




United States Department of the Interior

BUREAU OF SAFETY AND ENVIRONMENTAL ENFORCEMENT
PACIFIC OCS REGION
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memorandum

DEC 08 2011

To: Regional Supervisor, Office of Field Operations, Pacific Region

From: Charles B. Barbee 
Chief, Environmental Enforcement Division

Subject: Finding of No Significant Impact (FONSI), Platforms A, B and Hillhouse Pipeline Replacement Project, Dos Cuadras Field, Dos Cuadras Offshore Resources LLC (DCOR)

The Environmental Enforcement Division has reviewed DCOR's proposal to replace pipelines in the Dos Cuadras Field offshore Santa Barbara County (Leases OCS-P 0240 and OCS-P 241). This proposal was first submitted in June 2011 and revised in August of 2011.

The Bureau of Ocean Energy Management (BOEM) provided their Environmental Assessment of DCOR's proposal on November 29, 2011 (attached). Based on this assessment, we have determined that the replacement of pipelines in the Dos Cuadras Field, as described, will not result in significant environmental impacts provided DCOR fulfills the environmental commitments stated in their proposal and complies with the mitigation measures and reporting requirements identified below.

Mitigation Measures

DCOR's proposal states that it or its contractors will:

1. Conduct shallow hazards surveys of all proposed pipeline routes and prepare an archeological assessment (surveys were conducted May 2011 and reports were completed June 2011).
2. Submit a Notice to Mariners US Coast Guard (USCG) 10 days prior to commencing in-water activities, posting information on proposed activities at the Ports of Los Angeles, Long Beach and Santa Barbara Harbor, and notifying fishermen if their gear is found in the construction area.
3. Comply with all USCG regulations for the proper treatment and monitoring of vessel effluents.
4. Use a "pollution dome" to contain any oil which may emanate from the existing pipeline when it is cut.

Prior to cutting the pipeline, a "pollution dome" will be positioned over the area to be cut. This device, lowered from the work vessel, is strapped to the pipeline and over it, with a suction hose going to a waste tank on the vessel.

During the cutting operation, if any discharge from the pipeline is observed the suction valve will be activated and the discharge suctioned to the waste tank.

5. Implement section C.4 of their Marine Wildlife Contingency Plan throughout construction.

Additional conditions of BSEE approval include:

1. DCOR must test the water used to flush the pipelines for hydrocarbons, document the results and have these results available for BSEE inspection upon request prior to cutting the existing pipeline. The fluid remaining in the pipeline must not produce a visible sheen or exceed 29ppm¹.
2. ROV surveys conducted during the installation of the pipelines must visually record the seafloor condition before the touchdown of the pipeline to confirm the absence of sensitive biological habitat (hard bottom features) or archeological features.
3. In the event that any unanticipated archaeological resources are discovered while conducting operations, DCOR must immediately halt operations within the area and report the discovery to the BSEE Regional Director [30 CFR 250.1010(c)].
4. A post-installation ROV video survey that continuously shows the newly installed pipelines in the final sea bottom location will be used to verify the as-built condition and to confirm seafloor cleanup and final site condition. The survey must show the seafloor condition on either side of the pipelines. If a bottom disturbance such as a scar is observed, the location must be recorded, and the depth and length of scars must be documented. The video equipment and recording media shall produce a picture that allows viewers to clearly assess the condition of the seafloor. Poor resolution due to poor copies or cloudy conditions on the seafloor may result in DCOR being required to resurvey all or part of the pipeline routes.
5. DCOR must provide wildlife and fisheries awareness training to all project personnel and contractors participating in the pipeline replacement project; this may include viewing of the BOEM-approved Wildlife and Fisheries Training video (2009).
6. DCOR must consult with the Joint Oil/Fisheries Liaison Office (JOFLO) and commercial fishermen, as needed, during the planning stages and repair activities to identify and mitigate any unanticipated impacts regarding the pipeline replacement and associated activities.
7. DCOR must require project personnel and contractors, to the extent reasonable and feasible, to recover items that could be a hazard which are lost overboard during activities associated with the pipeline installation. Logs will be maintained on all project vessels that identify the date, time, location, depth, and description of all items lost overboard. Vessel operators will minimize potential for items to be lost overboard by securing loose items, where feasible. Vessel operators will place the name of the vessel on all items on deck that have the potential to be lost overboard.

¹ The monthly average NPDES hydrocarbon levels allowed for produced water discharges from the Dos Cuadras field platforms is 29 ppm. A 29 ppm threshold for the purposes of discharging water during this phase of the project is therefore consistent with discharges currently permitted within the project area.

To ensure that all environmental requirements are met DCOR must provide the following information and reports to BSEE during construction and upon completion of the project:

1. Daily Agency Report – DCOR must submit a daily report of project activity status to BSEE during offshore installation activities.
2. Post-Installation Report – Within 90 days of the completion of the offshore installation activities, DCOR must submit to BSEE, and other interested agencies, a report containing the following:
 - a) As-built maps showing:
 - i) A detailed depiction of the project area including the final locations of the pipelines, envelope of operations, and location of adjacent infrastructure;
 - ii) A more broad depiction (larger scale) showing all infrastructure and known obstructions related to DCOR operations in both Federal and state waters including all offshore platforms in the Santa Barbara Channel, temporarily abandoned wells, moorings, anode sleds, known debris items, power cables and pipelines, and landfall sites of power cables and pipelines; and
 - iii) All track lines completed by the ROV during the final, post-installation survey, ROV fixes, bottom scarring and any notable features seen on the video, clearly indexing attributes to match with the video and photographs.
 - b) All maps should include the following attributes and formats:
 - i) An accuracy (or error) in +/- feet of the feature locations;
 - ii) Digital submissions in two formats: Adobe Acrobat (PDF) and ArcGIS shapefiles (SHP) for each individual layer group. ArcGIS digital files shall be compatible with ArcGIS 9.2;
 - iii) Georeferencing should be oriented to the North American Datum of 1983 (NAD 83) coordinate system based on latitude and longitude; and
 - iv) Raw data of all points should be submitted as ASCII files that are labeled, and include locations to 5 decimal places oriented to NAD 83 coordinate system based on latitude and longitude.
 - c) Post-installation narrative confirming completion of the work in accordance with the following:
 - i) A summary that includes a listing of the conditions of approval and how each was complied with;
 - ii) A description of any field changes with a reason for the change;
 - iii) Any accidents or spills affecting OCS waters and the corrective measures taken; and
 - iv) Any other extraordinary conditions that occurred during the course of the installation activities.
 - d) A final post-installation ROV video survey as given above in item 4.

Background Information

DCOR is proposing to replace five pipeline segments running between Platforms A, B and Hillhouse in order to ensure the continued integrity of the Dos Cuadras field pipelines owned and operated by DCOR. The proposed project will use the dynamically-positioned vessel "Intrepid" to install all pipeline segments. Three segments of the pipe (new 6-inch and 8-inch segments) will be installed using spooled pipe lay methodology while the two segments of 12-inch tie-in pipelines will be constructed with 40-foot pieces welded together on board the "Intrepid" (see below for additional detail). This project is a replacement-in-kind and will add no capacity

above what was originally permitted and installed. Details of the proposed installation procedures are described in the attached Environmental Assessment.

Determination of Significance

Overall Summary:

Air emissions from the installation activities will be in full compliance with SBCAPCD rules and regulations. Impacts to water quality will be short-term and localized.

Disturbance of benthic resources from the proposed pipeline installation are expected to be transient in nature and highly localized with negligible loss of soft bottom habitat and organisms. Impacts to fishes and essential fish habitat would be short-term and localized. Adequate safeguards are in place to minimize or eliminate harm to other marine wildlife (birds, mammals, turtles). No significant impacts to recreational or commercial fishing are expected to occur. There will be no disproportionately high effects on minority or low income populations. The proposed action will result in unavoidable benthic disturbance caused by laying of pipelines on the seafloor including the addition of approximately 954 square meters (10,670 square feet) of hard structure in an area otherwise dominated by soft unconsolidated sediments.

Summary by Resource Category:

Air Quality: All air emissions associated with DCOR's proposal will fall within existing permitted levels and will be monitored as required under existing permits, rules, and regulations. We therefore conclude that the potential impacts to air quality are considered to be insignificant.

Water Quality: Sediments will be temporarily disturbed by placement of pipelines on the seafloor. This will result in the creation of clouds of sediment in the water which are expected to settle out of the water column relatively quickly. Due to the transient nature of the increase in sedimentation, the treatment of the vessel discharges and the precautions taken by DCOR to prevent accidental hydrocarbon discharges, impacts to water quality are expected to be insignificant. We therefore conclude that water quality will not be significantly affected because of the short-term and transient nature of this effect.

Benthic Resources: Subbottom profiler and multi-beam sonar surveys conducted in May 2011 confirmed that no hard bottom structure or archeological resources are present in the areas that may be affected by pipeline replacement activities. Hard bottom, and specifically hard bottom with a relief greater than one meter, is considered to be a sensitive benthic habitat because it is relatively rare in the Santa Barbara Channel as compared with soft bottom communities. Given the absence of hard bottom habitat and the measures taken to reduce impacts to the seafloor, we conclude that the proposed action will not have significant impacts on the benthic environment.

Fishes and Essential Fish Habitat: Pipeline replacement activities are expected to result in a small increase in turbidity and impacts to fishes would be short-term and localized. The proposal will add approximately 954 square meters (10,670 square feet) of hard structure in an area otherwise dominated by soft unconsolidated sediments. It is possible that the conversion of soft substrate into hard substrate (new pipelines) may provide a benefit to some species of fishes associated with rock outcrops if juvenile habitat is limiting. Nevertheless, we conclude that the proposed action will not have significant impacts on fishes or essential fish habitat.

Marine and Coastal Birds: Noise effects may be significant if project activities were to take place near important marine bird nesting areas. The proposed activities are not near any marine bird nesting areas. Therefore, noise impacts on marine birds are not expected to be significant.

In their Marine Wildlife Contingency Plan, DCOR proposes to direct and minimize lighting on board vessels to reduce potential effects of lighting. An onboard observer will monitor bird interactions and DCOR will transport any injured birds that may be discovered on a project vessel. As a result, artificial lighting impacts on marine birds are not expected to be significant. *Marine Mammals and Sea Turtles:* The project site is in the Santa Barbara Channel and adjacent to commercial shipping lanes. Noise produced from the proposed project will not likely be distinguishable within the context of the existing acoustic environment and therefore not significant.

In their Marine Wildlife Contingency Plan, DCOR has committed to following standard precautions when working near marine mammals and other wildlife (including sea turtles). Marine mammal monitors will be assigned to the project and have the authority to stop operations if a marine mammal is within 305 meters (1000 feet) of project activities. As a result, impacts to marine mammals or sea turtles are not expected to be significant.

Recreational Fishing: If recreational fishermen were to use the area they would not be likely precluded from fishing during pipeline replacement operations because project vessels will be slow-moving or stationary. Therefore no significant effects to recreational fishing are expected to occur as a result of the project.

Commercial Fishing: Project vessels will be slow-moving or stationary during pipeline replacement operations, thus, commercial fishermen will have the opportunity to avoid any potential fishing conflicts. The addition of new pipelines is near the area of the previously installed pipelines and will not increase fishing hazards beyond what had been previously posed by the original pipelines. The potential loss of fishing grounds is negligible both on temporal and spatial scales. Thus, commercial fishing is not expected to be significantly impacted during construction.

Environmental Justice: Impacts on minority and low-income populations were considered in accordance with Executive Order 12898. U.S. Census Bureau data indicate that significant minority and low-income populations are present in the Ports of Los Angeles/Long Beach area where some pipeline for the project will be fabricated and loaded on vessels. However, due to the limited scope, short duration, and negligible impact of the proposed activities at this staging area, the project is not expected to cause any adverse effects. Therefore, there will be no disproportionately high adverse human health or environmental effects on the minority and low-income populations.

Finding Statement

Based on our evaluation of DCOR's proposal and the potential impacts assessed in the attached Environmental Assessment, we have determined that DCOR's replacement of pipelines in the Dos Cuadras Field will not significantly affect the quality of the human environment pursuant to the National Environmental Policy Act §102 (2)(C), and therefore no Environmental Impact Statement is required.

Attachment

bcc: 1001-03(b) Minor Environmental Analysis Files (HQ) w/ attach
1703-02a(3) Dos Cuadras Field (POCSR vault) w/ attach

Chron (POCSR OE) w/ attach

ecc: Electronic File: 1102-01b – Field Development (by field name) (POCSR BOEM) w/
attach

BSEE Pacific RD

BSEE Pacific Chief, ROS

District Manager, California District

BSEE Chief, EED w/ attach

BOEM Pacific, RS/OE

BOEM Pacific Chief, EAS w/ attach

G. Sanders w/ attach

P:\BOEM\1102-01b - Field Development (by field name)\Dos Cuadras Field (Platforms A, B, C,
Hillhouse)\DCOR pipeline replacement\Pipeline Installation 2011

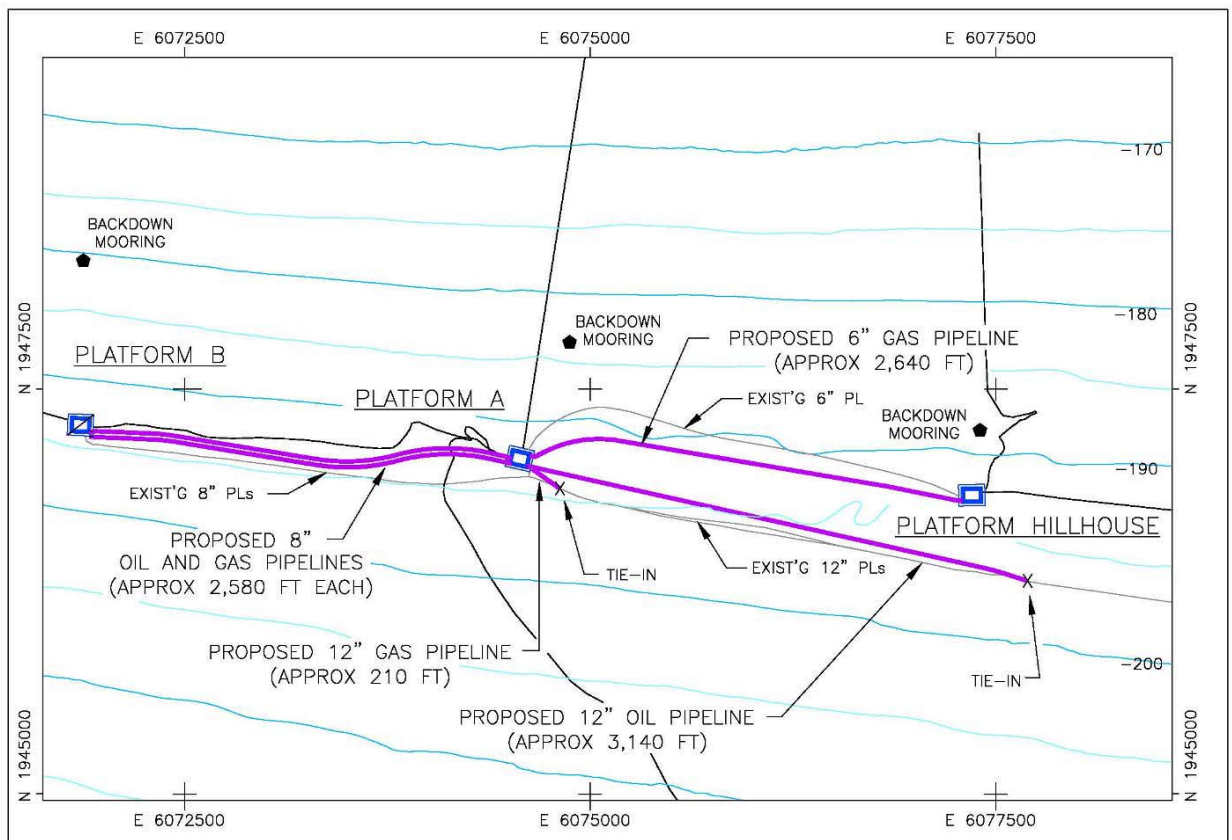
Environmental Assessment

Platforms A, B and Hillhouse Pipeline Replacement Project

Dos Cuadras Field
DCOR, LLC

Bureau of Safety and Environmental Enforcement

November 29, 2011



Environmental Assessment (Final)
November 29, 2011

Proposed Action: Bureau of Safety and Environmental Enforcement's concurrence with the Dos Cuadras Offshore Resources, LLC's (DCOR) proposal to replace pipelines between Platforms A, B and Hillhouse.

Operator: DCOR, LLC

Area: Leases OCS-P 0240 and OCS-P 0241, Dos Cuadras Field, offshore Santa Barbara County, California

This Environmental Assessment was prepared for the Bureau of Safety and Environmental Enforcement (BSEE) by the Bureau of Ocean Energy Management (BOEM).

Abstract: Dos Cuadras Offshore Resources, LLC proposes to replace pipeline segments between Platforms A, B and Hillhouse in the Dos Cuadras Field. Environmental resources examined in this Environmental Assessment (EA) include: Archaeological Resources, Benthic Resources, Air Quality, Water Quality, Fishes and Essential Fish Habitat, Commercial and Recreational Fishing, Marine Mammals and Sea Turtles, Marine and Coastal Birds and Environmental Justice. The primary potential impacting agents are: air emissions, benthic disturbance, lighting, noise and space-use conflicts. No significant environmental effects of the proposed action were identified in this assessment. As such, the proposed action, when added to other activities is not expected to result in any measurable cumulative effects.

The EA is available via the following ways:

By Mail:

Bureau of Safety and Environmental Enforcement, Pacific OCS Region
Attn: Platforms A, B and Hillhouse Pipeline Replacement Project EA (2011)
c/o Ms. Janice Hall, Public Information Officer
770 Paseo Camarillo, 2nd floor
Camarillo, CA 93010-6064

By Phone: 800-672-2627

For further information contact: Charles Barbee, Chief, Environmental Enforcement Division, Bureau of Safety and Environmental Enforcement, 381 Elden St., Herndon, Virginia 20170; Phone: (703) 787-1567; e-mail: charles.barbee@bsee.gov.

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Appendix A: Description of Helix Energy Solutions *Intrepid*

Appendix B: DCOR Marine Wildlife Contingency Plan August 2011

Introduction

DCOR, LLC is proposing to replace five pipeline segments running between Platforms A, B and Hillhouse in order to ensure the continued integrity of the Dos Cuadras field pipelines owned and operated by DCOR. The proposed project will use the dynamically-positioned vessel *Intrepid* to install all pipeline segments. Three segments of the pipe (new 6-inch and 8-inch segments) will be installed using spooled pipe lay methodology while two segments of 12-inch tie-in pipelines will be constructed with 40-foot pieces welded together on board the *Intrepid* (see below for additional detail). This project is a replacement-in-kind and will add no capacity above what was originally permitted and installed.

Purpose and Need

The Bureau of Safety and Environmental Enforcement (BSEE) ensures that outer continental shelf pipelines associated with oil and gas production are designed, installed, operated, and maintained to provide safe and pollution-free transportation of fluids (30 CFR 250 Subpart J).

DCOR's proposed project will enhance the integrity of the main oil and gas pipelines in the Dos Cuadras field by removing from service original pipelines that have numerous anomalies that could reduce pipeline integrity. The proposed project also includes bypassing a sub-sea tie-in that will allow improved smart pig inspections to be conducted for that segment of the pipeline.

Proposed Action and Other Alternatives Considered

Proposed Action

DCOR has contracted with Helix Energy Solutions Group (HESG) to use their dynamically-positioned reeled pipe lay vessel *Intrepid* to install the pipelines (Appendix A). Pre-mobilization and loading activities would be conducted by HESG in Texas including:

1. Delivery of the pipe to a coating facility for application of external coating.
2. Transfer of the coated and insulated 40-foot pipe joints to the HESG welding yard.
3. Welding together of the 40-foot coated/insulated pipe joints to the required length(s).
4. External coating of the field welded joints.
5. Reeling of the pipeline segments (stalks) onto the vessel reels.
6. Loading of project-related equipment (concrete mats, rigging, etc.).
7. Bunkering of low sulfur fuel and lube oils.
8. Loading ships stores for the transit to the DCOR project site.

