40 min | 1 California sea lion<br>25 common dolphins | Survey was terminated due to weather. |
| July 17, 2014 | 9 hr 5 min | 20 common dolphins<br>5 bottlenose dolphins<br>1 unidentified dolphin | No action required. |

No commercial fishing gear was observed within the survey site during the pre-deployment observations.

## SUMMARY AND CONCLUSIONS

Fifty-two individual marine mammals, representing three identified taxa and one unidentified taxa, were recorded during the approximately 12.5 hours of observations within the two-day survey period (including transit and survey periods). No marine reptiles were observed during the two periods. The mammals observed included one pinniped (California sea lion) and three toothed whale species (common, bottlenose, and an unidentified dolphin).

During the two observation days, no action was required. On several occasions, the marine mammals were immediately adjacent to the deployed and operating equipment, but displayed no apparent negative behaviors or effects.

In summary, the animals observed during the transit and survey periods are considered relatively common within Santa Barbara Channel and no unusual marine mammal behavior was recorded. Based on the observations of the monitor, and with the cooperative efforts of the Fugro survey team and vessel crew, no significant negative, survey-related effects to marine wildlife were observed.

If you have any questions or require any additional information, please contact me at (805) 786-2650 x 30 or by email at jklaib@padreinc.com.

Sincerely,

PADRE ASSOCIATES, INC.

Jennifer Klaib
Staff Marine Biologist

# C CSLC MITIGATION MONITORING PROGRAM EXHIBIT H

| Mitigation Measure (MM) | Location and Scope of Mitigation | Effectiveness Criteria | Monitoring or Reporting Action | Responsible Party | Timing | Implementation Date(s) and Initials |
|---|---|---|---|---|---|---|
| ***Air Quality and Greenhouse Gas (GHG) Emissions (MND Section 3.3.3)*** | | | | | | |
| **MM AIR-1: Engine Tuning, Engine Certification, and Fuels.** The following measures will be required to be implemented by all Permittees under the Offshore Geophysical Permit Program (OGPP), as applicable depending on the county offshore which a survey is being conducted. Pursuant to section 93118.5 of CARB's Airborne Toxic Control Measures, the Tier 2 engine requirement applies only to diesel-fueled vessels. | <u>All Counties</u>: Maintain all construction equipment in proper tune according to manufacturers' specifications; fuel all off-road and portable diesel-powered equipment with California Air Resources Board (CARB)-certified motor vehicle diesel fuel limiting sulfur content to 15 parts per million or less (CARB Diesel). | Daily emissions of criteria pollutants during survey activities are minimized. | Determine engine certification of vessel engines.<br><br>Review engine emissions data to assess compliance, determine if changes in tuning or fuel are required. | OGPP permit holder and contract vessel operator; California State Lands Commission (CSLC) review of Final Monitoring Report. | Prior to, during, and after survey activities.<br><br>Submit Final Monitoring Report after completion of survey activities. | |
| | <u>Los Angeles and Orange Counties</u>: Use vessel engines meeting CARB's Tier 2-certified engines or cleaner; the survey shall be operated such that daily $NO_x$ emissions do not exceed 100 pounds based on engine certification emission factors. This can be accomplished with Tier 2 engines if daily fuel use is 585 gallons or less, and with Tier 3 engines if daily fuel use is 935 gallons or less. | | Verify that Tier 2 or cleaner engines are being used.<br><br>Calculate daily $NO_x$ emissions to verify compliance with limitations. | | | |
| | <u>San Luis Obispo County</u>: Use vessel engines meeting CARB's Tier 2-certified engines or cleaner, accomplished with Tier 2 engines if daily fuel use is 585 gallons or less; all diesel equipment shall not idle for more than 5 minutes; engine use needed to maintain position in the water is not considered idling; diesel idling within 300 meters (1,000 feet) of sensitive receptors is not permitted; use alternatively fueled construction equipment on site where feasible, such as compressed natural gas, liquefied natural gas, propane or biodiesel. | | Verify that Tier 2 or cleaner engines are being used.<br><br>Inform vessel operator(s) of idling limitation.<br><br>Investigate availability of alternative fuels. | | | |
| | <u>Santa Barbara County</u>: Use vessel engines meeting CARB's Tier 2-certified engines or cleaner, accomplished with Tier 2 engines if daily fuel use is 790 gallons or less. | | Verify that Tier 2 or cleaner engines are being used.<br><br>Investigate availability of alternative fuels. | | | |
| | <u>Ventura County</u>: Use alternatively fueled construction equipment on site where feasible, such as compressed natural gas, liquefied natural gas, propane or biodiesel. | | Investigate availability of alternative fuels. | | | 7/11<br>7/17 |

| Mitigation Measure (MM) | Location and Scope of Mitigation | Effectiveness Criteria | Monitoring or Reporting Action | Responsible Party | Timing | Implementation Date(s) and Initials |
|---|---|---|---|---|---|---|
| **MM BIO-1:** Marine Mammal and Sea Turtle Presence – Current Information. | All State waters; prior to commencement of survey operations, the geophysical operator shall: (1) contact the National Oceanic and Atmospheric Administration Long Beach office staff and local whale-watching operations and shall acquire information on the current composition and relative abundance of marine wildlife offshore, and (2) convey sightings data to the vessel operator and crew, survey party chief, and onboard Marine Wildlife Monitors (MWMs) prior to departure. This information will aid the MWMs by providing data on the approximate number and types of organisms that may be in the area. | No adverse effects to marine mammals or sea turtles due to survey activities are observed. | Document contact with appropriate sources.<br><br>Submit Final Monitoring Report after completion of survey activities. | OGPP permit holder; Inquiry to NOAA and local whale watching operators. | Prior to survey. | 7/11 JK<br><br>7/17 JK |
| **MM BIO-2:** Marine Wildlife Monitors (MWMs). | Except as provided in section 7(h) of the General Permit, a minimum of two (2) qualified MWMs who are experienced in marine wildlife observations shall be onboard the survey vessel throughout both transit and data collection activities. The specific monitoring, observation, and data collection responsibilities shall be identified in the Marine Wildlife Contingency Plan required as part of all Offshore Geophysical Permit Program permits. Qualifications of proposed MWMs shall be submitted to the National Oceanic and Atmospheric Administration (NOAA) and CSLC at least twenty-one (21) days in advance of the survey for their approval by the agencies. Survey operations shall not commence until the CSLC approves the MWMs. | Competent and professional monitoring or marine mammals and sea turtles; compliance with established monitoring policies. | Document contact with and approval by appropriate agencies.<br><br>Submit Final Monitoring Report after completion of survey activities. | OGPP permit holder. | Prior to survey. | 7/11 JK<br><br>7/17 JK |
| **MM BIO-3:** Safety Zone Monitoring. | Onboard Marine Wildlife Monitors (MWMs) responsible for observations during vessel transit shall be responsible for monitoring during the survey equipment operations. All visual monitoring shall occur from the highest practical vantage point aboard the survey vessel; binoculars shall be used to observe the surrounding area, as appropriate. The MWMs will survey an area (i.e., safety or exclusion zone) based on the equipment used, centered on the sound source (i.e., vessel, towfish), throughout time that the survey equipment is operating. Safety zone radial distances, by equipment type, include: | No adverse effects to marine mammals or sea turtles due to survey activities are observed; compliance with established safety zones. | Compliance with permit requirements (observers); compliance with established safety zones.<br><br>Submit Final Monitoring Report after completion of survey activities. | OGPP permit holder. | Prior to survey. | 7/11 JK<br><br>7/17 JK |