Prior to the arrival of the *Intrepid*, DCOR will have completed platform modifications and riser replacements to accommodate the replacement pipelines (see BOEMRE environmental assessment completed September 8, 2011(BOEMRE, 2011b)). Upon arrival, the *Intrepid* would lay two 8-inch pipelines, as a single bundle, from Platform B to Platform A, utilizing acoustic target arrays, and a work class remotely operated vehicle (ROV) to assist with placement of the pipelines. Divers will be used to tie-in the replacement pipelines to the platforms. Each 8-inch pipeline would consist of one length (approximately 786 meters [2,580 linear feet]) continuously spooled aboard the *Intrepid*.

A 6-inch pipeline would then be laid from Platform A to Platform Hillhouse, utilizing acoustic target arrays and a ROV. Divers would be used to tie-in the replacement pipeline to the platforms. This pipeline would consist of one length (approximately 805 meters [2,640 linear feet]) continuously spooled aboard the *Intrepid*.

The 12-inch pipeline would be fabricated in 80-foot joints (totaling approximately 1049 meters [3,440 linear feet]) at a Port of Los Angeles/Port of Long Beach facility, then inspected and externally coated. Joints would be transported to the *Intrepid* for installation between Platform A and the transmission pipeline that runs to the Rincon Onshore Separation Facility (ROSF). Each 80-foot joint would be connected to the next onboard the *Intrepid*, with heat-shrink sleeves applied at the welded connections. The first section would be installed from Platform A to the ROSF oil transmission pipeline (approximately 957 meters [3,140 linear feet]). The second section would be installed from Platform A to the ROSF gas transmission pipeline (approximately 64 meters [210 linear feet]).

DCOR's existing service and supply boats *Alan T* and *Ryan T* would support all construction operations noted above. The vessel *American Spirit* would be used to transport 12-inch pipeline to the *Intrepid* and serve as a staging area for pipeline construction.

Other Alternatives Considered

No-Action – If no action is taken, anomalies in the original Dos Cuadras Field pipelines could affect the structural integrity of the pipelines resulting in significant disruption of oil and gas production activities including the potential release of oil or gas into the environment.

Use of other types of pipeline lay vessels – DCOR evaluated the use of alternative vessels for laying pipelines on the sea floor. A dynamically-positioned vessel was determined to be the most efficient method for laying pipeline with the added benefit of having the least amount of benthic disturbance. Traditional pipe laying barges require extensive anchoring and have less accuracy and control during installation. As a result, this alternative is not considered further in this environmental assessment.

Environmental Resources Considered in this Environmental Assessment

BOEM reviewed the environmental analysis provided with DCOR's proposal and considered the BOEMRE environmental assessment prepared for the Platform Elly to Platform Eureka Intrafield Replacement Pipelines Project (BOEMRE, 2011a) and the BOEMRE environmental assessment prepared for the Platforms A, B and Hillhouse Riser Repair Project (BOEMRE, 2011b) when preparing this environmental assessment.

BOEM has determined that the following resources may be found in the project area and could be potentially affected by the proposed action:

- Air Quality: Potential impacts due to emissions from pipeline installation vessels, support vessels, and associated equipment.
- Water Quality: Potential impacts due to disturbance of sediments during the pipeline laying processes, discharges of wastes from the installation and support vessels and accidental release of hydrocarbon-contaminated fluids.
- Benthic Resources: Potential impacts due to disturbance of seafloor habitats from installation activities.
- Fishes and Essential Fish Habitat: Potential impacts due to disturbance of sediments and introduction of hard structure to the seafloor.
- Marine and Coastal Birds: Potential impacts due to noise and artificial lighting associated with vessels.
- Marine Mammals and Sea Turtles: Potential impacts due to vessel strike and noise.
- Recreational Fishing: Potential impacts due to preclusion from fishing grounds.

- Commercial Fishing: Potential impacts due to preclusion from fishing grounds and/or damage and loss of fishing gear.

BOEM did not consider the following resources in this environmental assessment because they are either not found in the area affected by the project or they would not be affected by the proposed action:

- Cultural/Archeological Resources: The proposed action will occur within existing pipeline corridors and in an area that has been disturbed from previous construction activities. Previous surveys in the project area have not identified any cultural/archeological resources within the area of potential effect (APE). A recently completed survey (May 2011) also did not identify any potential cultural resources within the APE. See also Consultation and Coordination section.
- Intertidal, Wetland and Shallow Subtidal Resources: The proposed action will occur in waters greater than 3 miles from shore. Any disturbance of sediments or accidental discharges associated with the project will not be of a quantity large enough to reach or affect these resources.
- Marine Protected Areas, Sanctuaries and Preserves: The proposed action will not occur in or near any special status areas. Any disturbance of sediments or accidental discharges associated with the project will not be of a quantity large enough to reach or affect these areas.
- Recreation and Tourism: Recreation and tourism are not likely to be affected by the proposed project due to the offshore location of the project, the small geographic footprint of the project and its short duration.
- Endangered and Threatened Species: Few, if any, endangered or threatened species are expected to be found in the area during the proposed action. Potential effects to wildlife are discussed under the taxa-specific (fish, birds, mammals and turtles) sections of this environmental assessment. See also Consultation and Coordination section.

Resources and Impact analysis

Air Quality

DCOR's proposed pipeline replacement project is located in the Pacific outer continental shelf, offshore Santa Barbara County within the South Central Coast Air Basin. The DCOR offshore facilities, Platforms A, B and Hillhouse, are currently permitted by and within the jurisdiction of the Santa Barbara County Air Pollution Control District (SBCAPCD).

The impacting factor from this project is the emission of air pollutants that could affect the air quality of the downwind area, specifically Santa Barbara County. The primary regulated pollutants of concern in Santa Barbara County are oxides of nitrogen (NO_x) and reactive organic compounds (ROC). Both NO_x and ROC are considered precursors to ozone formation, for which Santa Barbara County is presently in attainment. The major pollutant of concern associated with projects of this type and duration are NO_x emissions, due to propulsion and stationary combustion equipment.

Estimated emissions from the DCOR pipeline replacement project are contained in Table 1.

Table 1. Estimated DCOR Pipeline Replacement Project Emissions

Project Phase	NO_x	ROC	CO	SO_x	PM₁₀
<i>Peak Daily (pounds/day)</i>					
<i>Topsides Modifications*</i>	101.1	7.6	54.1	0.07	11.7
<i>Riser Installation*</i>	72.6	13.8	36.0	0.05	5.3
<i>Mobilization</i>	1827.7	161.2	470.1	1.17	84.1
<i>Pipeline Installation</i>	1261.5	102.6	301.9	0.75	53.7
<i>Pipeline Subsea Tie-In</i>	1147.3	91.5	270.2	0.67	48.0
<i>Demobilization</i>	736.3	58.4	169.1	0.67	30.8
<i>Peak Annual (tons per year)</i>					
<i>Topsides Modifications*</i>	1.06	0.08	0.57	0.001	0.12
<i>Riser Installation*</i>	0.76	0.14	0.38	0.001	0.05
<i>Mobilization</i>	0.91	0.08	0.24	0.001	0.04
<i>Pipeline Installation</i>	8.72	0.70	2.04	0.005	0.37
<i>Pipeline Subsea Tie-In</i>	9.17	0.73	2.16	0.005	0.38
<i>Demobilization</i>	0.37	0.03	0.08	0.001	0.02
<i>Project Total (tons)</i>	20.99	1.77	5.46	0.01	0.99

* Air quality data for the topside modifications and riser installation phase are included in this table for completeness. Air quality effects were assessed in BOEMRE's environmental assessment for this phase of the project (BOEMRE, 2011b).

The proposed vessels (DP *Intrepid* and M/V *American Spirit*) utilized in the pipeline laying activities are not covered under existing air permits issued by the SBCAPCD. SBCAPCD Rule 202 F.7 provides specific permit exemption criteria for internal combustion engines used during construction activities if the total emissions are below 25 tons per year of any affected pollutant (except carbon monoxide) during any consecutive 12 month period. The 25-ton emission limitation is the level below which the SBCAPCD considers that construction projects will result in insignificant air quality impacts. Under this exemption, DCOR has received an Authority to Construct (ATC) / Permit to Operate (PTO) which limits the potential emissions of main and auxiliary engines to less than 25 tons per year of regulated pollutants. The potential to emit will be limited by a cap on the amount of diesel fuel that can be burned. DCOR proposes to track and report daily fuel use consumption for the project operations to meet this requirement.

DCOR has designated the currently permitted M/Vs *Alan T* and *Ryan T* as the approved project supply boats to support the construction operations. All other internal combustion engines utilized for the project are included under DCOR's existing air permits. All air emissions associated with DCOR's proposal will fall within existing permitted levels and will be monitored as required under existing permits, rules, and regulations. Therefore, the potential impacts to air quality are considered to be insignificant.

Water Quality

In southern California, sediment concentrations are typically about 1mg/L in the nearshore, surface waters with higher values in near-bottom waters (and after storms); lower levels (0.5 mg/L) occur in offshore regions. Highest turbidities correspond to periods of highest upwelling, primary production and river runoff.

The impacting factors from this project that could affect water quality are: 1) the increase in sediment in the water column that will be raised from the seafloor during the installation of the replacement pipelines and placement of mats over the pipelines; 2) the discharge of treated sewage from the installation and support vessels; and 3) the accidental release of hydrocarbon-contaminated fluids from the cutting of existing pipelines.

Sedimentation: Sediments will be resuspended in the water column during the installation of the pipelines. Disturbed sediments will rise into the water column and gradually dissipate down-current, becoming increasingly dilute due to resettlement and dispersion, reaching background levels relatively quickly. These activities are expected to result in a small increase in turbidity and impacts to water quality would be short-term and localized.

Vessel discharges: Vessels used for this project may discharge cooling water, ballast water, bilge water and sanitary wastes. These types of routine discharges are regulated by the U.S. Coast Guard (USCG) via the Federal Water Pollution Control Act to ensure that vessel effluents such as sewage and cooling water do not leave sheen or other foreign material on navigable waters. Ballast and bilge waters will be treated by all project-related vessels' onboard oil separation system which is designed and operated to meet the USCG-required maximum of 15 ppm oil in the effluent. Similarly, the sewage treatment plants onboard the vessels are USCG-approved and are designed and operated to meet the USCG-required limits. Surface currents, wind and waves will combine to dissipate these effluents.

Accidental Hydrocarbon Discharges: There is a potential for an accidental release of contaminated fluids when the existing pipelines are cut. The existing pipelines will be cleaned with sea water and a cleaning pig multiple times. Upon receipt of the final cleaning pigs at ROSF, the fluid content of the existing pipelines will be tested for hydrocarbon content. Pigging and flushing will be repeated until the water in the pipeline is at or below 29 ppm and does not release a sheen. The cleaning and flushing will minimize the potential for an accidental release of contaminated fluids.

Overall, sediments will be temporarily disturbed by placement of pipelines on the seafloor. This will result in the creation of clouds of sediment in the water which are expected to settle out of the water column relatively quickly. Due to the transient nature of the increase in sedimentation, the treatment of the vessel discharges and the precautions taken by DCOR to prevent accidental hydrocarbon discharges, impacts to water quality are expected to be insignificant.

Benthic Resources

For the purposes of this analysis, hard bottom, and specifically hard bottom with a relief greater than one meter, is considered to be a sensitive benthic habitat. This habitat type is rare in the Santa Barbara Channel (MEC, 1995) as compared with soft bottom communities. Species living on hard bottom, such as corals and sponges, are long lived and can sustain permanent impacts from offshore construction activities (MEC, 1995) and smothering impacts from increased turbidity and discharges (Diener and Lissner, 1995). Local experts from multiple agencies have

concluded that a minimum of 305 meters (1000 feet) clearance from high relief hard bottom areas is needed to ensure this resource is protected (Knaster, 1991).

Potential impacting factors on benthic organisms and their habitat include 1) bottom disturbance and increased turbidity and 2) addition of hard substrate from new pipelines and concrete mats. The physical processes of laying the pipelines and the mattresses, if needed, on the seafloor will cause disturbance to the underlying sediments and may affect the benthic habitat. In compliance with BOEMRE NTL 06-P01, DCOR conducted shallow hazard surveys of the proposed pipeline routes using a subbottom profiler and multi-beam sonar equipment. These surveys were completed in May 2011. BOEM staff reviewed the resulting shallow hazards report prepared by Fugro consultants. No consolidated sediments (hard bottom) were detected within 305 meters (1000 feet) of the proposed pipeline routes.

The proposed project would add roughly 954 square meters (10,600 square feet) of hard structure (pipelines and mats) in existing pipeline corridors. Review of video from nearby pipelines show the addition of hard substrate (pipelines and concrete mats) will likely result in colonization by invertebrates that prefer or require hard substrates in an area otherwise dominated by soft bottom fauna.

The process of laying pipeline on the seafloor will disturb the underlying unconsolidated (soft bottom) sediments and generate turbid water. Invertebrates and fishes (see EFH section) associated with the soft bottom seafloor in this area are representative of a “mid-shelf” community (SAIC, 1985; Allen *et al.*, 2007; Mikel *et al.*, 2007), which is an abundant habitat in the Santa Barbara Channel (MEC, 1995; CMLPA, 2009). Physical impacts to animals include being crushed or moved from laying pipelines and mats on the seafloor. Animals that live in or on sediments and have no or slow mobility would be most impacted. Turbid water may affect feeding rates and smothering of feeding and respiratory organs (Wilber and Clarke, 2001; Airolidi, 2003), and the severity of impacts are a function of concentration and exposure duration (SAIC and MEC, 1995). Sediments disturbed by laying pipeline will likely be suspended for a period of a few hours before they resettle. Based on ROV observations of other oil and gas operations and construction projects in the area, the disturbed sediment will not likely extend beyond 15 meters (approximately 50 feet) of the installed pipelines.

Overall, given the absence of hard bottom habitat and the measures taken to reduce impacts to the seafloor, the proposed action will not have significant impacts on the benthic environment.

Fishes and Essential Fish Habitat (EFH)

At least 554 species of California marine fishes inhabit or visit California waters (Miller and Lea, 1972). The high species richness is probably due to the complex bathymetry, convergence of several water masses and changeable environmental conditions (Dailey *et al.*, 1993). The Santa Barbara Channel fish assemblage is characteristic of warm-temperate species of the Californian or San Diegan Province (Horn and Allen, 1978; Pondella *et al.*, 2005; Stephens *et al.*, 2006; Love *et al.*, 2003).

Potential impacting factors on fishes and EFH from the proposed activities include 1) bottom disturbance and increased turbidity and 2) addition of hard substrate from new pipelines and concrete mats.

Bottom disturbance and increased turbidity is discussed in the Water Quality and Benthic Resource sections above. Direct effects from sediment suspension and increased turbidity on

fish populations may include exposure to contaminants, changes in feeding rates, reduction in predator-avoidance ability or smothering of feeding and respiratory organs (Wilber and Clarke, 2001; Utne-Palm, 2002; Au et al., 2004). To avoid these consequences, fishes may choose to relocate until water clarity returns to levels similar to pre-disturbance conditions. Indirect effects on fish populations from sediment suspension and increased turbidity may occur by harming the populations of prey species on which the fishes depend (Airoldi, 2003). Biological response to these potential impacts is often a function of concentration and exposure duration (Newcombe and Jensen, 1996).

Sediments will be resuspended in the water column during the installation of the pipelines. Based on ROV observations of other oil and gas operations and construction projects in the area, the disturbed sediment will not likely extend beyond 15 meters (approximately 50 feet) of the installed pipelines. Disturbed sediments will rise into the water column and gradually dissipate down-current, becoming increasingly dilute due to resettlement and dispersion. These activities are expected to result in a small increase in turbidity and impacts to fishes would be short-term and localized.

The addition of hard substrate (pipelines and concrete mats) to an area consisting of unconsolidated sediments (“soft substrate”) will likely change the local fish assemblage from a sand/mud bottom community to a rock outcrop community in the area immediately around the pipelines and mattresses. Love and York (2005) surveyed fishes found associated with the oil/gas pipeline between Platforms Grace and Gail located in the eastern Santa Barbara Channel area, and compared it with the fish assemblage found on nearby sand/mud habitat. Fishes were about six to seven times more abundant on the pipeline when compared to offsite densities. Given that the proposed project activities are within the same biogeographic region and at similar depths as described in Love and York (2005), a similar change in local fish assemblages could occur with the addition of new hard structures on the seafloor within the vicinity of Platforms A, B and Hillhouse. It is possible that the conversion of soft substrate into hard substrate may provide a benefit to some species of fishes associated with rock outcrops if juvenile habitat is limiting.

Overall, pipeline replacement activities are expected to result in a small increase in turbidity and impacts to fishes would be short-term and localized. The proposal will add approximately 954 square meters (10,670 square feet) of hard structure in an area otherwise dominated by soft unconsolidated sediments. It is possible that the conversion of soft substrate into hard substrate (new pipelines) may provide a benefit to some species of fishes associated with rock outcrops if juvenile habitat is limiting. Nevertheless, the proposed action is not expected to have significant impacts on fishes or essential fish habitat.

Marine and Coastal Birds

The marine and coastal bird population off southern California is both diverse and complex, being composed of as many as 195 species (Baird, 1993). This community of birds has been described in detail in previous studies and environmental documents (e.g., SOWLS et al., 1980; BRIGGS et al., 1981; 1987; HUNT et al., 1981; CARTER et al., 1992; BAIRD, 1993; MASON et al., 2007). Marine birds are generally the most sensitive to the potential impacts of OCS development. While some of these breed in the area, others may spend their non-breeding or “wintering” period there or may simply pass through during migration. There is a large variety of marine

bird species that inhabit or migrate through the Santa Barbara Channel. Common varieties include ducks, loons, grebes, shearwaters, storm-petrels, cormorants, gulls, terns, and alcids.

Impacting factors that may affect marine birds from the proposed pipeline activity include 1) project-generated noise and 2) artificial lighting associated with the pipelaying and support vessels.

Noise Effects: Noise sources associated with the proposed project will include equipment such as vessels, winches, generators, ROV equipment and jet pumps. Noise associated with construction activities on the platforms will be temporary and localized and are not expected to interfere with marine birds above the water surface. Noise resulting from operation of construction equipment below the surface is not considered a high noise-producing activity. Below-surface project activities will result in some increase in underwater noise levels; however, the proposed activities will be short-term in duration and are not expected to harm birds that are underwater.

In addition to equipment, vessel traffic from the DP vessel *Intrepid*, support vessels and crew boats will increase noise levels during project activities. Vessel noise at a specific location is transitory; slowly increasing as a vessel approaches, peaking, and then decreasing as it passes. Because of the transitory nature of this noise and the mobility of marine birds it is unlikely that a marine bird would suffer an injury or death from vessel noise. In addition, it is expected that the visual presence of the vessels will elicit a response from birds in the area before noise does (USF&WS, 2006).

The project area is not near any marine bird breeding colonies where nesting birds could suffer greater noise-related effects than those foraging or transiting through the project area near the platforms. Therefore, noise impacts on marine birds are not expected to be significant.

Artificial Lighting: Bird attraction to vessel lighting has been documented in many of the world's oceans. Lights used in fisheries to attract commercial species to the surface, as well as spotlights to identify hazards on the sea surface and deck lights for night operations and safety, can attract large numbers of birds, especially during inclement weather. Several events involving large numbers of birds striking brightly lit vessels have been observed off Alaska (Dick and Donaldson, 1978), in South Georgian waters (Black, 2005) and off southwest Greenland (Merkl, 2010). Lit project vessels are expected to be present along the pipeline routes or while transiting between the port and the site. There is a potential for the vessel lighting associated with the project to attract marine birds. Shearwaters, storm-petrels and alcids are the most prone to effects from this lighting and could suffer a variety of effects including light entrapment, collisions with the vessel, resulting in injury, and increased risk of predation.