<table>
<tr><th>Mitigation Measure (MM)</th><th>Location and Scope of Mitigation</th><th>Effectiveness Criteria</th><th>Monitoring or Reporting Action</th><th>Responsible Party</th><th>Timing</th><th>Implementation Date(s) and Initials</th></tr>
<tr><td></td><td>
<table>
<tr><th>Equipment Type</th><th>Safety Zone (radius, m)</th></tr>
<tr><td>Single Beam Echosounder</td><td>50</td></tr>
<tr><td>Multibeam Echosounder</td><td>500</td></tr>
<tr><td>Side-Scan Sonar</td><td>600</td></tr>
<tr><td>Subbottom Profiler</td><td>100</td></tr>
<tr><td>Boomer System</td><td>100</td></tr>
</table>
<br>If the geophysical survey equipment is operated at or above a frequency of 200 kilohertz (kHz), safety zone monitoring and enforcement is not required; however, if geophysical survey equipment operated at a frequency at or above 200 kHz is used simultaneously with geophysical survey equipment less than 200 kHz, then the safety zone for the equipment less than 200 kHz must be monitored. The onboard MWMs shall have authority to stop operations if a mammal or turtle is observed within the specified safety zone and may be negatively affected by survey activities. The MWMs shall also have authority to recommend continuation (or cessation) of operations during periods of limited visibility (i.e., fog, rain) based on the observed abundance of marine wildlife. Periodic reevaluation of weather conditions and reassessment of the continuation/cessation recommendation shall be completed by the onboard MWMs. During operations, if an animal's actions are observed to be irregular, the monitor shall have authority to recommend that equipment be shut down until the animal moves further away from the sound source. If irregular behavior is observed, the equipment shall be shut-off and will be restarted and ramped-up to full power, as applicable, or will not be started until the animal(s) is/are outside of the safety zone or have not been observed for 15 minutes.<br><br>For nearshore survey operations utilizing vessels that lack the personnel capacity to hold two (2) MWMs aboard during survey operations, at least twenty-one (21) days prior to the commencement of survey activities, the Permittee may petition the CSLC to conduct survey operations with one (1) MWM aboard. The CSLC will consider such authorization on a case-by-case basis and</td><td></td><td></td><td></td><td></td><td></td></tr>
</table>

| Mitigation Measure (MM) | Location and Scope of Mitigation | Effectiveness Criteria | Monitoring or Reporting Action | Responsible Party | Timing | Implementation Date(s) and Initials |
|---|---|---|---|---|---|---|
| | factors the CSLC will consider will include the timing, type, and location of the survey, the size of the vessel, and the availability of alternate vessels for conducting the proposed survey. CSLC authorizations under this subsection will be limited to individual surveys and under any such authorization; the Permittee shall update the MWCP to reflect how survey operations will occur under the authorization. | | | | | |
| **MM BIO-4:** Limits on Nighttime OGPP Surveys. | All State waters; nighttime survey operations are prohibited under the OGPP, except as provided below. The CSLC will consider the use of single beam echosounders and passive equipment types at night on a case-by-case basis, taking into consideration the equipment specifications, location, timing, and duration of survey activity. | No adverse effects to marine mammals or sea turtles due to survey activities are observed. | Presurvey request for nighttime operations, including equipment specifications and proposed use schedule.<br><br>Document equipment use.<br><br>Submit Final Monitoring Report after completion of survey activities. | OGPP permit holder. | Approval required before survey is initiated.<br><br>Monitoring Report following comple-tion of survey. | 7/11 JK<br><br>7/17 JK |
| **MM BIO-5:** Soft Start. | All State waters; the survey operator shall use a "soft start" technique at the beginning of survey activities each day (or following a shut down) to allow any marine mammal that may be in the immediate area to leave before the sound sources reach full energy. Surveys shall not commence at nighttime or when the safety zone cannot be effectively monitored. Operators shall initiate each piece of equipment at the lowest practical sound level, increasing output in such a manner as to increase in steps not exceeding approximately 6 decibels (dB) per 5-minute period. During ramp-up, the Marine Wildlife Monitors (MWMs) shall monitor the safety zone. If marine mammals are sighted within or about to enter the safety zone, a power-down or shut down shall be implemented as though the equipment was operating at full power. Initiation of ramp-up procedures from shut down requires that the MWMs be able to visually observe the full safety zone. | No adverse effects to marine mammals or sea turtles due to survey activities are observed. | Compliance with permit requirements (observers); compliance with safe start procedures.<br><br>Submit Final Monitoring Report after completion of survey activities. | OGPP permit holder. | Imme-diately prior to survey. | 7/11 JK<br><br>7/17 JK |

| Mitigation Measure (MM) | Location and Scope of Mitigation | Effectiveness Criteria | Monitoring or Reporting Action | Responsible Party | Timing | Implementation Date(s) and Initials |
|---|---|---|---|---|---|---|
| **MM BIO-6:** Practical Limitations on Equipment Use and Adherence to Equipment Manufacturer's Routine Maintenance Schedule. | All State waters; geophysical operators shall follow, to the maximum extent possible, the guidelines of Zykov (2013) as they pertain to the use of subbottom profilers and side-scan sonar, including:<br>• Using the highest frequency band possible for the subbottom profiler;<br>• Using the shortest possible pulse length; and<br>• Lowering the pulse rate (pings per second) as much as feasible.<br>Geophysical operators shall consider the potential applicability of these measures to other equipment types (e.g., boomer). Permit holders will conduct routine inspection and maintenance of acoustic-generating equipment to ensure that low energy geophysical equipment used during permitted survey activities remains in proper working order and within manufacturer's equipment specifications. Verification of the date and occurrence of such equipment inspection and maintenance shall be provided in the required presurvey notification to CSLC. | No adverse effects to marine mammals or sea turtles due to survey activities are observed. | Document initial and during survey equipment settings.<br><br>Submit Final Monitoring Report after completion of survey activities. | OGPP permit holder. | Immediately prior to and during survey. | 6/8<br>7/11<br>7/17<br>6/24 |
| **MM BIO-7:** Avoidance of Pinniped Haul-Out Sites. | The Marine Wildlife Contingency Plan (MWCP) developed and implemented for each survey shall include identification of haul-out sites within or immediately adjacent to the proposed survey area. For surveys within 300 meters (m) of a haul-out site, the MWCP shall further require that:<br>• The survey vessel shall not approach within 91 m of a haul-out site, consistent with National Marine Fisheries Service (NMFS) guidelines;<br>• Survey activity close to haul-out sites shall be conducted in an expedited manner to minimize the potential for disturbance of pinnipeds on land; and<br>• Marine Wildlife Monitors shall monitor pinniped activity onshore as the vessel approaches, observing and reporting on the number of pinnipeds potentially disturbed (e.g., via head lifting, flushing into the water). The purpose of such reporting is to provide CSLC and California Department of Fish and Wildlife (CDFW) with information regarding potential disturbance associated with OGPP surveys. | No adverse effects to pinnipeds at haul outs are observed. | Document pinniped reactions to vessel presence and equipment use.<br><br>Submit Final Monitoring Report after completion of survey activities. | OGPP permit holder. | Monitoring Report following completion of survey. | 6/17 JK |

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|---|---|---|---|---|---|---|
| **MM BIO-8:** Reporting Requirements – Collision. | All State waters; if a collision with marine mammal or reptile occurs, the vessel operator shall document the conditions under which the accident occurred, including the following:<br>• Vessel location (latitude, longitude) when the collision occurred;<br>• Date and time of collision;<br>• Speed and heading of the vessel at the time of collision;<br>• Observation conditions (e.g., wind speed and direction, swell height, visibility in miles or kilometers, and presence of rain or fog) at the time of collision;<br>• Species of marine wildlife contacted (if known);<br>• Whether an observer was monitoring marine wildlife at the time of collision; and,<br>• Name of vessel, vessel owner/operator, and captain officer in charge of the vessel at time of collision.<br>After a collision, the vessel shall stop, if safe to do so; however, the vessel is not obligated to stand by and may proceed after confirming that it will not further damage the animal by doing so. The vessel will then immediately communicate by radio or telephone all details to the vessel's base of operations, and shall immediately report the incident. Consistent with Marine Mammal Protection Act requirements, the vessel's base of operations or, if an onboard telephone is available, the vessel captain him/herself, will then immediately call the National Oceanic and Atmospheric Administration (NOAA) Stranding Coordinator to report the collision and follow any subsequent instructions. From the report, the Stranding Coordinator will coordinate subsequent action, including enlisting the aid of marine mammal rescue organizations, if appropriate. From the vessel's base of operations, a telephone call will be placed to the Stranding Coordinator, NOAA National Marine Fisheries Service (NMFS), Southwest Region, Long Beach, to obtain instructions. Although NOAA has primary responsibility for marine mammals in both State and Federal waters, the California Department of Fish and Wildlife (CDFW) will also be advised that an incident has occurred in State waters affecting a protected species. | No adverse effects to marine mammals or sea turtles due to survey activities are observed. | Submit Final Monitoring Report after completion of survey activities. | OGPP permit holder. | Monitoring Report following comple-tion of survey. | 7/11 JK<br>7/17 JK |