Overall, noise effects may be significant if project activities were to take place near important marine bird nesting areas. The proposed activities are not near any marine bird nesting areas. Therefore, noise impacts on marine birds are not expected to be significant. In their Marine Wildlife Contingency Plan, DCOR proposes to direct and minimize lighting on board vessels to reduce potential effects of lighting. An onboard observer will monitor bird interactions and DCOR will transport any injured birds that may be discovered on a project vessel (see Appendix B). As a result, artificial lighting impacts on marine birds are not expected to be significant.

Marine Mammals and Sea Turtles

Many species of marine mammals may be present in the project area. California sea lions (*Zalophus californianus*) are very common in the area and often use the decks and buoys of the offshore oil and gas production facilities as haul out areas. Gray whales (*Eschrichtus robustus*) may be seasonally abundant as they migrate through the area (particularly on the north-bound migration). Small cetaceans travel through the area at various times of the year. The range of four species of sea turtles overlaps the project area but sea turtles sightings in this area are exceedingly rare.

Potential effects of the proposed activities on marine mammals and sea turtles are primarily limited to the laying of the pipeline. Preparation and testing activities on the platforms may result in the temporary displacement of sea lions hauled out on lower level decks but this is not expected to result in more disturbance than that associated with normal platform operations. Potential impacting factors that may affect marine mammals and sea turtles from the proposed pipeline laying activities include 1) risk of vessel strike and 2) noise.

The pipe lay vessel will lay the pipeline at a speed of 0.5 to 1.0 knots. Although the lay vessel will be focused on maintaining a consistent speed and course, it will not easily be able to stop or alter course should a marine mammal or sea turtle be observed in their path. Conversely, marine mammals and sea turtles in the areas would likely be able to detect and avoid collision with vessels traveling at this speed.

Noise associated with the project activities would be limited to that produced by the vessel laying the pipelines. The project site is in the Santa Barbara Channel and adjacent to commercial shipping lanes. Noise produced from the proposed project will not likely be distinguishable within the context of the existing acoustic environment and therefore not significant.

In their Marine Wildlife Contingency Plan, DCOR has committed to following standard precautions when working near marine mammals and other wildlife (including sea turtles). Marine mammal monitors will be assigned to the project and have the authority to stop operations if a marine mammal is within 305 meters (1000 feet) of project activities. As a result impacts to marine mammals or sea turtles are not expected to be significant.

Recreational Fishing

The proposed project activities lie within an area protected from the weather for most of the year, Platforms A, B and Hillhouse, as well as nearby natural reefs, may be visited by recreational fishers. In southern California, fishing occurs year round, although effort markedly increases in the summer months. According to estimates reported by the State of California, over 40 percent of fishing trips occur in the months of June, July and August (CDFG, 2009a). Using license sales as an indicator, recreational fishing effort within the region has been in decline for the last several decades.

Information collected weekly between April 1975 to April 1978, (Love and Westphal, 1990) indicated that a commercial passenger fishing vessel from Santa Barbara Harbor expended 18.2% of total fishing effort at five local oil and gas platforms (A, B, Hillhouse, Houchin and Hogan). Currently, SEA Landing is the center of recreational fishing and diving party boats in Santa Barbara harbor. DCOR contacted SEA Landing in August 2011 and was told that, due to safety concerns, none of their recreational fishing or dive boats currently fish at or near the local oil and gas platforms.

If recreational fishermen were to use the area they would not be likely precluded from fishing during pipeline replacement operations because project vessels will be slow-moving or stationary. Therefore no significant effects to recreational fishing are expected to occur as a result of the proposed project.

Commercial Fishing

The proposed project activities lie offshore the Santa Barbara region, and within the California Department of Fish and Game's (CDFG) fishing blocks 652 and 666. The seafloor within the project footprint primarily consists of soft sediments within a depth range of 49 to 70 meters (160 to 230 feet). The region contains a diverse assemblage of finfish, shellfish and other invertebrates, many of which are commercially exploited.

Commercial fishing may be precluded during proposed pipeline lay operations. DCOR intends to maintain 500-meter (1,640 feet) safety zones around platforms and add a 150-meter (462 feet) safety zone around the *Intrepid* during pipeline laying operations. As such, commercial fishing may be intermittently precluded for up to 33 days. Because the project vessels will be slow-moving or stationary, fishers will have the opportunity to avoid any potential operational conflicts. The footprint of activities in the proposed pipeline replacement project is also limited in scope. Therefore, compared to the area which commercial fishing could occur (e.g., the Santa Barbara Channel), the potential loss of fishing grounds is negligible both on temporal and spatial scales. Thus, commercial fishing is not expected to be significantly impacted during construction.

Long-term impacts associated with fishing hazards are not anticipated from the proposed pipeline installation activities. The addition of new pipelines is near the area of the previously installed pipelines, and will not increase the preclusion area of what had been previously reviewed and approved.

During project activities, equipment, or other large items ("debris") may be lost overboard. Lost debris may impact future commercial fishing by damaging or entangling gear. The fishing activity most likely to be impacted by sub-sea hazards is trawling, which currently is restricted in the project area due to the presence of the original pipelines. Thus, the proposed project is not likely to increase snagging hazards for trawl nets or other fishing gear.

Overall, project vessels will be slow-moving or stationary during pipeline replacement operations, thus, commercial fishermen will have the opportunity to avoid any potential fishing conflicts. The addition of new pipelines is near the area of the previously installed pipelines and will not increase fishing hazards beyond what had been previously posed by the original pipelines. The potential loss of fishing grounds is negligible both on temporal and spatial scales. Thus, commercial fishing is not expected to be significantly impacted during construction.

Environmental Justice

Impacts on minority and low-income populations were considered in accordance with Executive Order 12898. The onshore areas that may be affected by the proposed project are the staging areas located at the Ports of Los Angeles and/or Long Beach (POLA/LB) and the communities immediately surrounding the POLA/LB. Minority and low-income populations in these areas were identified using the Council of Environmental Quality's *Guidance for Agencies on Key Terms in Executive Order 12898*. U.S. Census Bureau data indicate that significant minority and low-income populations are present in the POLA/LB area. However, due to the limited scope,

short duration, and negligible impacts of the proposed project at the staging area, the project is not expected to cause any adverse effects in the POLA/LB area. Therefore, there will be no disproportionately high adverse human health or environmental effects on the minority and low-income populations.

Cumulative Effects

With the exception of the alteration of benthic habitat resulting from the placement of pipelines, no permanent or long-term effects of the proposed action were identified in this assessment. Currently there is approximately 303 kilometers (188 miles) of oil and gas pipeline associated with outer continental shelf development in southern California. This project will add approximately 3.4 kilometers (2.1 miles) of pipeline to this total. As such, the proposed action is not expected to result in any significant cumulative effects.

Summary of Environmental Effects

Air emissions from the installation activities will be in full compliance with SBCAPCD rules and regulations. Impacts to water quality will be short-term and localized. Disturbance of benthic resources from the proposed pipeline installation are expected to be transient in nature and highly localized with negligible loss of soft bottom habitat and organisms. Impacts to fishes would be short-term and localized. Adequate safeguards are in place to minimize or eliminate harm to other marine wildlife (birds, mammals, turtles). No significant impacts to commercial fishing are expected to occur. The proposed action will result in unavoidable benthic disturbance caused by laying of pipelines on the seafloor including the addition of approximately 954 square meters (10,670 square feet) of hard structure in an area otherwise dominated by soft unconsolidated sediments.

Mitigation Measures

Components of the Project Design

To avoid or minimize environmental effects, DCOR has stated that it or its contractors will:

- ◆ Conduct shallow hazards surveys of all proposed pipeline routes and prepare an archeological assessment (surveys were conducted May 2011 and reports were completed June 2011).
- ◆ Minimize conflict with commercial fisheries by submitting a Notice to Mariners (USCG) 10 days prior to commencing in-water activities, posting information on proposed activities at the Ports of Los Angeles, Long Beach and Santa Barbara Harbor, and notifying fishermen if their gear is found in the construction area.
- ◆ Comply with all USCG regulations for the proper treatment and monitoring of vessel effluents.
- ◆ Use a “pollution dome” to contain any oil which may emanate from the existing pipeline when it is cut. Prior to cutting the pipeline, a “pollution dome” will be positioned over the area to be cut. This device, lowered from the work vessel, is strapped to the pipeline and over it, with a suction hose going to a waste tank on the vessel. During the cutting operation, if any discharge from the pipeline is observed the suction valve will be activated and the discharge suctioned to the waste tank.
- ◆ Implement section C.4 of their Marine Wildlife Contingency Plan (see appendix B) throughout construction.

Additional Measures Identified by BOEM/BSEE that must be Committed to by DCOR to Further Minimize Environmental Effects

- ◆ DCOR must test the water used to flush the pipelines for hydrocarbons, document the results and have these results available for BSEE inspection upon request prior to cutting the existing pipeline. The fluid remaining in the pipeline must not produce a visible sheen or exceed 29ppm¹.
- ◆ ROV surveys conducted during the installation of the pipelines must visually record the seafloor condition before the touchdown of pipeline to confirm the absence of sensitive biological habitat (hard bottom features) or archeological features.
- ◆ In the event that any unanticipated archaeological resources are discovered while conducting operations, DCOR must immediately halt operations within the area and report the discovery to the BSEE Regional Director [30 CFR 250.1010(c)].
- ◆ A post-installation ROV video survey that continuously shows the newly installed pipelines in the final sea bottom location will be used to verify the as-built condition and to confirm seafloor cleanup and final site condition. The survey must show the seafloor condition on either side of the pipelines. If a bottom disturbance such as a scar is observed, the location must be recorded, and the depth and length of scars must be documented. The video equipment and recording media shall produce a picture that allows viewers to clearly assess the condition of the seafloor. Poor resolution due to poor copies or cloudy conditions on the seafloor may result in DCOR being required to resurvey all or part of the pipeline routes.
- ◆ DCOR must provide wildlife and fisheries awareness training to all personnel participating in the pipeline replacement project; this may include viewing of the BOEM-approved Wildlife and Fisheries Training video (2009).
- ◆ DCOR must consult with the Joint Oil/Fisheries Liaison Office (JOFLO) and commercial fishermen, as appropriate, during the planning stages and repair activities to identify and mitigate any unanticipated impacts regarding the pipeline replacement and associated activities.
- ◆ DCOR must require project personnel and contractors, to the extent reasonable and feasible, to recover items that could be a hazard which are lost overboard during activities associated with the pipeline installation. Logs will be maintained on all project vessels that identify the date, time, location, depth, and description of all items lost overboard. Vessel operators will minimize potential for items to be lost overboard by securing loose items, where feasible. Vessel operators will place the name of the vessel on all items on deck that have the potential to be lost overboard.

Consultation and Coordination

On September 26, 2011, BOEM staff discussed DCOR's proposal to replace pipeline off Santa Barbara County with NMFS staff. They agreed that DCOR's proposal did not represent any different effects when compared to other proposals they had recently reviewed, therefore NMFS concurred that DCOR's proposed project would not likely affect marine mammals or sea turtles.

¹ The monthly average NPDES hydrocarbon levels allowed for produced water discharges from the Dos Cuadras field platforms is 29 ppm. A 29 ppm threshold for the purposes of discharging water during this phase of the project is therefore consistent with discharges currently permitted within the project area.

An inquiry was made to the California Native American Heritage Commission (NAHC) on July 15, 2011, to identify any federally recognized Tribal governments in the area in order to determine if formal consultation was necessary. The NAHC provided a point of contact for the Santa Ynez Band of Chumash Indians (SYBCI). On July 21, 2011, BOEM staff informally consulted with the SYBCI to determine if any known traditional cultural properties or archaeological resources might be located within the proposed project area. The SYBCI expressed concerns about the potential release of hydrocarbons during the pipeline replacement project, but did not identify any traditional cultural properties that would necessitate formal consultations under Section 106 of the National Historic Preservation Act. Follow-up conversations and email were exchanged to provide additional information on the proposed project and no concerns were identified that required formal consultation.

On October 20, 2011, BOEM sent NMFS information on the project and our determination that the proposed action was not expected to appreciably affect essential fish habitat. On November 14, 2011, NMFS responded. They reviewed the proposed action, concurred with our determination, had no additional conservation recommendations, and raised no objection to implementing the project.

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Appendix A

Description of Helix Energy Solutions Group Dynamically Position Vessel *Intrepid*



INTREPID



Revision 1

The Premier reeled-pipelay vessel operating in the Gulf of Mexico.



INTREPID

RIGID / FLEXIBLE PIPELAY & UMBILICAL INSTALLATION

Equipped with a state of the art carousel reel system, the Intrepid can install a variety of products safely and efficiently in deep water.

JUMPER INSTALLATION

The vessel's large deck space and facilities allow for large jumpers to be fabricated offshore, thereby minimizing installation time.

SUBSEA COMPONENTS

The vessel is equipped with a traction winch capable of deploying payloads weighing up to 220 tons to a depth of 10,000 feet on a single fall, and 400 MT to 5,000 feet on double fall.

GENERAL CONSTRUCTION

The vessel can fulfill standard construction tasks with the permanently installed workclass ROV; a mobile saturation system for diving operations to 1,000 feet can also be provided if required.

SUCTION & HAMMERED PILES

Suction piles and other anchoring devices can be installed in depths up to 10,000 feet.

CLASSIFICATION

ABS @A1Barge, DPS-2

ACCOMMODATIONS

Accommodates 74 People
 Marine Crew..... 33 People
 Charter/Client..... 41 People

DIMENSIONS

Overall length.....	116.3 m (381.4 ft)
(B.P.).....	111.6 m (366.2 ft)
Breadth Moulded	31.9 m (104.8 ft)
Depth Moulded	7.6 m (25 ft)
Gross Tonnage	7,955.4 tons (7,217 MT)
Net Tonnage.....	386.5 tons (2,165 MT)
Lightship Displacement	8,131.8 tons (7,377 MT)
Max. Draft Moulded Draft	5.6 m (18.5 ft)
Displacement at Summer.....	14,301.4 tons (12,974 MT)

CAPACITIES

Deck Space	1,647 m ²
Moonpool Dimension.....	(48.9 ft x 20 ft) 978.3 ft ²
Water Ballast Tanks	6,130 m ³
Fresh Water Tanks.....	219 m ³
Max. Deck Load.....	4,000 MT
Fuel Oil Tanks	1,463 m ³
Fuel Oil Day Tanks.....	2 x 10 m ³
Fuel Oil Set Tanks.....	2 x 15 m ³
Lube Oil Tanks	2 x 4.6 m ³
Soil Transfer Tank	23.5 m ³
Slop Tank	23.5 m ³ (8,269.9 ft ³)

MAIN CRANE

Main Hoist (traction winch) with 2 Falls
 Min. Radius 8.7 - 8.8 m
 Max. Radius 39 - 39.6 m
 Hoisting capacity @ harbor/sheltered waters lift 400 MT @ 52.5 ft
 Hoisting speed outer layer..... 0 - 29.5 ft per min.
 Hoisting speed 0 - 59.1 ft per min.

Main Hoist (traction winch) with 1 Fall

Min. Radius 7.8 m
 Max. Radius 37 m
 Max. Hooktravel..... 3,000 m
 Hoisting capacity at harbor lift 220.5 tons
 Hoisting speed outer layer..... 0 - 59.1 ft per min.
 Hoisting speed 0 - 118.1 ft per min.

DYNAMIC POSITIONING SYSTEM

- DP 2 redundant system, Kongsberg Simrad SDP-2122, consisting of 2 process computers
- Joystick control available from main operator's console, forward bridge and 2 remote stations

HELIDECK

- Approved by ABS for 11.34 MT
- Can accommodate S-61 aircraft

MACHINERY SPACE

Electrical Power and Distribution

Main electrical power generation is provided by 4 diesel engines as follows:

- 4 x Wartsila 8L26A diesel engines driving Leroy-Somer generators each with a rating of .2961 kva, pf = 0.8, 6,600v, 60Hz @ 900 RPM

AUXILIARY GENERATORS

The following provides auxiliary power generation:

- 4 Caterpillar 3412, twin turbo driving Sanford AC 634 alternator with a rating of 470 kW @ 60 Hz
- 1 Caterpillar 3408, 300 kW @ 60 Hz

PROPULSION

8 Lips Type FS 500/-226/500 MNR thrusters, 1,100 HP (820 kW) fully azimuthing, fixed pitch, variable speed

PIPELAY SYSTEM

Product Capability 3.5" - 12" O.D.

Carousel Loading Capacity . . . 1,550 MT

Tensioners

Main (4-track) . . . 1 x 264 kips / 120 MT

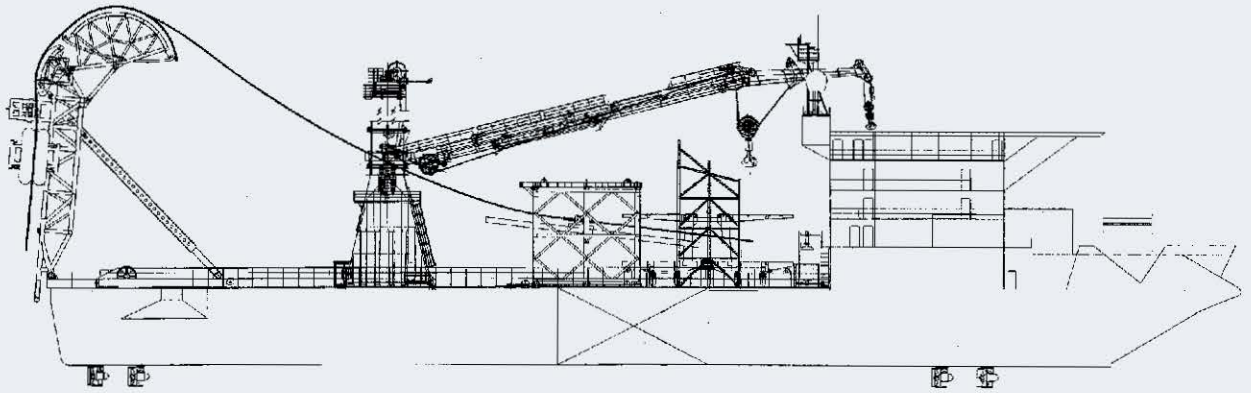
No. 2 (2-track) 1 x 40 kips / 18 MT

Friction Clamp 200 MT

A/R Winch

Capacity 441 st / 400 MT

Traction winch type through crane with 10,000' x 3.5" wire rope



Revision 1

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400 North Sam Houston Pkwy. East
Suite 400
Houston, Texas 77060
281-618-0400
281-618-0501 fax

Western Australia
Level 4 IMB Centre
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61-8-9215 0600
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Appendix B

DCOR Marine Wildlife Contingency Plan Platforms A, B, and Hillhouse Pipeline Replacement Project Offshore Santa Barbara, California August 2011

**APPENDIX C
MARINE WILDLIFE CONTINGENCY PLAN**

**PLATFORMS A, B, AND HILLHOUSE
PIPELINE REPLACEMENT PROJECT
OFFSHORE SANTA BARBARA, CALIFORNIA**

Revision 1, August 2011

C.1 INTRODUCTION

This Marine Wildlife Contingency Plan (MWCP) has been developed in support of the proposed pipeline replacement work that will be conducted at Platforms A, B, and Hillhouse located approximately 10 kilometers (km) (6.2 statute miles [mi]) offshore of Santa Barbara, Santa Barbara County (Figure C.1-1). The Platforms involved (Platform A, B, and Hillhouse) are located within the existing DCOR Dos Cuadras Offshore Production Unit. The Dos Cuadras Unit is in water depths that range from approximately 160 to 230 feet. All three Project Platforms are situated at water depths of approximately 185 – 190 feet. The Project Platforms are located entirely within federal waters (beyond the state 3-nautical mile limit).