| Mitigation Measure (MM) | Location and Scope of Mitigation | Effectiveness Criteria | Monitoring or Reporting Action | Responsible Party | Timing | Implementation Date(s) and Initials |
|---|---|---|---|---|---|---|
| **MM BIO-9:** Limitations on Survey Operations In Select Marine Protected Areas (MPAs). | All MPAs; prior to commencing survey activities, geophysical operators shall coordinate with the CLSC, California Department of Fish and Wildlife (CDFW), and any other appropriate permitting agency regarding proposed operations within MPAs. The scope and purpose of each survey proposed within a MPA shall be defined by the permit holder, and the applicability of the survey to the allowable MPA activities shall be delineated by the permit holder. If deemed necessary by CDFW, geophysical operators will pursue a scientific collecting permit, or other appropriate authorization, to secure approval to work within a MPA, and shall provide a copy of such authorization to the CSLC as part of the required presurvey notification to CSLC. CSLC, CDFW, and/or other permitting agencies may impose further restrictions on survey activities as conditions of approval. | No adverse effects to MPA resources due to survey activities are observed. | Monitor reactions of wildlife to survey operations; report on shutdown conditions and survey restart.<br><br>Submit Final Monitoring Report after completion of survey activities. | OGPP permit holder; survey permitted by CDFW. | Prior to survey. | 6/17 4/K |
| **MM HAZ-1:** Oil Spill Contingency Plan (OSCP) Required Information. | Permittees shall develop and submit to CSLC staff for review and approval an OSCP that addresses accidental releases of petroleum and/or non-petroleum products during survey operations. Permittees' OSCPs shall include the following information for each vessel to be involved with the survey:<br>• Specific steps to be taken in the event of a spill, including notification names, phone numbers, and locations of: (1) nearby emergency medical facilities, and (2) wildlife rescue/response organizations (e.g., Oiled Wildlife Care Network);<br>• Description of crew training and equipment testing procedures; and<br>• Description, quantities, and location of spill response equipment onboard the vessel. | Reduction in the potential for an accidental spill. Proper and timely response and notification of responsible parties in the event of a spill. | Documentation of proper spill training.<br><br>Notification of responsible parties in the event of a spill. | OGPP permit holder and contract vessel operator. | Prior to survey. | DSB 6/18 |
| **MM HAZ-2:** Vessel fueling restrictions. | Vessel fueling shall only occur at an approved docking facility. No cross vessel fueling shall be allowed. | Reduction in the potential for an accidental spill. | Documentation of fueling activities. | Contract vessel operator. | Following survey. | DSB 6/24 |
| **MM HAZ-3:** OSCP equipment and supplies. | Onboard spill response equipment and supplies shall be sufficient to contain and recover the worst-case scenario spill of petroleum products as outlined in the OSCP. | Proper and timely response in the event of a spill. | Notification to CSLC of onboard spill response equipment/supplies inventory, verify | Contract vessel operator. | Prior to survey. | DSB 6/24 7/11 7/17 |

| Mitigation Measure (MM) | Location and Scope of Mitigation | Effectiveness Criteria | Monitoring or Reporting Action | Responsible Party | Timing | Implementation Date(s) and Initials |
|---|---|---|---|---|---|---|
| | | | ability to respond to worst-case spill. | | | |
| **MM HAZ-1:** Oil Spill Contingency Plan (OSCP) Required Information. | Outlined under **Hazards and Hazardous Materials** (above) | | | | | |
| **MM HAZ-2:** Vessel fueling restrictions. | Outlined under **Hazards and Hazardous Materials** (above) | | | | | |
| **MM HAZ-3:** OSCP equipment and supplies. | Outlined under **Hazards and Hazardous Materials** (above) | | | | | |
| **MM BIO-9:** Limitations on Survey Operations in Select MPAs. | Outlined under **Biological Resources** (above) | | | | | |
| **MM REC-1:** U.S. Coast Guard (USCG), Harbormaster, and Dive Shop Operator Notification. | All California waters where recreational diving may occur; as a survey permit condition, the CSLC shall require Permittees to provide the USCG with survey details, including information on vessel types, survey locations, times, contact information, and other details of activities that may pose a hazard to divers so that USCG can include the information in the Local Notice to Mariners, advising vessels to avoid potential hazards near survey areas. Furthermore, at least twenty-one (21) days in advance of in-water activities, Permittees shall: (1) post such notices in the harbormasters' offices of regional harbors; and (2) notify operators of dive shops in coastal locations adjacent to the proposed offshore survey operations. | No adverse effects to recreational divers from survey operations. | Notify the USCG, local harbormasters, and local dive shops of planned survey activity.<br><br>Submit Final Monitoring Report after completion of survey activities. | OGPP permit holder. | Prior to survey. | DS 6/18 6/19 |

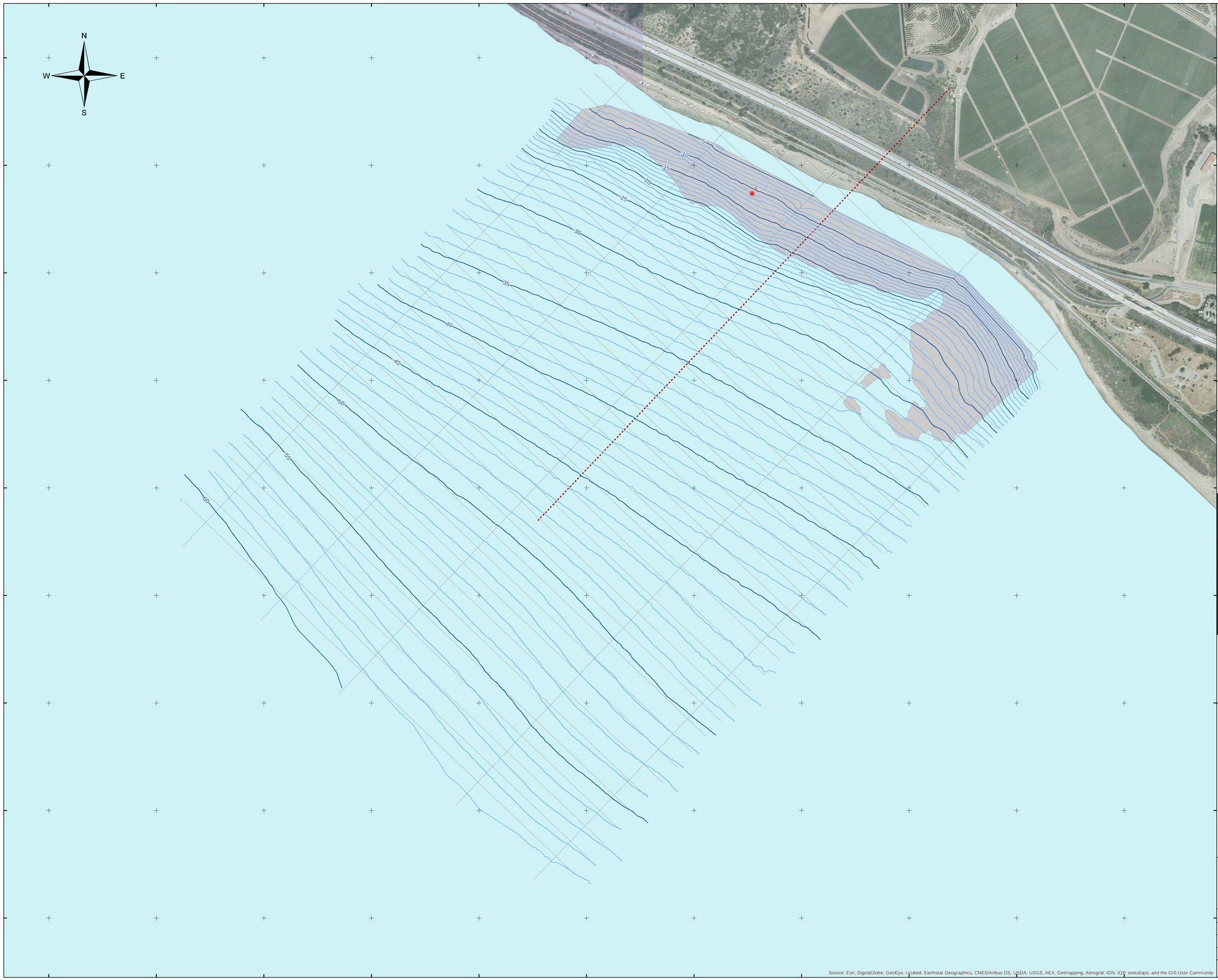
| Mitigation Measure (MM) | Location and Scope of Mitigation | Effectiveness Criteria | Monitoring or Reporting Action | Responsible Party | Timing | Implementation Date(s) and Initials |
|---|---|---|---|---|---|---|
| **MM FISH-1:** U.S. Coast Guard (USCG) and Harbormaster Notification. | All California waters; as a survey permit condition, the CSLC shall require Permittees to provide the USCG with survey details, including information on vessel types, survey locations, times, contact information, and other details of activities that may pose a hazard to mariners and fishers so that USCG can include the information in the Local Notice to Mariners, advising vessels to avoid potential hazards near survey areas. Furthermore, at least twenty-one (21) days in advance of in-water activities, Permittees shall post such notices in the harbormasters' offices of regional harbors. | No adverse effects to commercial fishing gear in place. | Notify the USCG and local harbormasters of planned survey activity.<br><br>Submit Final Monitoring Report after completion of survey activities. | OGPP permit holder. | Prior to survey. | 6/18<br>6/19 |
| **MM FISH-2:** Minimize Interaction with Fishing Gear. | To minimize interaction with fishing gear that may be present within a survey area: (1) the geophysical vessel (or designated vessel) shall traverse the proposed survey corridor prior to commencing survey operations to note and record the presence, type, and location of deployed fishing gear (i.e., buoys); (2) no survey lines within 30 m (100 feet) of observed fishing gear shall be conducted. The survey crew shall not remove or relocate any fishing gear; removal or relocation shall only be accomplished by the owner of the gear upon notification by the survey operator of the potential conflict. | No adverse effects to commercial fishing gear in place. | Visually observe the survey area for commercial fishing gear. Notify the gear owner and request relocation of gear outside survey area.<br><br>Submit Final Monitoring Report after completion of survey activities. | OGPP permit holder. | Immediately prior to survey (prior to each survey day). | 7/11<br>7/18 |
| **MM FISH-1:** USCG and Harbormaster Notification. | Outlined under **Commercial and Recreational Fisheries** (above) | | | | | 6/18<br>6/19 |