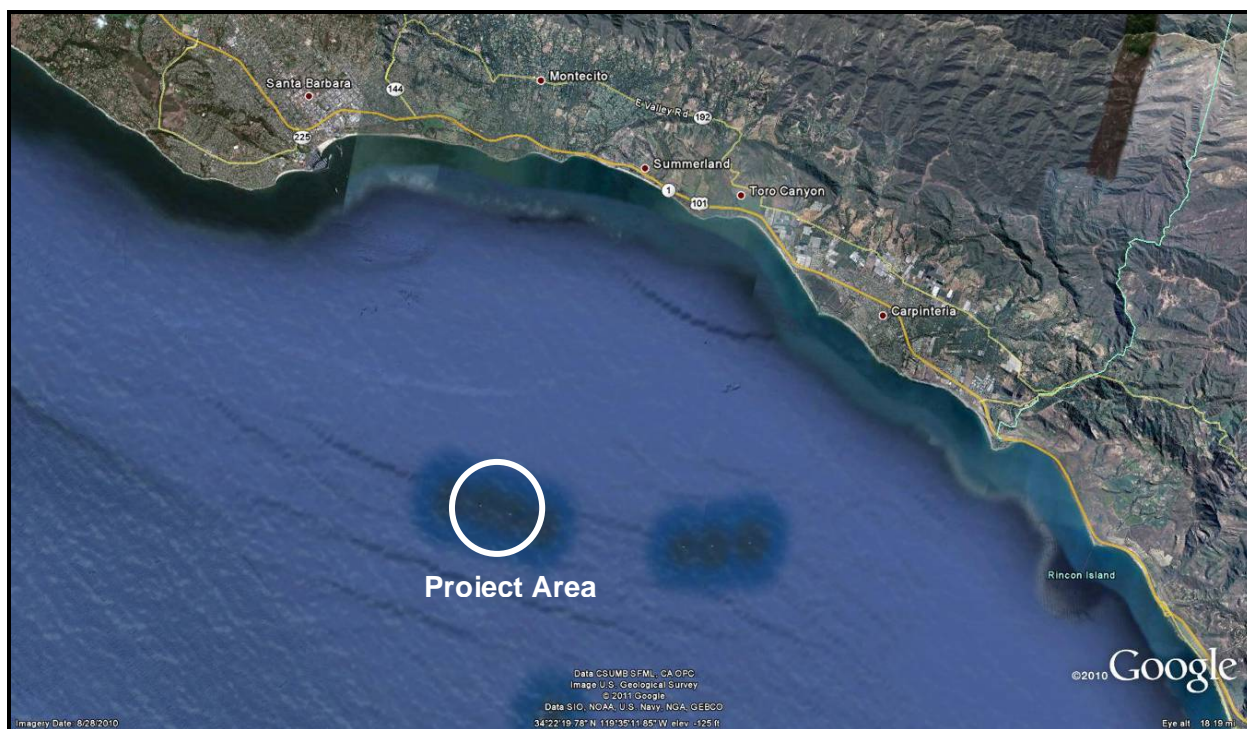


Figure C.1-1. Region and Site Map

The Project would occur within the Southern California Bight (SCB), which is a region that encompasses the marine waters from Point Conception at the northwest end of the Santa Barbara Channel, to a point just south of the border between the United States and Mexico. The purpose of this Marine Wildlife Contingency Plan (MWCP) is to identify marine wildlife (defined herein as marine mammals, turtles, and birds) that could occur within the Project area and to specify measures that are designed to reduce potential construction-related impacts to those species. Following installation, the replacement pipelines will be stationary on the seafloor and will require minimal marine operations beyond periodic inspections by divers or a remote operated vehicle (ROV). As such, it is anticipated that the highest potential for incidents involving marine wildlife would occur during the construction phase of the Project. These impacts would be temporary and may include potential noise and light-related impacts from

construction activities, vessel collision, and impacts from incidental hydrocarbon releases. Although offshore construction activities are unlikely to have the potential to injure and/or disturb marine wildlife, implementation of the measures discussed in this MWCP will further reduce the likelihood of impacts.

C.1.1 Regulatory Basis

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

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

The USFWS also administers the Federal Migratory Bird Treaty Act (MBTA) of 1918 (16 USC 703-711). The focus of the MBTA was the “Establishment of a federal prohibition, unless permitted by regulations, to pursue, hunt, take, capture, kill, attempt to take, capture or kill, possess, offer for sale, sell, offer to purchase, purchase, deliver for shipment, ship, cause to be shipped, deliver for transportation, transport, cause to be transported, carry or cause to be carried by any means whatever, receive for shipment, transportation or carriage, or export, at any time, or in any manner, any migratory bird, included in the terms of this Convention for the protection of migratory birds, or any part, nest or egg of any such bird.” Implementing regulations in 50 CFR 10 list the migratory birds covered under the MBTA and the MBTA prevents the removal or harassment of active nests of migratory bird species that may result in the loss of eggs or nestlings.

C.2 MARINE WILDLIFE

The marine wildlife population off California includes four species of sea turtles, eight baleen whale species; more than a dozen species of porpoises, dolphins, and other toothed whales; six species of pinnipeds; and the southern sea otter. Some species are migrants, passing through the central and southern California waters on their way to calving or feeding

ground outside of the region, and some are seasonal visitors that remain in the area for a few weeks or months. Still others could be expected to be seen during much or all of the year and could be considered residents. At certain times of the year, hundreds of thousands of marine mammals and reptiles may be present along the coast of central and southern California (Bonnell and Dailey, 1993).

Based on abundance and zoogeographic distribution information, the marine wildlife most likely to be encountered by the Project vessels during the replacement pipeline installation includes common, Pacific white-sided, and coastal bottlenose dolphins; California sea lion, harbor seal, California gray whale, and marine birds. In addition, there is a possibility that the other five baleen whales listed in Tables C.2-1 and C.2-2 could be present within the Project area.

The animals shown in Table C.2-1 are marine mammals and reptiles that are known to occur in the marine waters of California. Table C.2-2 provides information on the seasonal variations in the marine wildlife community within the project region. Additional details on the biology of those animals as well as marine birds are provided below.

Table C.2-1. Abundance Estimates for Marine Mammals and Reptiles of California

Common Name Scientific Name	Minimum Population Estimate	Current Population Trend
REPTILES		
Cryptodira		
Pacific olive ridley turtle <i>Lepidochelys olivacea</i>	Pacific olive ridley turtle <i>Lepidochelys olivacea</i>	Pacific olive ridley turtle <i>Lepidochelys olivacea</i>
Green turtle <i>Chelonia mydas</i>	Green turtle <i>Chelonia mydas</i>	Green turtle <i>Chelonia mydas</i>
Loggerhead turtle <i>Caretta caretta</i>	Loggerhead turtle <i>Caretta caretta</i>	Loggerhead turtle <i>Caretta caretta</i>
Leatherback turtle <i>Dermodochelys coriacea</i>	Leatherback turtle <i>Dermodochelys coriacea</i>	Leatherback turtle <i>Dermodochelys coriacea</i>
MAMMALS		
Mysticeti		
California gray whale <i>Eshchrichtius robustus</i>	18,017	Fluctuating annually
Fin whale <i>Balaenoptera physalus</i>	2,624	Increasing off California
Humpback whale <i>Megaptera novaeangliae</i>	1,878	Increasing
Blue whale <i>Balaenoptera musculus</i>	2,046 (U.S. west coast)	Unable to determine
Minke whale <i>Balaenoptera acutorostrata</i>	202	No long-term trends suggested
Northern right whale <i>Eubalaena japonica</i>	17 (based on photo-identification)	No long-term trends suggested
Sei whale <i>Balaenoptera borealis</i>	83	No long-term trends suggested
Odontoceti		
Short-beaked common dolphin <i>Delphinus delphis</i>	343,990	Unable to determine
Dall's porpoise <i>Phocoenoides dalli</i>	32,106	Unable to determine

Common Name <i>Scientific Name</i>	Minimum Population Estimate	Current Population Trend
Pacific white-sided dolphin <i>Lagenorhynchus obliquidens</i>	21,406	No long-term trends suggested
Risso's dolphin <i>Grampus griseus</i>	4,913	No long-term trends suggested
Northern right whale dolphin <i>Lissodelphis borealis</i>	6,019	No long-term trends suggested
Long-beaked common dolphin <i>Delphinus capensis</i>	17,127	Unable to determine
Bottlenose dolphin <i>Tursiops truncatus</i>	684 (290 in Coastal California population)	No long-term trends suggested
Sperm whale <i>Physeter macrocephalus</i>	751	No long-term trends suggested
Short-finned pilot whale <i>Globicephala macrorhynchus</i>	465	No long-term trends suggested
Killer whale (<i>Orcinus orca</i>)	85 (eastern North Pacific southern resident stock) 354 (eastern North Pacific offshore stock)	Declining No long-term trends suggested
Pinnipedia		
California sea lion <i>Zalophus californianus californianus</i>	141,842	Unable to determine; increasing in most recent three year period
Northern elephant seal <i>Mirounga angustirostris</i>	74,913	Increasing
Pacific harbor seal <i>Phoca vitulina richardsi</i>	31,600 (California population)	Stable
Northern fur seal <i>Callorhinus ursinus</i>	5,395 (San Miguel Island stock)	Increasing
Guadalupe fur seal <i>Arctocephalus townsendi</i>	3,028 (Mexico stock) Undetermined in California	Increasing
Southern sea otter <i>Enhydra lutris nereis</i>	2,711*	Unable to determine
Northern (Steller) sea lion <i>Eumetopias jubatus</i>	2,479 (California population)	Decreasing

Estimates provided by National Marine Fisheries Service (NMFS) (2009)

* Estimate provided by USGS (2010)

** Estimates provided by NMFS (2004, Marquez, et al. (2002), Eguchi et al. (2007), Benson et al. (2007), and NMFS (2009, 2010, and 2011). Estimates are based on number of current numbers of nesting females.

Table C.2-2. Marine Wildlife Species and Periods of Occurrence

Species	Month of Occurrence											
	J	F	M	A	M	J	J	A	S	O	N	D
REPTILES												
Cryptodira												
Pacific ridley sea turtle (E/T) ⁽⁸⁾												
Green sea turtle (E/T) ⁽⁸⁾												
Loggerhead sea turtle (T) ⁽⁸⁾												
Leatherback sea turtle (E) ⁽⁸⁾												
MAMMALS												
Mysticeti												
California gray whale												
Blue whale (E)												
Fin whale (E)												
Humpback whale (E)												
Minke whale												
Northern right whale (E)												
Odontoceti												
Short-beaked common dolphin ⁽²⁾												
Dall's porpoise ⁽²⁾												
Long-beaked common dolphin ⁽²⁾												
Pacific white-sided dolphin ⁽³⁾												
Risso's dolphin												
Sperm whale												
Short-finned pilot whale												
Bottlenose dolphin												
Northern right whale dolphin												
Pinnipedia												
Northern fur seal ⁽⁴⁾												
California sea lion												
Northern elephant seal ⁽⁵⁾												
Northern (Steller) sea lion (T) ⁽⁶⁾												
Pacific harbor seal												
Guadalupe fur seal (T) ⁽⁶⁾												
Fissipedia												
Southern sea otter (T) ⁽⁷⁾												
Relatively uniform distribution												
Not expected to occur												
More likely to occur due to seasonal distribution												

(E) Federally listed endangered species.

(R) Rare species.

(T) Federally listed Threatened species.

(1) Where seasonal differences occur, individuals may also be found in the "off" season. Also, depending on the species, the numbers of abundant animals present in their "off" season may be greater than the numbers of less common animals in their "on" season.

(2) Winter-Spring distribution is mostly south of Pt. Conception.

(3) Spring-Summer distribution is mostly south of Pt. Conception.

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

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

(6) Now very rare in area.

(7) Only nearshore (diving limit 100 feet [30 m]). Only small numbers south of Pt. Conception.

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

Sources: Bonnell and Dailey (1993), NOAA (2003).

Dolphins can usually be identified from a distance due to the surface disturbance created as they travel through the water. Dolphins generally tolerate or even approach vessels and reactions to boats often appear to be related to the dolphins' activity. Resting and foraging dolphins tend to avoid boats while socializing dolphins will often "run" with a boat leaping from the water, or riding the bow or stern waves. In the event that dolphins are found to be riding the boat waves or frolicking near the vessel, the vessel would slow down and keep a steady course until the dolphins lose interest.

Very little information describing pinnipeds responses to vessels is available; however sea lions in the water often tolerate close and frequent approaches by vessels, especially around fishing vessels. The California sea lion is the only pinniped off the California coast that regularly uses man-made structures such as docks, buoys, oil and gas structures and even slow moving vessels onto which they haul-out. It has been determined that sea lions hauled-out on land are more responsive and react when boats approach within 100 to 200 m (330 to 660 ft) (Bartholomew, 1967).

Harbor seals often move into the water in response to approaching boats. Even small boats that approach within 100 m (330 ft) displace harbor seals from haul out areas; and less severe disturbances can cause alert reactions without departure. Based on behavioral patterns with pinnipeds, implementation of avoidance and minimization measures, and the presence of marine wildlife monitors (as previously discussed) a collision at sea with pinnipeds is not likely. However, in the unlikely event that a sea lion, harbor seal, or other pinniped species is hauled-out in an area where harm may come to the animal, the NOAA Fisheries (Long Beach office) will be consulted for guidance on how to encourage the animal to move from the hazard area without harassment.

C.2.1 Wildlife Descriptions

MAMMALS

Cetaceans (Whales, dolphins, and porpoises)

Cetaceans consist of two suborders; the Odontoceti and the Mysticeti. Odontocetes are toothed whales which include the sperm whale (*Physeter macrocephalus*), dolphins, porpoises, and lesser known species such as the beaked whales. Mysticetes consist of large baleen whales which feed by filtering their food through long, fringed plates.

Cetaceans are transient marine mammals, and several species move through the southern California waters regularly. However, due to known abundance and migratory behaviors, not all cetacean species are expected to occur within the vicinity of the project site. In nearshore waters the most common cetaceans to occur are the common dolphin (*Delphinus delphis*), the Pacific white-sided dolphin (*Lagenorhynchus obliquidens*), bottlenose dolphin (*Tursiops truncatus*), and the California gray whale (*Eshrichtius robustus*). The most common species which occur in offshore environments include: fin whale (*Balaenoptera physalus*), blue whale (*Balaenoptera musculus*), and humpback whale (*Megaptera novaeangliae*). A list of cetaceans that could potentially occur within the project area is provided in Table F.2-1.

The following cetaceans were excluded from further discussion because they are infrequently observed in the project area and/or known to have low populations within the region. As such, these species have been omitted from Table F.2-1 and F.2-2 because it is unlikely that these species would be encountered during project operations:

- Sei whale (E) (*Balaenoptera borealis*)
- Killer whale (R) (*Orcinus orca*)
- Bryde's whale (*Balaenoptera edeni*)
- Harbor porpoise (*Phocoena phocoena*)
- Cuvier's beaked whale (*Ziphius cavirostris*)
- Baird's beaked whale (*Berardius bairdii*)
- Pygmy sperm whale (*Kogia breviceps*)
- Striped dolphin (*Stenella coeruleoalba*)

Mysteceti. Three families of mysticetes, or baleen whales, occur in central California waters. Species include the gray whale, the northern right whale, and members of the rorquals family (*Balaenopteridae*). Rorquals are characterized as having pleated throats that expand to take in water, which is then strained outward through the baleen. Rorqual species include: blue whale, fin whale, humpback whale, and minke whales.

Although individual species' patterns vary, baleen whales range widely in the North Pacific, migrating between coldwater summer feeding grounds in the north and winter calving grounds in the south (Bonnell and Dailey, 1993). The mating season generally begins during the southbound migration and lasts through winter. Most baleen whales feed low on the food chain, eating a variety of swarming, shrimp-like invertebrates (Bonnell and Dailey, 1993). Some species also take small schooling fishes and squid. Larger rorquals, such as the blue whale, appear to feed mainly on large crustaceans, while the diets of smaller baleen whales tend to include more fish.

Due to the nearshore nature of the proposed project, several species of the mysticetes which occur offshore southern California have the potential to occur within the project site, or to be encountered by vessels traveling to the project site. The species with the highest potential to be encountered during project activities are included in the following paragraphs; those with an asterisk next to the name are not expected to be common during the construction period:

Gray whale. The gray whale population breeds and calves in lagoons along the west coast of Baja California and in the Gulf of California in the winter (Rice and Wolman, 1971). At the end of the season, the population begins an 8,000-km coastal migration to summer feeding grounds to the north. Migrating gray whales generally travel within 3 km of the shoreline over most of the route, unless crossing mouths of rivers and straits (Dohl et al., 1983).

The most recent population estimates of eastern North Pacific gray whale indicated that approximately 18,017 individuals are known to occur (NOAA Fisheries, 2011). The gray whale population growth rate was about 3.3 percent per year between 1968 and 1988 (NOAA, 1993),

and following three years of review, was removed from the endangered species list on June 15, 1994.

The population decline is based on a theory that the gray whale stock is reaching carrying capacity (estimated at 20,000 - 28,000 individuals) and, consequently, that prey is dwindling, or that prey is dwindling because of a general warming trend in the ocean (NMFS, 2009). It is important to note that NMFS scientists expect populations at carrying capacity to fluctuate as environmental conditions change and believe that recent population changes appear to be within a normal variation range and do not expect the potential population decline to be a continuing trend (NMFS, 2008a).

*Blue whale**. The blue whale is considered a federally listed endangered species, due to intensive historical commercial whaling. Blue whales are distributed worldwide in circumpolar and temperate waters and inhabit both coastal and pelagic environments (Leatherwood et al., 1982; Reeves et al., 1998a). Like most baleen whales, they migrate between warmer waters used for breeding and calving in winter and high-latitude feeding grounds where food is plentiful in the summer. The most recent estimates of blue whale indicate that at a minimum of 2,046 individuals are known to occur off the U.S. west coast (NOAA Fisheries, 2011).

*Fin whale**. The fin whale is considered a federally endangered species, due to a severe worldwide population decline due to intensive commercial whaling. The most recent estimates of the fin whale population indicate that at least 2,624 individuals are known to occur off California, Oregon, and Washington (NOAA Fisheries, 2011). There is some evidence that recent increases in fin whale abundance have occurred in California waters (Barlow, 1994; Barlow and Gerodette 1996, NOAA 2005), but these have not been significant (Barlow et al., 1997).

*Humpback whale**. The humpback whale is considered an endangered species, due to intensive historical commercial whaling. Humpbacks are distributed worldwide and undertake extensive migration in parts of their range (Leatherwood et al., 1982; NMFS, 1991a). The population in the project area is referred to as the eastern Northern stock, which spends the winter/spring months in coastal Central America and Mexico for breeding and calving and migrates to the coast of California to southern British Columbia in summer/fall to feed (NMFS, 2008a). During migration, humpback whales are known to occur within the vicinity of the Channel Islands. Migrants passing through central California appear to follow a more inshore path than blue, or fin whales (Bonnell and Dailey, 1993). The most recent population estimates of humpback whale indicate that at least 1,878 individuals are known to occur off California, Oregon, and Washington (NOAA Fisheries, 2011). This population estimate is anticipated to be increasing (NOAA Fisheries, 2011).

Minke whale. Minke whales are a coastal species which are widely distributed on the continental shelf throughout the eastern North Pacific (Green et al., 1989) and occur year-round off the coast of California. This species favor shallow water and venture near shore more often than other baleen whales (Watson, 1981), and they seem to be curious about shipping and approach moving vessels. Southern California waters appear to be relatively central to the North

Pacific distribution of minke whales (Bonnell and Dailey, 1993). The most recent estimates of minke whales indicate that at least 202 individuals are known to occur off California, Oregon, and Washington and no long-term trend for the population has been identified at this time (NOAA Fisheries, 2011).

*Northern right whale**. The northern right whale is considered federally endangered, due to intensive historical commercial whaling. Like other baleen whales, right whales appear to migrate from high-latitude feeding grounds toward more temperate waters in the fall and winter, although the location of seasonal migration routes is unknown (Scarff, 1986). Reeves and Brownell (1982) concluded that the usual wintering ground of northern right whales extended from northern California to Washington, although sightings have been recorded as far south as Baja California and near the Hawaiian Islands (Scarff, 1986; NMFS, 1991b; Gendron et al., 1999). Estimates of the regional population are not available, however in 2002 two of the 13 individuals observed between 1999 and 2001 were “re-observed” (NMFS, 2008a). Photographic recapture rate population estimates for this species remain low, with only 17 individuals being photographed (NOAA Fisheries, 2011). No long-term population trends have been determined at this time (NOAA Fisheries, 2011).