Acronyms/Abbreviations: CARB = California Air Resources Board; CDFW = California Department of Fish and Wildlife; CSLC = California State Lands Commission; dB = decibels; kHz = kilohertz; MPA = Marine Protected Area; MWCP = Marine Wildlife Contingency Plan; MWM = Marine Wildlife Monitor; m= meter(s); NOAA = National Oceanic and Atmospheric Administration; $NO_x$ = Nitrogen Oxide; OGPP = Offshore Geophysical Permit Program; OSCP = Oil Spill Contingency Plan; USCG = U.S. Coast Guard

## D DIGITAL FILES

| Description | File Name | Format |
|---|---|---|
| Report and Charts | \Reports and Charts\ | |
| Bathymetric and Geophysical Survey Report | 23_00007090_FOR_R1_14Aug12 | PDF |
| Chart 1 Bathymetric Contours & Surficial Features | PadreTaylorRanch_Contours | PDF |
| Chart 2 Side Scan Sonar Mosaic | Charts\ | PDF |
| Side Scan Sonar Mosaic | \Mosaic\ | |
| Side Scan Sonar Mosaic, 0.2 Foot Resolution | Tayloer_Ranch_Scaler_.2ft_Blk.tif | GEOTIFF |
| ArcGIS Shapefiles | \ArcGIS\ | |
| Magnetic Anomaly Point | Mag_Anomaly.shp | ESRI |
| Taylor Ranch Proposed Outfall Polyline | TaylorRanchOutfall.shp | ESRI |
| Area of Rock Outcropping Polygon | Rock-ply.shp | ESRI |
| Planned Runlines and Tielines | Runlines60m.shp & Tielines.shp | ESRI |
| Bathymetry Contours | TR_contours_1ft.shp | ESRI |

# E CHARTS




Source: Esri, DigitalGlobe, GeoEye, i-cubed, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community