Odontoceti. Odontocetes, or toothed whales, which are commonly found in the central California waters include: the sperm whale, several species of dolphins, porpoises, and small whales, and at least six species of beaked whale. With the exception of killer whales, which are the top predators in the ocean and feed on a wide variety of fishes, squid, pinnipeds, and cetaceans, odontocetes generally feed on schooling fishes and squid (Bonnell and Dailey, 1993). Major fish prey species include anchovy, mackerel, lanternfish, smelt, herring, and rockfishes. Octopus and crustaceans are also eaten on occasion.

Due to the nearshore nature of the proposed project, several of the odontocetes that exist within southern California waters have the potential to occur within the project site, or to be encountered by vessels traveling to the project site. The species with the highest potential to be encountered during project activities are discussed in the following paragraphs; those with an asterisk next to the name are not expected during the construction period.

Common Dolphins. Common dolphins are found worldwide and are the most abundant cetaceans in California waters (Bonnell and Dailey, 1993). Common dolphins account for 57 to 84 percent of the total seasonal cetacean population in the SCB (Dohl et al., 1981). Two recognized species of common dolphin are found in central and southern California waters. The long-beaked common dolphin (*Delphinus capensis*) is commonly found within about 55 mi (90 km) from the coastline. Its relative abundance changes both seasonally and inter-annually, with the highest densities observed during warm water events (Heyning and Perrin, 1994). A recent population estimate for this species is about 17,127 (NOAA Fisheries, 2011). The more numerous short-beaked common dolphin (*D. delphis*) ranges from the coast to 340 mi (550 km) offshore. The most recent estimates indicate the California-Washington population of this species to be 343,990 individuals making it the most abundant cetacean off California (NOAA Fisheries, 2011). California common dolphins are very gregarious and are frequently

encountered in herds of 1,000 or more. Because populations tend to vary with water temperature, no long-term population trends have been determined at this time (NMFS, 2005).

Dall's porpoise. Dall's porpoises (*Phocoenoides dalli*) one of the most abundant small cetaceans in the North Pacific and are found in shelf, slope, and offshore waters throughout their range (Koski et al., 1998). Dall's porpoise are common off southern California in the winter and probably range south into Mexican waters during coldwater periods (Leatherwood et al., 1982; Bonnell and Daily, 1993). The most recent population estimates indicate that at least 32,106 individuals are known to occur off California, Oregon, and Washington (NOAA Fisheries, 2011).

Pacific coast white-sided dolphin. Pacific coast white-sided dolphins (*Lagenorhynchus obliquidens*) primarily range along the coasts of California, Oregon and Washington. This species frequents deep water foraging areas, but may move into nearshore areas in search of prey. Analysis of sighting patterns suggest that Pacific coast white-sided dolphins make north-south movements, occurring primarily off California in cold water months and moving northward to Oregon and Washington as waters warm in the late spring in summer (Leatherwood et al., 1994; Forney et al., 2000). Pacific coast white-sided dolphin populations are not showing any long-term trend in terms of abundance, but have a current minimum population size of 21,406 off California, Oregon, and Washington (NOAA Fisheries, 2011).

Risso's dolphin. Risso's dolphins (*Grampus griseus*) are present off central and southern California year-round (Dohl et al., 1981, 1983; Bonnell and Dailey, 1993). Risso's dolphins are found off California during the colder water months and are extending their range northward as water temperatures increase (Leatherwood et al., 1980, 1982). Through the summer and autumn months, Risso's dolphins in the SCB are distributed inshore of the Santa Rosa-Cortes Ridge. Through winter and spring, the population shifts offshore except in the vicinity of the northern chain of Channel Islands. The most recent population estimates of Risso's dolphin indicate that at least 4,913 individuals are known to occur off California, Oregon, and Washington (NOAA Fisheries, 2011). No long-term population trends have been determined, at this time.

Short finned pilot whale.* The short finned pilot whale (*Globicephala macrorhynchus*) is a relatively more southern or warm water species. Pilot whales were common off southern California until the early 1980's (Dohl et al., 1983), but disappeared from area waters following the 1982-83 El Nino (Bonnell and Dailey, 1993; Forney et al., 2000). Recently, pilot whales have begun reappearing in California waters, possibly in response to long-term changes in oceanographic conditions, but sightings are still rare (Forney et al., 2000). The most recent estimates indicate that at least 123 individuals are known to occur off California, Oregon, and Washington (NMFS, 2009). No long-term population trends have been determined, at this time.

Bottlenose dolphin. The bottlenose dolphin is probably more widely distributed than any other species of small cetacean in the eastern North Pacific (Leatherwood et al., 1982). This species occurring off the coast of California has been tentatively separated into a coastal form and offshore form. The coastal bottlenose dolphin is generally found within 1 km (0.6 mi) of

shore and often enters the surf zone, bays, inlets and river mouths (Leatherwood et al., 1987). The California coastal population is estimated at 290 and appears to form small resident groups that range along the coastline, especially off Orange and San Diego counties (Weller and Defran, 1989; NMFS, 2009).

Offshore bottlenose dolphins are believed to have a more-or-less continuous distribution off the coast of California (Mangels and Gerrodette, 1994). The current minimal population of bottlenose dolphins is estimate at a minimum population size of 684 individuals off California, Oregon, and Washington (NOAA Fisheries, 2011). No long-term population trends have been determined at this time (NMFS, 2009).

*Northern right whale dolphin**. The northern right whale dolphins (*Lissodelphis borealis*) are endemic to temperate waters of the North Pacific, where they range from the Mexican border to British Columbia (Leatherwood and Walker, 1979; Leatherwood et al., 1982). They are primarily found over the shelf and slope in U.S. coastal waters and are known to make seasonal north-south movements (Forney et al., 2000). Off the coast of California, they are rarely sighted south of Point Conception in the summer. In winter, they are primarily distributed from central California south (Bonnell and Dailey, 1993; Koski et al., 1998). The most recent population estimates indicate that at least 6,019 individuals are known to occur off California, Oregon, and Washington (NOAA Fisheries, 2011). No long-term population trends have been determined, at this time (NMFS, 2008a).

*Sperm whale**. The sperm whale (*Physeter macrocephalus*) is considered a federally endangered species, due to historically intensive commercial whaling. The sperm whale is the largest of the toothed whales and is found predominately in temperate to tropical waters in both hemispheres. Off California, sperm whales are present in offshore waters year-round, with peak abundance from April to mid-June and again from late August through November (Dohl et al., 1981, 1983; Barlow et al., 1997). Sperm whales are primarily pelagic species and are generally found in waters with depths of greater than 1,000 m (3,300 ft) (Watkins, 1977), although their distribution does suggest a preference for continental shelf margins and seamounts, areas of upwelling and high productivity (Leatherwood and Reeves, 1986). The majority of sightings by Dohl et al. (1983) in their three-year study off central and northern California were in waters deeper than 1,800 m (5,900 ft), but near the continental shelf edge. The most recent estimates indicate that at least 751 individuals are known to occur off California, Oregon, and Washington (NOAA Fisheries, 2011). No long-term population trends have been determined at this time (NMFS, 2009).

PINNIPEDS (SEALS AND SEA LIONS)

Six of the 36 species of pinnipeds known worldwide occur off the southern California coast. Four are eared seals (family Otariidae) and two are earless seals (family Phocidae). The species most likely to be encountered within the vicinity of the Project site include the California sea lion (*Zalophus californianus*), northern fur seal (*Callorhinus uranius*), northern elephant seal (*Mirounga angustirostis*), and the Pacific harbor seal (*Phoca vitulina richardsi*) (Bonnell et al., 1980).

Otariidae. The species of Otariidae (eared seals) that may occur central California waters are: northern fur seal (*Callorhinus ursinus*), Steller sea lion (*Eumetopias jubatus*), and California sea lion, although the most common within the project area is the California sea lion.

California sea lion. The California sea lion is the most abundant pinniped in California, representing 50 to 93 percent of all pinnipeds on land and about 95 percent of all sightings at sea (Bonnell et al., 1981; Bonnell and Ford, 1987). This species ranges from Baja to British Columbia. The most recent population estimates for the California sea lion United States stock indicate that at least 141,842 individuals are known to occur in California (NMFS, 2009). This number is believed to be increasing despite recent drops in pups due to El Nino events occurring in the late 1990's (NMFS, 2000).

Northern fur seal. The northern fur seal (*Callorhinus ursinus*) is the most abundant otarid in the Northern Hemisphere. Most of the population is associated with rookery islands in the Bering Sea and the Sea of Okhotsk although a small population of northern fur seals has existed on San Miguel Island since the late 1950s or early 1960s (NMFS, 2003). A small percentage of the fur seal population from the Bering Sea arrive offshore California in late November (Bonnell and Dailey, 1993). Most of these animals are gone by early June (Bonnell and Dailey, 1993; Koski et al., 1998). Generally, individuals have been observed over the Santa Rosa-Cortes Ridge, the San Nicolas Basin, and the Tanner and Cortes banks (Bonnell and Dailey, 1993). The most recent population estimates for the San Miguel Island stock indicate that at least 5,395 individuals are known to occur (NOAA Fisheries, 2011). No long-term population trends have been determined at this time (NMFS, 2011).

Steller sea lion. The Steller or northern sea lion (*Eumetopias jubatus*) is considered a federally threatened species. Historically, this species was the most abundant pinnipeds in the SCB. Numbers have declined precipitously in the last several decades, but the causes of the decline are not well understood (Bartholomew, 1967; Le Boeuf and Bonnell, 1980). The SCB is the southern extreme of the historical breeding range of the species, 96 percent of the world population is found in Alaska or Siberian waters (Loughlin et al., 1980). The most recent population estimate for the Steller sea lion indicate that at least 2,479 individuals were observed in California (NOAA Fisheries, 2010). This population is stable or slightly increasing (NOAA Fisheries, 2010).

Phocidae. Two species of Phocidae (earless seals) that are known to occur within the central California coast include the northern elephant seal, and Pacific harbor seal.

Northern elephant seal. Northern elephant seals breed along the coast from Baja California north to Point Reyes. San Miguel and San Nicolas islands are the major California rookery islands (85 percent of 1990 production); a few are also born on Santa Rosa, Santa Barbara, and San Clemente islands (Bonnell and Dailey, 1993). Northern elephant seals typically haul-out on land only to breed and molt and then disperse widely at sea. The most recent population estimates for the California breeding stock of Northern elephant seals indicated that at least 74,913 individuals are known to occur in California and the stock appears to be increasing (NMFS, 2009).

Pacific harbor seal. Pacific harbor seals range from Mexico to the Aleutian Islands. The North Pacific population is centered in Alaska. In the SCB, 71 percent of all harbor seals seen at sea have been within 10 km (6 mi) of land; greatest numbers were seen during autumn months, following the breeding and molting seasons (Bonnell et al., 1981). Unlike most pinnipeds occurring off California, the Pacific harbor seals maintain haul-out sites on the mainland on which they pup and breed. The most recent minimum population estimates of the California stock indicate that at least 31,600 individuals are known to occur (NMFS, 2009). After increases in the 1990s, this population is believed to be stable and possibly reaching its carrying capacity (NMFS, 2009).

Fissipedia. One species of Fissipedia is known to occur within the central California coast, the Southern sea otter.

Southern sea otter. Historically the range of sea otters extended from the northern islands of the Japanese Archipelago northeast along Alaska and southward along North America to Baja California (Dailey et al., 1993). The sea otter was nearly extirpated by the fur trade during the 18th and 19th centuries. The current range is restricted to the waters off the coasts of Alaska and California. Currently, the sea otter is expanding its range southward along the coast, including a recent expansion south of Point Conception into the Santa Barbara area. This species prefers rocky shoreline with water depth of less than 20 m (65 ft), which support kelp beds where they feed on benthic macroinvertebrates including clams, crabs, abalone, sea urchins, and sea stars. Recent minimum population estimates for southern sea otters in California indicate that at least 2,711 individuals are known to occur and no long term trends in this population are available (USGS, 2010).

REPTILES

Cryptodira (Turtles)

Several species of sea turtles occur within waters off the central California coast, however four species are most likely to occur within the project waters: Pacific Ridley sea turtle (*Lepidochelys olivacea*), leatherback sea turtle (*Dermochelys coriacea*), green sea turtle (*Chelonia mydas*), and the loggerhead sea turtle (*Caretta caretta*). Overall, populations of marine turtles have been greatly reduced due to over-harvesting and loss of nesting sites in coastal areas (Ross, 1982). Of the four species, three (Pacific Ridley, leatherback, and green) are listed as endangered, and one (loggerhead) is listed as threatened under the FESA.

In the eastern Pacific, most of the turtles nest along the coasts of Mexico and Central America. The nesting season or cycle varies greatly between species, but is generally from May to September. Sea turtles breed at sea; and the females return to their natal beaches to lay their eggs. Female turtles can nest several times in a season but at two to three-year intervals. The eggs, after being laid in the sand, hatch in about two months; and the young instinctively head for the sea (MFS Globenet Corp./WorldCom Network Services, 2000). General distribution and species specific information is provided in the following paragraphs.

Green sea turtle. Green sea turtles generally occur worldwide in waters with temperatures above 20° C (MFS Globenet Corp./WorldCom Network Services, 2000; NAWCWPNS Point Mugu Sea Range, 2000). Green sea turtles have been reported as far north as Redwood Creek in Humboldt County and off the coasts of Washington, Oregon, and British Columbia (Channel Islands National Marine Sanctuary, 2000; MFS Globenet Corp./WorldCom Network Services, 2000). The green sea turtle is thought to nest on the Pacific coasts of Mexico, Central America, South America, and the Galapagos Islands. There are no known nesting sites along the west coast of the U.S., and the only known nesting location in the continental U.S. is on the east coast of Florida (MFS Globenet Corp./WorldCom Network Services, 2000;). Green sea turtles are sighted year-round in marine waters off the southern California coast, with the highest concentrations occurring during July through September. Green sea turtles are omnivores, feeding primarily on algae and sea grasses (MFS Globenet Corp./WorldCom Network Services, 2000), but also eat fish and invertebrates (e.g., sardines, anchovies, jellies, mollusks, worms, etc.) (MFS Globenet Corp./WorldCom Network Services, 2000). Recent minimum population estimates for green sea turtles indicate that at least 3,319 individuals are known to occur in the eastern Pacific (NOAA NMFS and USFWS, 2007). This population is believed to be increasing (NOAA, 2008b).

Olive Ridley sea turtle. The olive Ridley sea turtle is distributed circumglobally and is regarded as the most abundant sea turtle in the world (Eguchi, 2007). Within the east Pacific, the normal range of Pacific Ridley sea turtles is from Southern California to Peru (NOAA, 2008b). However, they have been reported as far north as Washington, Oregon, and are a rare visitor to the California coast (MFS Globenet Corp./WorldCom Network Services, 2000). The olive Ridley sea turtle is omnivorous, feeding on fish, crabs, shellfish, jellyfish, sea grasses and algae (Channel Islands National Marine Sanctuary, 2000; MFS Globenet Corp./WorldCom Network Services, 2000), and may dive to considerable depths (260 to 980 feet). Major nesting beaches are located on the Pacific coasts of Mexico and Costa Rica (MFS Globenet Corp./WorldCom Network Services, 2000; Eguchi, 2007). The population on Pacific beaches in Mexico declined from an estimated 10 million adults in 1950 to less than 80,000 in 1983 due to excessive over-harvesting (Channel Islands National Marine Sanctuary, 2000; MFS Globenet Corp./WorldCom Network Services, 2000). Conservation measures, such as increased nesting beach protection and closure of the turtle fishery in 1990, have led to a dramatic increase in the once largest nesting population in the world. The number of olive Ridley nests has increased from 50,000 in 1988 to over 700,000 in 1994 to more than a million nests in 2000 (Márquez et al. 2002). The eastern tropical Pacific population is estimated at 1.39 million which is consistent with the dramatic increases of olive ridley nesting populations that have been reported (Eguchi, 2007).

Leatherback sea turtle. Leatherback sea turtles are the most common sea turtle off the west coast of the U.S. (NAWCWPNS Point Mugu Sea Range, 2000; Channel Islands National Marine Sanctuary, 2000). Leatherback sea turtles have been sighted as far north as Alaska and as far south as Chile (Channel Islands National Marine Sanctuary, 2000; MFS Globenet Corp./WorldCom Network Services, 2000; NAWCWPNS Point Mugu Sea Range, 2000). Their extensive latitudinal range is due to their ability to maintain warmer body temperatures in colder waters (MFS Globenet Corp./WorldCom Network Services, 2000). Off the U.S. west coast,

leatherback turtles are most abundant from July to September. It has been noticed that their appearance off the U.S. west coast is "two pronged" with sightings occurring in northern California, Oregon, Washington, and southern California, with few sighting occurring along the intermediate coastline. In southern California waters, leatherback turtles are most common during the months of July through September, and in years when water temperatures are above normal. In January, 2010, NOAA submitted a proposal to revise the current habitat for the leatherback sea turtle to include the coastal areas between Point Arenas to Point Vicente in California.

Leatherback sea turtles are omnivores, but feed principally on soft prey items such as jellyfish and planktonic chordates (e.g., salps) (Channel Islands National Marine Sanctuary, 2000; MFS Globenet Corp./WorldCom Network Services, 2000). Recent population estimates for the eastern Pacific leatherback sea turtles indicates that at least 178 individuals are known to occur off of California (Benson et. al., 2007). This population is believed to be decreasing worldwide, however nesting trends on U.S. beaches have been increasing in recent years (NOAA, 2008b).

Loggerhead sea turtle. Loggerhead sea turtles primarily occur in subtropical to temperate waters and are generally found over the continental shelf (MFS Globenet Corp./WorldCom Network Services, 2000). Loggerhead sea turtles are omnivorous and feed on a wide variety of marine life including shellfish, jellyfish, squid, sea urchins, fish, and algae (MFS Globenet Corp./WorldCom Network Services, 2000; Channel Islands National Marine Sanctuary, 2000).

The eastern Pacific population of loggerhead sea turtles breeds on beaches in Central and South America. Southern California is considered to be the northern limit of loggerhead sea turtle distribution (MFS Globenet Corp./WorldCom Network Services, 2000). However, loggerhead sea turtles have stranded on beaches as far north as Washington and Oregon (2000 Channel Islands National Marine Sanctuary, 2000; MFS Globenet Corp./WorldCom Network Services, 2000). In addition, in 1978, a loggerhead sea turtle was captured near Santa Cruz Island in southern California (MFS Globenet Corp./WorldCom Network Services, 2000). Loggerhead sea turtle abundance in southern California waters is higher in the winter during warm years than cold years. However, during the summer months (July through September) abundance is similar in warm and cold years. Recent minimum population estimates for loggerhead indicate that at least 1,000 individuals are known to occur and this population is believed to be stable (NOAA, 2004).

MARINE BIRDS

There is a large variety of marine bird species that inhabit or migrate through the Santa Barbara Channel. Common species include loons, grebes, shearwaters, petrels, cormorants, ducks, gulls, terns, and murrelets. Several bird species that have the potential to occur within the Project area have been afforded protected status by the State and/or federal governments due to declining populations and/or habitats.

BLM (1981) summarized the data on marine birds within this region as compiled by U.C. Santa Cruz (1978). Over 2.5 million seabirds may pass through or reside in the SCB at any one time. Based on aerial and ship surveys, average seabird densities in the open water areas near the Project area may be between 20 and 200 birds per square mile (MMS 1993, cited in USN 2000).

Information regarding abundance, seasonal distributions, and habitat usage for the birds that use this area are available from the Channel Islands National Marine Sanctuary draft Environmental Impact Study (EIS) (NOAA 2000). The seasonal distribution and abundance of coastal birds is summarized in Table C.2-3. An “x” in the table below indicates when the species could be observed within or near the Project site. A highlighted “x” indicates the season when the species is likely to occur at the highest abundance within or near the Project site (Aspen, 2008; Briggs et al. 1987; U.S. Navy, 2008; Mason et al. 2007, Mcgrath and Feenstra, 2007; Sibley, 2003).

Table C.2-3. Marine/Coastal Bird Species Seasonality and Abundance Within or Near the Project Area.

FAMILY Common Name	Scientific Name	Status ¹	Season				Activity		
			Winter	Spring	Summer	Fall	Wintering	Breeding	Migrant
ANATIDAE (Swans, Geese, and Ducks)									
Brant	<i>Branta bernicla</i>	M, CSC	x	x		x	x		x
Surf Scoter	<i>Melanitta perspicillata</i>	M	x	x		x	x		x
White-winged Scoter	<i>Melanitta fusca</i>	M	x	x		x	x		
Black Scoter	<i>Melanitta americana</i>	M	x	x		x	x		
Red-breasted Merganser	<i>Mergus serrator</i>	M	x	x		x	x		
GAVIIDAE (Loons)									
Red-throated Loon	<i>Gavia stellata</i>	M	x	x		x	x		x
Common Loon	<i>Gavia immer</i>	M	x	x		x	x		x
Pacific Loon	<i>Gavia pacifica</i>	M	x	x		x	x		x
PODICIPEDIDAE (Grebes)									
Horned Grebe	<i>Podiceps auritus</i>	M	x	x		x	x		x
Clark's/western Grebe	<i>Aechmophorus clarkii/occidentalis</i>	M	x	x	x	x	x		x
DIOMEDEIDAE (Albatrosses)									
Laysan Albatross	<i>Phoebastria immutabilis</i>	M	x	x					x
Black-footed Albatross	<i>Phoebastria nigripes</i>	M,BCC		x	x				x
Short-tailed Albatross	<i>Phoebastria albatrus</i>	M,FE	x			x			x
PROCELLARIIDAE (Shearwaters and Fulmars)									
Northern Fulmar	<i>Fulmarus glacialis</i>	M	x	x		x	x		
Cook's Petrel	<i>Pterodroma cookii</i>	M		x	x				x

FAMILY Common Name	Scientific Name	Status ¹	Season				Activity		
			Winter	Spring	Summer	Fall	Wintering	Breeding	Migrant
Pink-footed Shearwater	<i>Puffinus creatopus</i>	M,BCC	x	x	x	x	x		x
Flesh-footed Shearwater	<i>Puffinus carneipes</i>	M		x			x		x
Buller's Shearwater	<i>Puffinus bulleri</i>	M			x	x			x
Sooty Shearwater	<i>Puffinus griseus</i>	M		x	x	x			x
Short-tailed Shearwater	<i>Puffinus tenuirostris</i>	M	x				x	x	x
Black-vented Shearwater	<i>Puffinus opisthomelas</i>	M,BCC	x	x			x	x	
HYDROBATIDAE (Storm Petrels)									
Fork-tailed Storm-Petrel	<i>Oceanodroma furcata</i>	M,CSC	x	x			x	x	x
Leach's Storm-Petrel	<i>Oceanodroma leucorhoa</i>	M		x	x	x		x	
Ashy Storm-Petrel	<i>Oceanodroma homochroa</i>	M,CSC, BCC		x	x	x		x	
Black Storm-Petrel	<i>Oceanodroma melania</i>	M,CSC		x	x	x		x	
Least Storm-Petrel	<i>Oceanodroma microsoma</i>	M			x	x			x
PHAETHONTIDAE (Tropicbirds)									
Red-billed Tropicbird	<i>Phaethon aethereus</i>	M		x	x	x			x
FREGATIDAE (Frigatebirds)									
Magnificent Frigatebird	<i>Fregata magnificens</i>	M			x	x			x
SULIDAE (Boobies and Gannets)									
Brown Booby	<i>Sula leucogaster</i>	M			x	x			x
PHALACROCORACIDAE (Cormorants)									
Brandt's Cormorant	<i>Phalacrocorax penicillatus</i>	M	x	x	x	x	x	x	x
Double-crested Cormorant	<i>Phalacrocorax auritus</i>	M,TW	x	x	x	x	x	x	x
Pelagic Cormorant	<i>Phalacrocorax pelagicus</i>	M	x	x	x	x	x	x	x
PELECANIDAE (Pelicans)									
American White Pelican	<i>Pelecanus erythrorhynchos</i>	M,CSC		x			x	x	x
Brown Pelican	<i>Pelecanus occidentalis</i>	M,FDL, CP	x	x	x	x	x	x	x
SCOLOPACIDAE (Sandpipers and Relatives)									
Red-necked Phalarope	<i>Phalaropus lobatus</i>	M		x	x	x			x
Red Phalarope	<i>Phalaropus fulicarius</i>	M	x	x	x	x	x		x
LARIDAE (Gulls and Terns)									
Black-legged	<i>Rissa tridactyla</i>	M	x	x			x	x	x

FAMILY Common Name	Scientific Name	Status ¹	Season				Activity		
			Winter	Spring	Summer	Fall	Wintering	Breeding	Migrant
Kittiwake									
Sabine's Gull	<i>Xema sabini</i>	M		x	x	x			x
Bonaparte's Gull	<i>Chroicocephalus philadelphia</i>	M	x	x		x	x		x
Heermann's Gull	<i>Larus heermanni</i>	M	x		x	x	x		x
Mew Gull	<i>Larus canus</i>	M	x	x		x	x		x
Ring-billed Gull	<i>Larus delawarensis</i>	M	x	x	x	x	x		x
Western Gull	<i>Larus occidentalis</i>	M	x	x	x	x	x	x	
California Gull	<i>Larus californicus</i>	M,TW	x	x	x	x	x		x
Herring Gull	<i>Larus argentatus</i>	M	x	x		x	x		x
Thayer's Gull	<i>Larus thayeri</i>	M	x	x		x	x		x
Glaucous-winged Gull	<i>Larus glaucescens</i>	M	x	x		x	x		x
California Least Tern	<i>Sternula antillarum</i>	M,FP,FE,SE		x	x			x	
Caspian Tern	<i>Hydroprogne caspia</i>	M	x	x	x	x	x	x	x
Black Tern	<i>Chlidonias niger</i>	M, CSC		x	x	x			x
Common Tern	<i>Sterna hirundo</i>	M		x	x	x			x
Arctic Tern	<i>Sterna paradisaea</i>	M		x	x	x			x
Forster's Tern	<i>Sterna forsteri</i>	M	x	x	x	x	x	x	x
Royal Tern	<i>Thalasseus maximus</i>	M	x	x		x	x		x
Elegant Tern	<i>Thalasseus elegans</i>	M,TW,BCC		x	x	x		x	x
Black Skimmer	<i>Rynchops niger</i>	M,CSC,BCC	x	x	x	x	x		x
STERCORARIIDAE (Skuas and Jaegers)									
South Polar Skua	<i>Stercorarius maccormicki</i>	M		x	x	x			x
Pomarine Jaeger	<i>Stercorarius pomarinus</i>	M	x	x	x	x	x		x
Parasitic Jaeger	<i>Stercorarius parasiticus</i>	M	x	x		x	x		x
Long-tailed Jaeger	<i>Stercorarius longicaudus</i>	M		x	x	x			x
ALCIDAE (Auks, Murres, and Puffins)									
Common Murre	<i>Uria aalge</i>	M	x	x	x	x	x	x	x
Pigeon Guillemot	<i>Cephus columba</i>	M		x	x	x		x	
Marbled Murrelet	<i>Brachyramphus marmoratus</i>	M,SE,FT	x			x	x		
Xantus's Murrelet	<i>Synthliboramphus hypoleucus</i>	M,FC,ST,BCC	x	x	x			x	
Craveri's Murrelet	<i>Synthliboramphus craveri</i>	M			x	x			x
Cassin's Auklet	<i>Ptychoramphus aleuticus</i>	M,BCC,CSC	x	x	x	x	x	x	x

FAMILY Common Name	Scientific Name	Status ¹	Season				Activity		
			Winter	Spring	Summer	Fall	Wintering	Breeding	Migrant
Rhinoceros Auklet	<i>Cerorhinca monocerata</i>	M,TW	x	x	x	x	x	x	x
Tufted Puffin	<i>Fratercula cirrhata</i>	M,CSC		x	x			x	x
Status¹ M = Protected under the federal Migratory Bird Treaty Act (MBTA) FE = Federally Endangered FT = Federally Threatened FDL = Federally Delisted SE = California State Endangered ST = California State Threatened CSC = California Species of Special Concern FP = California Fully Protected Species BCC = USFWS Birds of Conservation Concern TW = California Designated Taxa to Watch									

The population fluctuates seasonally because the SCB is located along the Pacific flyway. Few species remain in the area throughout the year since most are non-breeding transients (U.C. Santa Cruz, 1978). Major areas on the northern Channel Islands and Santa Barbara Island provide breeding grounds for thirteen of California's breeding seabirds (NOAA, 1980). Because of the extensive mainland development, these breeding grounds are restricted to the islands (CDF&G, 1976).

Many of the migratory and local seabirds feed on or just below the surface of the water in the open ocean. Some birds use kelp beds extensively for feeding. The depths of water in the Unit area, however, preclude any development in kelp beds; therefore, the presence of exploratory activity will not affect that aspect of the seabird ecology. Similarly, breeding areas will not be affected due to the remoteness of the Unit from the breeding grounds (see Table C.2-4).

Table C.2-4 - Marine Avifauna and their Breeding Areas in the Southern California Bight

Bird Species	Island Breeding Site
Ashy Storm-petrel	San Miguel, Santa Cruz, Anacapa, Santa Barbara, Santa Catalina, San Clemente, and Coronado Islands
Leach's Storm-petrel	Prince, Sutil, Santa Barbara, Coronado, and San Miguel Islands
Black Storm-petrel	Santa Barbara, Sutil, San Clemente, Coronado Islands and possibly Prince Island
Brandt's Cormorant	San Miguel, Santa Rosa, Santa Cruz, Santa Barbara, San Nicolas, San Clemente, Coronado, and Anacapa Islands (and mainland)
Double-crested Cormorant	West Anacapa, San Miguel (Prince), Santa Barbara, and Coronado Islands
Pelagic Cormorant	San Miguel, Santa Rosa, Santa Barbara, Santa Cruz, Coronado, and Anacapa Islands (and mainland)
California Brown Pelican	West Anacapa, Santa Barbara, and Coronado Islands
Western Gull	San Miguel, Santa Rosa, San Nicolas, Santa Cruz, Santa Barbara, Santa Catalina, San Clemente, Coronado, and Anacapa Islands (and mainland)
California Least Tern	(Mainland only)
Caspian Tern	(Mainland only)
Pigeon Guillemot	Santa Barbara, San Miguel, Santa Rosa, Santa Cruz, and Anacapa Islands

Bird Species	Island Breeding Site
Xantus's Murrelet	Santa Barbara, Santa Catalina, San Clemente, San Miguel, Santa Cruz, Coronado, and Anacapa Islands
Cassin's Auklet	Santa Barbara, San Miguel, Anacapa (?), and Santa Cruz Islands
Rhinoceros Auklet	San Miguel Island
Tufted Puffin	Possibly Prince Island

Source: Dept of Navy, 2008; Mason et al. 2007; NOAA 2000

The following special-status marine bird species could be found within the vicinity of the proposed activities. For additional information on seasonality, please see Table C.2-3.

Black-footed Albatross. The Black-footed Albatross is designated as a “Bird of Conservation Concern” by USFWS. This albatross is the most abundant albatross along the eastern Pacific coast and occurs off California in all months of the year. It nests on the northern Hawaiian Islands, on the U.S. Minor Outlying Islands (Midway, Wake, etc.), and on three outlying islands of Japan, and can be seen on those breeding grounds in winter and spring. After breeding, individuals fly across the North Pacific to Alaska, California, Taiwan, and the Bering Sea. This species breeds on beaches and slopes with little or no vegetation. This albatross feeds mainly on squid and on the eggs of flying fish, although it often follows ships and trawlers, picking up debris left in their wake. According to Mason et al. (2007), the Black-footed Albatross has been observed in the months of May and September in southern California. Briggs et al. (1987) observed the black-footed albatross within 15 miles from shore near the Santa Rosa-Cortez Ridge and San Miguel Island in the months of May and June. The proposed Project is anticipated to take approximately 33 days (approximately 1 month) for pipeline replacement activities including subsea tie-in and pigging/hydrotesting to be completed. Construction is planned to commence sometime in the 4th quarter of 2011. The project site is closer to shore than typically observed and this species is unlikely to be in southern California at the time of project activities.

Short-tailed Albatross. The Short-tailed Albatross is a federally listed Endangered species. This species is a large pelagic bird with long narrow wings adapted for soaring just above the water surface. As of 2008, 80-85 Percent of the known breeding Short-tailed Albatross use a single colony, Tsubamezaki, on Torishima Island. The remaining population nests on other islands surrounding Japan. During the non-breeding season, the short-tailed albatross range along the Pacific Rim from southern Japan to northern California, primarily along continental shelf margins. Nests consist of a divot on the ground lined with sand and vegetation with eggs hatch in late December and January. The diet of this species is not well studied; however, research suggests at sea during the non-breeding season that squid, crustaceans, and fish are important prey (USFWS, 2008). This species is not expected to occur in the vicinity of the project site; however, it could occur in California during the non-breeding season of fall and early winter. The proposed Project is anticipated to take approximately 33 days (approximately 1 month) for pipeline replacement activities including subsea tie-in and pigging/hydrotesting to be completed. Construction is planned to commence sometime in the 4th quarter of 2011. Therefore, during the Project, although unlikely, dispersed individuals could be in the vicinity of the Project work sites.

Pink-footed Shearwater. The Pink-footed Shearwater is designated as a “Bird of Conservation Concern” by USFWS. The Pink-footed Shearwater is endemic to Chile, breeding on only three known islands. After chicks fledge (from approximately April to May), the parents migrate northward to spend the non-breeding season in waters off the coasts of Peru and North America, specifically southern California. This species feeds primarily on fish and squid in offshore waters over the continental shelf but also in pelagic waters. This shearwater catches its prey from short dives of less than 10 feet; however, it has the ability to dive up to 60 feet in depth (Pink-footed Shearwater, 2010). According to at-sea range maps from Mason et al. (2007), the Pink-footed Shearwater has been observed in southern California in the months of January, May, and September and, therefore, could occur in the vicinity of the project site during those months. However, this species was observed at the highest densities during the September survey periods, both near shore and at sea locations. The proposed Project is anticipated to take approximately 33 days (approximately 1 month) for pipeline replacement activities including subsea tie-in and pigging/hydrotesting to be completed. Construction is planned to commence sometime in the 4th quarter of 2011. Therefore, it appears that the construction window will occur when Pink-footed Shearwaters could be most abundant within the Project area.

Black-vented Shearwater. The Black-vented Shearwater is designated as a “Bird of Conservation Concern” by USFWS. This species is pelagic, occurring in the Pacific Ocean and the Gulf of California. The Black-vented Shearwater is nocturnal when visiting land. This species breeds on desert islands along the west coast of Baja California, Mexico. It will nest within burrows in sandy substrate or it will drop a single egg in natural rock crevices. This shearwater feeds by plunging from just above the sea surface or submerges from afloat and dives to depths of greater than 60 feet to catch schooling fish and squid. This species is considered a coastal bird, usually found within 12 miles from shore (Keitt et al., 2000). This species visits southern California during the non-breeding season. According to at-sea range maps from Mason et al. (2007), the black-vented shearwater has been observed in fall and winter months in the vicinity of the project site and in southern California. Post-breeding birds were most abundant in the months of November-January within 15 miles from shore. The proposed Project is anticipated to take approximately 33 days (approximately 1 month) for pipeline replacement activities including subsea tie-in and pigging/hydrotesting to be completed. Construction is planned to commence sometime in the 4th quarter of 2011. Therefore, Black-vented Shearwater may be present within the Project area during installation activities.

Fork-tailed Storm-petrel. The Fork-tailed Storm-petrel is designated as a California Species of Special Concern. In North America, it breeds on the Aleutian Islands and on islands along the coasts of British Columbia in Canada and the Pacific Northwest in the United States. During the breeding season, fork-tailed storm-petrels nest in colonies on small Pacific islets with enough soil to allow burrows to be dug. They excavate burrows in soil or use natural rock crevices, or they may use old burrows. Storm-petrels flutter low over offshore waves, sometimes in flocks, where they pluck food from the water's surface. Although this species is not strongly migratory, dispersal from breeding colonies peaks from late August to early September. Most remain in northern waters all year. The proposed Project is anticipated to take approximately 33 days (approximately 1 month) for pipeline replacement activities including

subsea tie-in and pigging/hydrotesting to be completed. Construction is planned to commence sometime in the 4th quarter of 2011. This species could be in the area of project site year-round; however, it is more likely to occur in the non-breeding season of late fall, winter and early spring (Shuford and Gardali, 2008).

Ashy Storm-petrel. The Ashy Storm-petrel is designated as a "California Species of Special Concern". The Ashy Storm-petrel is a small smoke-gray seabird with a forked tail that is only be found on the islands off California and in the adjacent waters of the continental slope. This species nest in cavities on offshore islands and move to and from their colonies at night. Ashy Storm-petrels do not travel significantly far from their colonies after breeding, and many birds remain offshore from their breeding grounds. However, many individuals can make short seasonal migrations. The breeding season for this species is spread out over most of the year (Shuford and Gardali, 2008). This species breeds on the California Channel Islands (except Santa Rosa and San Nicolas Islands). According to Mason et al. (2007), depending on the survey year and time of surveys, this species was found around most of the Channel Islands with the greatest abundance at Santa Catalina after October. Therefore, this species could occur within the project site year-round but has the highest potential of occurrence during the winter months. According to Briggs et al. (1987), this species was at the greatest abundance near San Miguel Island from April-June and occurred near San Clemente, Santa Catalina islands and the western Santa Barbara Channel after October. The proposed Project is anticipated to take approximately 33 days (approximately 1 month) for pipeline replacement activities including subsea tie-in and pigging/hydrotesting to be completed. Construction is planned to commence sometime in the 4th quarter of 2011. Therefore, as construction progresses from October into November the ashy storm-petrel will be gaining in abundance near the Project site.

Black Storm-petrel. The Black Storm-petrel is designated as a "California Species of Special Concern". This petrel is the largest California storm-petrel, and has a dark rump, pointed wings, and a notched tail. The Black Storm-petrel can be found the closest to shore of the storm-petrels. While at sea, this species feeds on squid, small fish, and crustaceans that occur near the surface. Black Storm-petrels arrive at their nesting colonies in mid April and breeding occurs from May through October (Shuford and Gardali, 2008). Black Storm-petrels nest in desert habitat on small rocky islands or the talus slopes of non-mountainous larger islands that are not large enough to sustain enough prey to satisfy predatory mammals year-round. Black Storm-petrels arrive at their nesting colonies in mid April and breeding occurs from May through October (Shuford and Gardali, 2008). In the SCB, storm-petrels breed on Santa Barbara, Sutil, and Coronado islands, and possibly on Prince Rock (approximately one km north of San Miguel Island) and San Clemente Island. According to range maps from Mason et al. (2007) it is rare in the vicinity of the project site; however, the Black Storm-petrel has been observed throughout the year offshore of southern California. This species was seen in equal abundance during May and September surveys but was virtually absent during January surveys (Mason et al., 2007). The proposed Project is anticipated to take approximately 33 days (approximately 1 month) for pipeline replacement activities including subsea tie-in and pigging/hydrotesting to be completed. Construction is planned to commence sometime in the

4th quarter of 2011. Therefore, construction will take place when the Black Storm-petrel is in low abundance on the Channel Islands northwest and southwest of the site.