## Legend

- Current Map Extent (Key Map)
- Magnetometer Anomaly Target
- Area of Rock Outcrop
- Survey Tracklines and Tielines
- Proposed Outfall Alignment

**Contours**

- Index Contours (5-Foot Interval)
- Minor Contours (1-Foot Interval)

Magnetometer Anomaly Table

| Target No. | Easting | Northing | Latitude | Longitude | Description |
|---|---|---|---|---|---|
| 1 | 6,160,539 | 1,928,737 | 34°17'05.884" | 119°19'40.692" | Unknown Anomaly |

NOTES:

1. Bathymetric contours are in feet and referenced to MLLW.
2. Surface positioning was achieved using a STARFIX II DGPS positioning system integrated with Hypack navigation package.
3. Survey equipment utilized during data acquisition included the following systems:
   - Odom CV100 Singlebeam Echosounder
   - Edgetech 4125 Side Scan Sonar
   - Geometrics G-881 Cesium Marine Magnetometer
4. Hydrographic and geophysical data were collected on July 11 & 17, 2014 onboard the M/V Julie Ann.
5. Aerial imagery source: Esri, DigitalGlobe, GeoEye, i-cubed, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community

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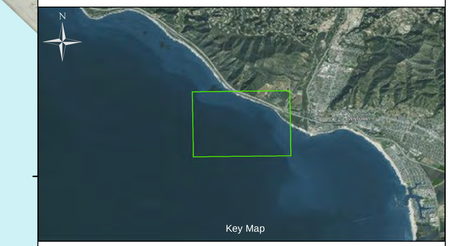
GEODETIC INFORMATION

DATUM: NAD83
PROJECTION: California Coordinate System

ZONE: Zone 5
UNITS: U.S. Survey Feet

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padre associates, inc.
ENGINEERS, GEOLOGISTS & ENVIRONMENTAL SCIENTISTS

# PADRE ASSOCIATES, INC.

## BATHYMETRIC CONTOURS & SURFICIAL FEATURES

## TAYLOR RANCH OUTFALL FEASIBILITY STUDY VENTURA, CA JULY 2014

**SCALE :** 1 " = 400 '

0 200 400 800 1,200 1,600 Feet

| REV NO: | DATE: | DESCRIPTION: | DRAWN: | CHKD: | APPR: |
|---|---|---|---|---|---|
| 0 | AUG 2014 | Bathymetric Contours & Surficial Features | AT | CP | ES |
| | | | | | |
| | | | | | |

JOB NUMBER: 23.00007090

CHART NO.: 1 of 2

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1930000 1929000 1928000 1927000 1926000 1925000 1924000 1923000 1922000

N W E S

-5 -10 -15 -20 -25 -30 -35 -40 -45 -50 -55 -60

1

Source: Esri, DigitalGlobe, GeoEye, i-cubed, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community

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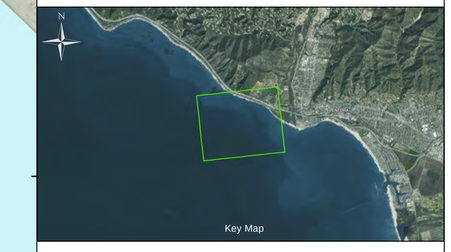
GEODETIC INFORMATION

DATUM: NAD83
PROJECTION: California Coordinate System

ZONE: Zone 5
UNITS: U.S. Survey Feet

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ENGINEERS, GEOLOGISTS & ENVIRONMENTAL SCIENTISTS

# PADRE ASSOCIATES, INC.

## SIDE SCAN SONAR MOSAIC & SURFICIAL FEATURES

## TAYLOR RANCH
## OUTFALL FEASIBILITY STUDY
## VENTURA, CA
## JULY 2014

**SCALE :** 1 " = 400 '

0 200 400 800 1,200 1,600 Feet

| REV NO: | DATE: | DESCRIPTION: | DRAWN: | CHKD: | APPR: |
|---|---|---|---|---|---|
| 0 | AUG 2014 | Side Scan Mosaic & Surficial Features | AT | CP | ES |
| | | | | | |
| | | | | | |

JOB NUMBER: 23.00007090

CHART NO.: **2 of 2**

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