Double-crested Cormorant. The Double-crested Cormorant is no longer a California Species of Special Concern; however, it is currently listed by California as Taxa to Watch. This species formerly bred on coastal cliffs and offshore islands along the coast from Marin County south to La Jolla, San Diego County, and in the interior in northeastern California, the Sacramento Valley, the San Joaquin Valley, and the Salton Sea. However, coastal breeding populations counted in 2008 were in decline from previous estimates in 2001-2003 (USGS, 2010). This species nests in colonies in nests built in trees and shrubs and on the ground of rocky cliffs and islands. Prey consists of fish and marine invertebrates from the water's surface. This species can be found in the Project region year-round. The proposed Project is anticipated to take approximately 33 days (approximately 1 month) for pipeline replacement activities including subsea tie-in and pigging/hydrotesting to be completed. Construction is planned to commence sometime in the 4th quarter of 2011. This species is expected to be present throughout the construction period.

California Brown Pelican. The California Brown Pelican was formerly listed as "federal Endangered", "California Endangered", and "California Fully-Protected", but has recently been taken off of the endangered species list due to recovered population numbers. This species forages within estuarine, subtidal, and pelagic waters and feeds almost entirely on fish that are caught by diving from a distance of 20 to 40 feet above the water surface. They are common along the Southern California Coast from June to October and can be regularly seen feeding within the offshore and nearshore portions of the project site. This species breeds on three of the Northern Channel Islands (Anacapa, Santa Barbara, and Santa Cruz) from March to early August, where it builds nests of sticks on the ground. Following the breeding season, individuals leave the breeding colonies and disperse along the California and Mexico coastlines, with some small numbers visiting the Salton Sea and Colorado River reservoirs (Zeiner, et al., 1990). The proposed Project is anticipated to take approximately 33 days (approximately 1 month) for pipeline replacement activities including subsea tie-in and pigging/hydrotesting to be completed. Construction is planned to commence sometime in the 4th quarter of 2011. During these months, populations of the California Brown Pelican will be present within the Project area at the start of activities with the number of individuals waning as winter progresses.

California Gull. The California Gull is no longer a California Species of Special Concern; however, it is currently listed by California as Taxa to Watch. This species is an abundant visitor to coastal and interior lowlands during the non-breeding season (mid-August to mid-April), and may be found in a variety of local habitats including: sandy beaches, mudflats, rocky intertidal, pelagic areas, fresh and saline emergent wetlands, lakes, rivers, cropland, landfills, and open lawns within urban areas. This omnivorous species feeds on garbage, carrion, earthworms, insects (adults and larvae), brine shrimp, and young birds. This species nests in colonies of alkali and freshwater lacustrine habitats east of the Sierra Nevada and Cascades ranges and also the San Francisco Bay Area (Zeiner et al., 1990). The proposed Project is anticipated to take approximately 33 days (approximately 1 month) for pipeline replacement activities including subsea tie-in and pigging/hydrotesting to be completed. Construction is

planned to commence sometime in the 4th quarter of 2011. Therefore, this species has the highest likelihood to occur during the wintering months when project activities will be taking place.

California Least Tern. The California Least Tern is a state and federally listed Endangered species that may occur from the San Francisco Bay southward to Baja California during the breeding seasons, but over winters in southern Mexico and Central America. It breeds primarily on sandy coastal beaches, estuary, lagoons, bays, and along freshwater lakes and ponds near the coast. It is primarily a colonial nester, but solitary nesting does occur. California Least Tern feed on small fish, crustaceans, and insects. They forage by hovering over nearshore, shallow waters and diving or dipping onto the surface of the water to catch prey. Fall migration begins the last week of July and first week of August (USFWS, 2006). The proposed Project is anticipated to take approximately 33 days (approximately 1 month) for pipeline replacement activities including subsea tie-in and pigging/hydrotesting to be completed. Construction is planned to commence sometime in the 4th quarter of 2011. Therefore, the construction window will occur outside of the breeding range for the California Least Tern in southern California. During the proposed construction window, this species will be present on its wintering grounds in Central and South America. This species is not expected to occur in the vicinity of the project site since project activities will occur offshore.

Black Tern The Black Tern is a California Species of Special Concern. The Black Tern was formerly a common spring and summer visitor to freshwater wetlands of California during breeding, but numbers have declined, particularly in the Central Valley. It is currently fairly common migrant and breeder on wetlands of the northeastern plateau area. It is also common at the Salton Sea, but evidence of nesting is lacking. Breeding is questionable in the Central Valley. Black terns are common on bays, salt ponds, river mouths, and pelagic waters in spring and fall migration (Zeiner, et al., 1990). This species is rare along the shoreline but can be seen migrating offshore in spring through fall. The proposed Project is anticipated to take approximately 33 days (approximately 1 month) for pipeline replacement activities including subsea tie-in and pigging/hydrotesting to be completed. Construction is planned to commence sometime in the 4th quarter of 2011. This species is a migrant to southern California waters and would only be passing through at the time of project activities.

Elegant Tern. The Elegant Tern is no longer a California Species of Special Concern; however, it is currently listed by California as Taxa to Watch. This species may be found at coastal areas from Humboldt County south to Baja California, Mexico. It congregates on beaches and tidal flats when not feeding, and forages primarily within shallow ocean waters beyond the surf zone. Primary prey consists of fish. This species was initially a rare and irregular post-nesting visitor to California, but numbers have been increasing since the 1950's, and large flocks can now be seen. Breeding primarily occurs in Mexico and in extreme southern California. During 1959, a colony was established at San Diego Bay and this colony has persisted, and may have facilitated the species' range extension into the central coast of California (Zeiner, et al., 1990). The proposed Project is anticipated to take approximately 33 days (approximately 1 month) for pipeline replacement activities including subsea tie-in and pigging/hydrotesting to be completed. Construction is planned to commence sometime in the

4th quarter of 2011. Due to the offshore nature of construction, it is not anticipated that elegant tern will be present in the Project area.

Black Skimmer The Black Skimmer is a California Species of Special Concern and a USFWS designated Bird of Conservation Concern. It is common migrate to the San Diego area and estuaries of southern California. This species also has previous breeding colonies in Orange County at Upper Newport Beach and Seal Beach. It has also successfully bred at Los Angeles Harbor and Batiquitos Lagoon in San Diego County. This species forages on small fish and crustaceans in calm shallow water. Colonial nesting is common but very infrequent in Northern and central California. This species is single brooded, usually laying 1-5 eggs. The proposed Project is anticipated to take approximately 33 days (approximately 1 month) for pipeline replacement activities including subsea tie-in and pigging/hydrotesting to be completed. Construction is planned to commence sometime in the 4th quarter of 2011. This species winters along the Coast of Santa Barbara County and may be present at the time of project activities.

Marbled Murrelet. The Marbled Murrelet is a federally listed Threatened species and a California listed Endangered species that occurs in Washington, Oregon, and California. It is a small sea bird that spends most of its life in the nearshore marine environment, but nests and roosts inland in low-elevation old growth forests, or other forests with remnant large trees. It is generally confined to the marine fog belt near the coast. Nesting generally occurs in the marine fog belt within 25 miles of the coast in coast redwood, Douglas fir, western red cedar, western hemlock, and Sitka spruce. The species nests from Washington to central California in the Monterey Bay area. This bird is rare in southern California and is only found in the non-breeding season (late fall, winter, and early spring) in Santa Barbara County (U.S. Navy, 2008). The Marbled Murrelet would only occur as a fall/winter migrant within or near the area of project site. The proposed Project is anticipated to take approximately 33 days (approximately 1 month) for pipeline replacement activities including subsea tie-in and pigging/hydrotesting to be completed. Construction is planned to commence sometime in the 4th quarter of 2011. Therefore, it appears the construction window will occur when the marbled Marbled Murrelet is could be in the Project area.

Xantus's Murrelet. The Xantus's Murrelet is listed as California state endangered and a candidate for listing as a federal Endangered species. This small black and white seabird nests on fewer than ten islands in southern California and Baja Mexico. The estimated remaining global population of 5,600 birds is concentrated during the breeding season in four major colonies, all in the Channel Islands and Baja California. The species typically nests in crevices, caves, under large rocks, on steep cliffs, and canyons of offshore islands. The nesting period extends from February through July, but may vary depending on food supplies (Audubon Watchlist, 2007). The proposed Project is anticipated to take approximately 33 days (approximately 1 month) for pipeline replacement activities including subsea tie-in and pigging/hydrotesting to be completed. Construction is planned to commence sometime in the 4th quarter of 2011. During these months, Xantus's Murrelet will likely be in low abundance or absent from the vicinity of the Project site.

Cassin's Auklet. Cassin's Auklet is designated as a California Species of Special Concern and Bird of Conservation Concern by USFWS. Cassin's Auklets are widely distributed in the Pacific Ocean, breeding from the Aleutian Islands, Alaska, to central Baja California, Mexico. When its prey (small crustaceans, squid, and fish) are abundant, these birds often gather in large flocks, using their short, stubby wings to "swim" after prey. The breeding season varies from late fall through winter in Baja California, but in early to mid-summer in Alaska. In May, birds were concentrated in northwest Santa Barbara Channel and north of Point Conception, reflecting a northward dispersal of SCB breeders (Adams et al., 2004). In September, most Cassin's Auklets were observed north of Point Conception. They were widely distributed across the SCB in January, primarily west of San Nicolas Island. According to at-sea range maps from Mason et al. (2007), Cassin's Auklets have been observed in the months of January, May, and September in the vicinity of the project site. The proposed Project is anticipated to take approximately 33 days (approximately 1 month) for pipeline replacement activities including subsea tie-in and pigging/hydrotesting to be completed. Construction is planned to commence sometime in the 4th quarter of 2011. Therefore, it appears construction will occur when the species is in lower abundance.

Rhinoceros Auklet. The Rhinoceros Auklet is currently listed by California as Taxa to Watch. This species breeds from the Aleutian Islands, Alaska to San Miguel Island (northern Channel Islands). The Rhinoceros Auklet has a bright orange-yellow bill with a whitish horn, which is a diagnostic feature of the species. They often feed close to shore, especially where tidal currents near islands create upwellings and concentrations of food. This species breeds in burrows within grass, shrubs or trees, as long as there is enough soil for the birds to burrow (Zeiner et al., 1990). This species can be present off the coast of southern/central California in ocean waters year-round; however, it was most abundance in the region of the Project in the non-breeding winter months. The proposed Project is anticipated to take approximately 33 days (approximately 1 month) for pipeline replacement activities including subsea tie-in and pigging/hydrotesting to be completed. Construction is planned to commence sometime in the 4th quarter of 2011. Therefore, construction will occur when the species is expected to be present within the project area.

Tufted Puffin. The Tufted Puffin is designated as a "California Species of Special Concern". Tufted Puffins can be found throughout the northern Pacific Ocean and they have recently re-colonized southern California where they had not nested since the early 1900s. The largest Tufted Puffin populations occur along the west coast of the Olympic Peninsula, Washington, but their status there is not well known. They nest in burrows at the edges of cliffs, on grassy slopes, or in natural crevices in rocks. Migratory patterns are not well known, but Tufted Puffins are less likely to be seen near shore in winter months than in the breeding season. They are probably the most pelagic of the alcids during their non-breeding season, with many birds wintering 60-120 miles offshore. This species was discovered breeding on Prince Island (northern Channel Islands) in 1991. This species could be in the area of the project site year-round; however, its at-sea abundance is more likely to occur in the breeding season of late spring and summer (Shuford and Gardali, 2008, Mason et al., 2007). The proposed Project is anticipated to take approximately 33 days (approximately 1 month) for pipeline replacement activities including subsea tie-in and pigging/hydrotesting to be completed. Construction is

planned to commence sometime in the 4th quarter of 2011. Therefore, it appears that construction will occur when tufted puffins are less likely to be in the vicinity of the Project site.

C.3 POTENTIAL IMPACTS

C.3.1 Noise Effects

Exposing marine wildlife to loud noises can result in a temporary or permanent reduction or elimination of hearing; known as a temporary or permanent threshold shift (Richardson et al., 1995). In addition to hearing loss, noise may affect communications, predatory responses, or cause behavioral changes in marine species. Although not regulated per se, NOAA has established guidelines for noise levels that could affect some marine wildlife. These guidelines are based on research regarding behavior changes as well as studies showing the ranges for which specific species notice frequency.

While some studies have shown behavioral changes in marine mammals occurring at a pressure level (SPL) of 160 dB re 1 μ Pa root mean squared (rms), NOAA generally requires mitigation within an area within which SPLs between of 180 dB and 190 dB (both re 1 μ Pa rms) are predicted. The 180 dB level is generally applicable within areas where cetaceans (whales and dolphins) are present, and the area within which a 190 dB level is expected applies to pinnipeds (seals and sea lions). Available scientific evidence suggests that harassment of these marine mammals could occur from SPLs at or above these levels and mitigations are developed on a case by case basis through consultation with the NOAA office within the region.

Noise sources associated with the proposed Project will include equipment such as winches, generators, engines, ROV equipment, jet pumps, etc. Noise associated with construction activities on the platforms will be temporary and localized and are not expected to interfere with sensitive status species above the water surface. Noise resulting from operation of construction equipment below surface will be short-term in duration and is not considered a high noise producing activity. Below surface Project activities will require some increase in underwater noise levels, however it is anticipated that these temporary increases would not result in SPLs between 180 dB and 190 dB (1 μ Pa rms) or greater.

In addition to equipment and the DP Vessel "Intrepid", vessel traffic from the M/V Danny C, support vessel Alan T, and crew boat Ryan T will increase noise levels during Project activities. U.S. Coast Guard (2006) presented the results of underwater noise levels generated by a dynamically positioned pipelaying and other construction vessels. That study indicated that the noise levels for construction vessels ranged from 140 to 160 dB within 3.3 feet (1 m) of the source while thruster-generated noise from the pipelaying vessel was approximately 180 dB at a similar distance. With normal attenuation with distance, the critical 160 dB area was "very localized and will not extend beyond the immediate area where construction activities". Noise generated by the proposed DP Vessel "Intrepid" would be expected to be at that level.

Additionally, NE Gateway and Algonquin Gas (2006) presented the results of underwater noise levels generated by a DP pipelaying vessel and other construction vessels. That study

indicated that the noise levels for construction vessels ranged from 140 to 160 dB within 3 feet of the source while thruster-generated noise from the pipelaying vessel was typically between 160-170 dB with a maximum of 180 dB at 3 feet. Noise surveys recorded for the NE Gateway and Algonquin Gas (2006) project involved a DP vessel with six thrusters, compared to the DP vessel “Intrepid” with eight thrusters. Noise estimates produced by the DP vessel “Intrepid” thrusters would be similar to noise produced by the DP pipelaying vessel within NE Gateway and Algonquin Gas (2006). Differences in noise produced by two additional thrusters would be localized to the area of the vessel where the thruster is located. Additionally, all noise produced from the DP vessel “Intrepid” would be full mitigated by the presence of Marine Mammal Monitors insuring the 1,000-foot preclusion zone is maintained (see mitigation measures within Appendix C, Page C33).

According to the Northern Star Natural Gas, Clearwater Port (2007) application for its proposed LNG Terminal and Regasification Facility, the estimated source levels of 156 dB for a 50-foot crew boat (with a 90-Hz dominant tone) and 159 dB for a 100-foot twin diesel (630 Hz, 1/3 octave). Broadband source levels for small, supply boat-sized ships (160 to 200 feet) are about 170 to 180 dB. Most of the sound energy produced by these vessels is at frequencies below 500 Hz (including many of the commercial fishing vessels operating off southern California) (Entrix, 2004). According to Duncan and McCauley (2008), modest maneuvering of a 79-foot (24 m) vessel indicate that noise reached at 164 ft (50m), 656 feet (200 m), 1,640 feet (500m), and 3,280 feet (1000m) were 130-142, 128-135, 123-129, 117-128 dB. Additionally, according to Gray and Greeley (1980), underwater noise levels from vessels’ propeller blades at 16 knots measured 174 dB. Data presented in Entrix (2004), which cites various published sources, indicate that underwater noise levels generated by tugs and supply boats range from 147 to 156 dB at 33 feet from the source; those levels decrease to 107 to 116 dB within 0.6 mile. Noise generated by the proposed pipelaying vessel would be expected to be at a similar level. Table C.2-5, below shows typical frequency ranges exhibited by marine species.

Table C.2-5. Frequency Ranges for Selected Species

Taxa	Common Name	Genus/Species	Frequency Range
Mysticetes	Blue whale	<i>Balaenoptera musculus</i>	12 Hz to 31 kHz
	California gray whale	<i>Eschrichtius robustus</i>	2 Hz to 20 kHz
	Fin whale	<i>Balaenoptera physalus</i>	14 Hz to 28 kHz
	Humpback whale	<i>Megaptera novaeangliae</i>	10 Hz to 20 kHz
	Minke whale	<i>Balaenoptera acutorostrata</i>	20 Hz to 60 kHz
Odontocetes	Bottlenose dolphin	<i>Tursiops truncates</i>	40 Hz to 150 kHz
	Dall’s porpoise	<i>Phocoenoides dalli</i>	40 Hz to 149 kHz
	Killer whale	<i>Orcinus orca</i>	120 Hz to 500 kHz
	Long-beaked common dolphin	<i>Delphinus capensis</i>	67 Hz to 500 kHz
	Northern right whale dolphin	<i>Lissodelphis borealis</i>	1 kHz to 40 kHz
	Pacific white-sided dolphin	<i>Lagenorhynchus obliquidens</i>	2 kHz to 80 kHz
	Risso’s dolphin	<i>Grampus griseus</i>	80 Hz to 100 kHz
	Short-beaked common dolphin	<i>Delphinus delphis</i>	67 Hz to 500 kHz

Taxa	Common Name	Genus/Species	Frequency Range
	Short-finned pilot whale	<i>Globicephala macrorhynchus</i>	20 Hz to 500 kHz
	Sperm whale	<i>Physeter macrocephalus</i>	30 Hz to 100 kHz
Pinnipeds	California sea lion	<i>Zalophus californianus</i>	60 Hz to 100kHz
	Northern elephant seal	<i>Mirounga angustirostris</i>	2.5 Hz to 200 kHz
	Northern fur seal	<i>Callorhinus ursinus</i>	4 kHz to 28 kHz
	Pacific harbor seal	<i>Phoca vitulina richardsi</i>	100 Hz to 180 kHz
Fissipedia	Southern sea otter	<i>Enhydra lutris nereis</i>	3 kHz to 5 kHz
Cryptodira	Sea turtles	N/A	60 Hz to 800 Hz
	Loggerhead sea turtle	<i>Caretta caretta</i>	250 Hz to 1000 Hz

Note: The most extreme ranges known at low and high frequencies are noted. Most of the frequency ranges listed above represents the range of frequencies in which these species vocalize. In a few cases, frequency response ranges are known and are presented.

Sources: Au et al. 2000; Lenhardt 1994; Moein et al. 1994; Richardson et al. 1995; Ridgway et al. 1997.

The intensity and frequency of vessel noise are related to vessel size, but may also be affected by vessel design and speed. Large commercial vessels and supertankers have powerful engines and large, slow turning propellers which produce relatively high intensity, low frequency sound (Richardson et al., 1995). Tech Environmental (2008) presented a summary of noise levels generated by a 300 m-long, DP vessel and support vessels (170 to 190 dB re 1 μ Pa at 1 m) from construction of the BP Claire development off the Shetland Islands, North Atlantic.

Vessel noise at a specific location is transitory; slowly increasing as a vessel approaches, and decreasing as it passes. Because of the transitory nature of this noise and the mobility of marine mammals it is unlikely that a marine mammal would suffer an injury or death from vessel noise. It is improbable that a marine mammal given that it has adequate warning of a vessel's approach, would be close enough to the noise source to suffer some hearing damage (NOAA, 2006a). Noise created from transiting vessels may exceed the threshold of potential effect for most birds, resulting in the potential for a flight response, however it is expected that the visual presence of the vessels will elicit a response before the noise (USFWS, 2006). Typical medium to large construction equipment (crane, large pumps, and generators) used for the Project would emit approximately 73 to 84 dB at 50 feet, which is near the 90 dB level that resource agencies consider potentially significant for many bird species.

A summary of historical and recent studies on the effects of noise on wildlife, including terrestrial and marine birds, is provided in the NoiseQuest website (NoiseQuest, 2010). Although the information provided there focuses on the effects of aircraft noise, extrapolation of the reactions to the dB levels listed suggest that effects range from none to flushing and, in some cases, behavioral modification. Studies on noise effects on gulls and aquatic/wading birds that are summarized in the NoiseQuest website indicate that studied species: 1) tend to adapt to noise levels produced by aircraft and show no long-term effects; 2) may "flush" initially but appear to be more affected by human presence or habitat alteration; and 3) eggs were not

physically damaged nor experienced reduced viability. Noise level exposures listed in these studies ranged from approximately 80 to over 100 dB.

Specific equipment and vessel noise was not measured or modeled for this project. However, the bulk of equipment utilized for this project will be located above water on vessel decks or platforms. Without conducting project specific noise estimates or modeling, literature based review of previous noise modeling or studies will be the basis for estimates of underwater noise. The maximum noise fish and marine mammals will be exposed to will be approximately 180 db at 10 feet (3 m) from the noise source (vessel). However, based on the transitory nature of both fish and marine mammals and their avoidance of noise and visual movement in the vicinity of their location, the actual exposure levels should be much lower. With normal attenuation with distance, the critical 160 dB area was “very localized and will not extend beyond the immediate area where construction activities”. Based on a similar number of thrusters compared to the NE Gateway and Algonquin Gas (2006), Project noise generated by the DP Vessel “Intrepid” would be expected to be at that level of approximately 160 dB.

C.3.2 Lighting Affects to Marine Birds

The following is a summary of studies on the effects of lighting on marine and aquatic wildlife. Saleh (2007), Schaar (2002), Anonymous (2002), and Harder (2002) summarize several of the more recent studies on the effects of light on wildlife, including those on birds, turtles, fish, and insects. These studies suggest that light effects include disorientation, structural-related mortality due to disorientation, and interruption of natural behaviors. Recommended mitigations include the elimination of “bare bulbs” and upward-pointing lights, shielding or cantering light sources, and minimizing overall light level to that which is needed for safe operations (Saleh, 2007).

Several studies (i.e., Cochran and Graber, 1958; Bruderer, et al., 1999; and Reed, et al, 1985) have shown that migrating birds are affected by artificial light on buildings. Effects range from attraction to disorientation, as well as alteration of flight patterns, and can result in an increase in mortality from striking buildings, and/or exhaustion and, ultimately, increased predation. The results of these studies tend to indicate that birds are “trapped” by light beams and are generally reluctant to leave the beam once entering it. Indirect light sources of more than approximately 0.5 mile away, tend to be less attractive than direct sources. Gauthreaux and Belser (2002) suggest that night-migrating birds showed “nonlinear flight” near towers with white and red strobe lights; however, they also stated that the attraction may have been more attributable to the constant tower lighting with the red strobe lights. Podolsky (2002) indicates that artificial lighting appears to “confuse” seabirds, particularly during their migration between urbanized nesting sites and their offshore feeding grounds. Longcore and Rich (2001) reported that migrating birds can be attracted to tall, well-lit structures, which can result in collisions.

It is assumed that migrating birds use visual cues to orient while flying, ultimately affecting their course of action. Poot et al. (2008), hypothesize that artificial light can interfere with the magnetic compass of the birds, which is an important orientation mechanism especially during overcast nights. Magnetic orientation is thought to be based on specific light receptors in

the eye which have been shown to be light and wavelength-dependent. Poot et al. (2008) found that white and red light interfere with the magnetic compass of migrating birds, where they caused disorientation at low light intensity, compared to a high-intensity green light that caused less disorientation. The researchers concluded that the disorientation is due to the wavelength; green and blue lights have a short wavelength resulting in very little observable impact to birds orientation. In 2007, lights on gas-production platform L15 were replaced with green lighting. The platform is still visible from a distance with the new lighting and the platform crew has commented that the lighting is less blinding and they have increased contrast vision during crane operations (Poot et al., 2008).

Moor and Kohler (2002) found that the spectra of artificial light that strikes urban lakes was dominated by the yellow region (wave length of approximately 590 nm), which corresponded to the emission spectra of high pressure sodium lamps and was of a similar intensity as that of a full moon. They also found that artificial light was detectable to a water depth of about 10 feet by crustacean grazers and fish. Nightingale and Simenstad (2002) report that juvenile chum salmon and their predators (hake, dogfish, sculpin, and large Chinook and coho salmon) tend to congregate below night security lights in the rivers and estuaries of the Pacific Northwest. Also, juvenile herring and sand lance appear to be attracted to night-lit water areas and are apparently “heavily preyed upon” during those periods. That report also indicates that there is insufficient data to allow conclusive evidence that the increased predation due to night-lighting is affecting species abundance or distribution. Juell and Fosseidengen (2004) found that Atlantic salmon responded positively to artificial light and suggest that it might be used to reduce exposure of those fish to undesirable water conditions. Studies by Oppedal, et al. (2001) suggest that vertical migration and feeding characteristics of caged Atlantic salmon were modified by exposing them to extended periods of light.

No data on the potential effects of existing platform lighting on marine species including marine birds and fish species were found. However, Project-area platform operators have not reported any significant incidents of bird mortalities resulting from nighttime operations. However, nighttime roosting, and in one case of nesting, has been reported on platforms in the Santa Barbara Channel. Black (2005) describes two incidents of bird strikes on a vessels operating in the southern ocean (South Georgia Island off the southern tip of South America) wherein vessels operating at night experienced relatively large numbers (approximately 900 and 62) of bird strikes. The vessels were either moored or in transit during foggy and rainy conditions and both had “ice lights”, which are used to assist in observations of floating ice too small to be detected by radar. As a result of these incidents, some vessel operators instituted the use of blackout curtains over night-lit port holes and further focused deck lighting onto smaller areas.

The platforms are currently, and will continue to be lit for compliance with USCG navigational hazard requirements. Shielding of the lighting to direct it downward and to limit the area will reduce the potential impacts to flying seabirds by precluding horizontal light. Lighting on the platform will be sufficient to assure safe operations and to be in compliance with USCG navigation hazard requirements but are not expected to result in significant impacts to the marine wildlife found in the region. Nighttime marine construction is anticipated and therefore lit

Project vessels are expected to be present along pipeline routes or while transiting between the port and the site. USCG-required vessel lighting will be onboard and on deck lighting will be shielded and directed inward to avoid over-water lighting.

C.3.3 Vessel Collisions

Collisions between Project-related vessels and marine mammals and sea turtles are typically the greatest concern raised regarding potential impacts from marine operations. However, such collisions are typically associated with large ships rather than smaller work vessels. Impacts from vessel operations can range from a change in the animal's travel route or surface time to direct mortality; the latter is usually associated with a high-speed collision with a large ship.

NOAA (2006c) reports 202 known or possible ship strikes of large whales from 1975 through 2002. Offshore California, blue whales are the most commonly reported hits (4 records) from 2000 to 2005. During the fall of 2007 there were four additional confirmed blue whale fatalities in the Santa Barbara Channel, located in the northern portion of the SCB. Gray whales constituted the next highest species for recorded ship strikes, (3 records), finback (2 records), and humpback whales (1 record). Some collision incidents were reported as "general" baleen whales (3 records) while eight reported strikes were recorded as unidentified species.

Vessel strikes involving pinnipeds and sea otters appear to primarily involve small, fast boats. Propeller slashes to these smaller animals have been proportionally small, and collision reports have come from small vessels (NOAA, 2006c; NOAA, 2003). Pinnipeds and sea otters are generally concentrated in shallow coastal waters where small craft are often located (NOAA, 2006c). NOAA data indicate that 10 suspected incidents of vessel collisions with whales were reported within or in close proximity to the Santa Barbara Channel, located in the northern portion of the SCB from 1965 to 2002, although in most cases the actual location of a collision was not recorded (NOAA, 2006c). Strikes are usually fatal when vessel speed exceeds 10 knots, (POLB, 2008). The Danny C will primarily be moored onsite at an elevation high enough to discourage hauling out of marine mammals and therefore interactions with marine wildlife are not expected. Smaller vessels will transit between Port Hueneme, Santa Barbara Harbor and the Project site utilizing pre-established routes and while vessel strikes are unlikely, should one occur it would be considered a significant impact.

C.3.4 Incidental and Accidental Vessel Discharges

Project activities will require the use of the DP Vessel "Intrepid", the Danny C (during riser installations), the Ryan T (for topside installations) the Alan T (support vessel) the American Sprit (For 12-inch pipelay) and the American Patriot (during tow operations) originating from the POLA/POLB, Port Hueneme, and Carpinteria Pier. During 6-inch and 8-inch pipelay activities, the DP Vessel "Intrepid" will also require a support vessel (Alan T). In addition to the support vessels, a materials barge towed by the American Spirit containing the 12-inch pipe segments will mobilize to the Project site from the Port of Los Angeles/Port of Long

Beach (POLA/POLB) and will be tethered to the DP Vessel "Intrepid" for traditional pipelay for this portion of the Project.

During work activities, the release of petroleum into the marine environment from any of the construction vessels could result in potentially detrimental impacts to the marine biota, particularly avifauna and early life stage forms of fish and invertebrates which are sensitive to those chemicals. Degradation of water quality resulting from the accidental release of petroleum from the marine vessels or equipment could also result in potentially negative effects to marine fish species, particularly to fish eggs and larvae which are more vulnerable to those effects than adults.

Refined products (i.e., diesel and gasoline) are more toxic than heavier crude or Bunker-type products, and the loss of a substantial amount of fuel or lubricating oil during construction operations could affect the water column, seafloor, and intertidal habitats and associated biota, resulting in their mortality or substantial injury, and in alteration of the existing habitat quality.

C.4 MEASURES TO REDUCE OR ELIMINATE POTENTIAL MARINE WILDLIFE IMPACTS

C.4.1 Light Effects Reduction

The potential effects of lighting on marine wildlife, particularly birds, are expected to be minimal. Recommended mitigation measures include the following:

- Lighting will be directed inboard and downward to reduce the potential for seabirds to be attracted to the work area.
- All vessel cabin windows will be equipped with shades, blinds, or shields that block exiting light during night operations.
- The onboard monitor will routinely inspect lighted vessels for birds that may have been attracted to the lighted vessels.
- A log of all birds found onboard vessels will be maintained with the status and health of birds on retrieval and release. The log will be provided to the BOEMRE when the Project has been completed.
- If an injured bird is discovered on a Project vessel, the bird will be transported on the next returning work vessel to an approved wildlife care facility.

C.4.2 Onboard Marine Mammal Monitors

During active pipeline placement operations, all observations of marine mammals are to be noted and documented by up to two marine mammal monitors (a copy of the recording sheet is provided at the end of this section). Marine mammal monitors will be located at the best available vantage points (safety allowing) for observing Project activities and the presence/absence of marine mammals. Where feasible, a 360° view will be provided. Vantage points may include the nearest platform (Platforms A, B, or Hillhouse), or any of the marine

vessels in use. Marine mammal monitors will likely work in shifts (not to exceed four hours per person), to be determined in the field prior to daily activities. Written documentation will include any and all marine wildlife observed within a 1,000 foot radius of Project activities. The monitors will be equipped with high-quality binoculars, and a two-way radio for communication with the vessel operator and/or onboard construction supervisor.

The monitors will record data for each marine mammal observation and note 1) whether the animal was within the 1,000-foot radius preclusion zone; 2) the species (if possible); 3) direction of movement; 4) unusual behavior patterns; 5) actions taken by the monitor; and 6) duration the animal was within the 1,000 foot radius. A daily report will be submitted to the onboard construction supervisor or his/her designate and a copy will be retained by the monitor. In the event of a marine mammal-vessel/pipe interaction the monitor will notify the onboard construction supervisor and operations will immediately cease. The monitor will contact the NOAA Fisheries' Stranding Coordinator, Mr. Joe Cordaro, at (562) 980-4017.

Project operations may be suspended by the monitor if a marine mammal is sighted within the 1,000-foot radius safety zone during Project activities. Marine mammal monitors will have the authority to suspend activities until the marine mammal is outside of the Safety Zone and if suspending operations will not jeopardize the safety of the crew or the barge.

However, should marine wildlife become substantially disturbed (i.e., show signs of stress or irregular behavior) due to noise, additional attenuation methods will be identified and incorporated as appropriate. In accordance with NOAA, the marine wildlife preclusion zone may be increased for pipeline laying. On-site monitoring for the presence of marine mammals and turtles within the prescribed preclusion zone and altering construction operations in accordance with the methods previously discussed, including ceasing activities, will reduce or eliminate potential impacts to the marine wildlife.

C.4.3 Marine Vessel Transiting

Replacement pipeline installation will occur between Platforms A, B, and Hillhouse. Mobilization of Project equipment and local personnel will occur from POLA/POLB, Port Hueneme, Carpinteria Pier and Santa Barbara Harbor. As such, there is a potential for Project-related vessels to encounter marine mammals and/or reptiles while transiting between the home Ports and the Project sites. The marine wildlife species that are most likely to be encountered by those vessels include: the common, Pacific white-sided, and coastal bottlenose dolphins; California sea lion, harbor seal, and possibly the California gray whale. There is an increased likelihood of encountering these species as the other marine wildlife species listed are less abundant or are expected within the area only during a limited period.

Where feasible and as recommended by NOAA (2003), while in-transit, vessels will remain at least 300 feet (91 m) away from marine wildlife to minimize the chance of collision or disturbance. If a marine mammal is present within the transiting preclusion zone, the monitor will notify the vessel operator who will then notify other vessels to take appropriate and pre-approved actions. All vessels will monitor VHF Channel 16 and a separate dedicated frequency

will be used by the monitors to contact the appropriate barge and vessel personnel. A transiting vessel would then slow down or change course in order to avoid contact. Specific actions onboard the DP Vessel "Intrepid" will be in accordance with NOAA-approved mitigations and could include ceasing operations. The marine wildlife monitor shall have the authority to halt any operations, or redirect any vessels, that pose an immediate threat to marine wildlife, including dolphins, pinnipeds, whales or other species.

Dolphins can usually be identified from a distance due to the surface water disturbance created as they travel through the water. Dolphins of many species tolerate or even approach vessels. Reactions to boats often appear to be related to the dolphin's activity. Resting and foraging dolphins tend to avoid boats while socializing dolphins will often "run" with a boat leaping from the water, or riding the bow or stern waves. In the event that dolphins are found to be riding the boat waves or frolic near the vessel, the vessel would slow down and keep a steady course until they lose interest.

Sea lions in the water often tolerate close and frequent approaches by vessels, especially around fishing vessels. It is the only pinniped off the California coast that regularly uses man-made structures such as docks, buoys, oil and gas structures and even slow moving vessels on which to haul-out. It has been determined that sea lions hauled-out on land are more responsive and react when boats approach within 330 to 660 feet (100 – 200 m) (Peterson and Bartholomew, 1967). Also, harbor seals often move into the water in response to boats. Even small boats that approach within 330 feet (100 m) displace harbor seals from haul out areas. Less severe disturbances can cause alert reactions without departure. Based on behavioral patterns with pinnipeds, implementation of avoidance and minimization measures, and the presence of marine wildlife monitors (as previously discussed) collision at sea with pinnipeds is not likely. However, in the unlikely event that a sea lion, seal, or other pinniped species is hauled-out on a vessel or equipment area where harm may come to the animal, NOAA Fisheries shall be consulted for guidance on how to encourage the animal to move from the hazard area without harassment.

The path of migrating whales can be determined even for animals underwater based on the distribution of animals on the surface. Onboard personnel should be especially watchful as the vessel crosses this path or anytime whales are observed in the area. Support vessel operators shall observe the following guidelines:

- Support vessels will make every effort to maintain a distance of at least 300 feet (91 m) from sighted whales and other marine wildlife (e.g., sea turtles or resting flock of birds/feeding aggregations of birds, etc.) (per NOAA requirements);
- Support vessels will not cross directly in front of migrating whales or any other threatened or endangered marine mammals or marine turtles;
- When paralleling whales, support vessels will operate at a constant speed that is not faster than the whale's;
- Care will be taken to ensure that female whales will not be separated from their calves;

- Support vessels will not be used to herd or drive whales; and,
- If a whale engages in evasive or defensive action, support vessels will drop back.

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

- location of the vessel when the collision occurred (latitude and longitude);
- date and time;
- speed and heading of the vessel;
- observation 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;
- whether an observer was standing watch for the presence of marine wildlife; and,
- name of vessel, operator (the company), and captain or officer in charge of the vessel at time of accident.

After a collision, the vessel should stop, if safe to do so. The vessel is not obliged to stand by and may proceed after confirming that it will not further damage the animal by doing so. The vessel will then communicate by radio or telephone all details to the vessel's base of operations. From the vessel's base of operations, a telephone call will be placed to the Stranding Coordinator, NOAA, Southwest Region, Long Beach, to obtain instructions (below).

Alternatively, the vessel captain may contact the NOAA Stranding Coordinator directly using the marine operator to place the call or directly from an onboard telephone, if available.

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

C.4.4 Oil Spill Prevention and Contingency Plan

All of the vessels working within the Project area will contain fuel in integral tanks built into the vessel's hulls. While all vessels are considered potential spill sources, the likelihood of a spill is remote because a spill could only occur if the hull of a vessel is breached in the area of the fuel tank or if a vessel sinks. All vessels involved will be constructed with multiple watertight compartments to isolate flooding and reduce the risk of sinking should a tank be punctured. All motorized vessels will carry current American Bureau of Shipping Load Line Certificates or U.S. Coast Guard Certificates of Inspection.

Additionally, equipment that is used on a day-to-day basis will be monitored for leaks; if a leak is observed, the faulty equipment will cease operation and appropriate clean-up and

corrective measures will be implemented. All deck equipment will be equipped with drip pans and sorbent pads will be available on the vessel for clean-up of minor hydrocarbon leaks from the deck equipment. All equipment refueling will be conducted in a manner best suitable to minimize the potential for fuel spillage. All hydrocarbon-based fluids stored onboard the vessels will be required to utilize a double containment system.

DCOR currently maintains an approved Oil Spill Response Plan (included as Appendix E). This document is dedicated to response efforts (if required) within the production unit. As such, oil spill response equipment is available on-site to respond to an incidental or accidental vessel discharge during construction activities. Additionally, supply/crew boat vessels have been retained for immediate response efforts.

C.4.5 Notification

Collisions with marine wildlife will be reported promptly to the Stranding Coordinator, NOAA. From the report, the Stranding Coordinator will coordinate subsequent action, including enlisting the aid of marine mammal rescue organizations, if appropriate.

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

<u>Federal</u>	<u>State</u>
<p>Sarah Wilkin, Stranding Coordinator National Marine Fisheries Service Southwest Region, 501 West Ocean Boulevard, Ste 4200 Long Beach, CA 90802-4213 Phone: (562) 980-4017; Fax: (562) 980-4027</p> <p>Large Whale Entanglement Hotline: 1-877-SOS-WHALE (1-877-767-9425)</p>	<p>Enforcement Dispatch Desk California Department of Fish & Game Long Beach, California 90802 <u>562-590-5132</u> or <u>562-590-5133</u></p>

In the event of a spill, immediate notification to the National Response Center at (800) 424-8802 is mandatory. This notification also normally results in simultaneous notification of the U.S. Coast Guard. However, it is recommended that a call also be made to the local U.S. Coast Guard office in Long Beach at (562) 980-4450 between 8:00 a.m. and 4:00 p.m., or (562) 980-4444 after normal working hours and on weekends. The U.S. Coast Guard office in Santa Barbara can be reached at 805-965-0407.

Essential agency notifications are further assured by the California Office of Emergency Services and the National Response Center, since they will notify related state and federal agencies. Based on the spill trajectory analysis, if the spill is a threat to the shoreline, the appropriate onshore response agencies will be notified.

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ATTACHMENT A
MARINE WILDLIFE OBSERVATION REPORTING FORM

**MARINE WILDLIFE CONTINGENCY PLAN
DCOR PIPELINE INSTALLATION
OBSERVATIONS REPORTING FORM**

Observer(s):	Date:	Time:
Weather:		Visibility:

Observation and Action Taken: