

2016 UPDATE

**COMPARISON OF SELECTED SOUTHERN CALIFORNIA TIDAL WETLANDS AS
POTENTIAL SITES FOR MITIGATION OF IMPACTS ASSOCIATED WITH DESALINATION
PROJECTS**



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1.0 INTRODUCTION

This report presents information on tidal wetlands restoration and mitigation opportunities in Southern California that may be considered as potential mitigation for marine life impacts associated with desalination facilities under consideration by Poseidon Water (Poseidon). In 2010, Nordby Biological Consulting (Nordby) prepared the original comparison of selected southern California sites for mitigation for Poseidon's Carlsbad Desalination Plan. This report has been prepared to update the 2010 comparison to examine potentially feasible mitigation sites for Poseidon's Huntington Beach Desalination Project.

The Ocean Plan Amendment (OPA) adopted by the SWRCB requires desalination project proponents to comply with CWC Section 13142.5(b), which requires the *"best available site, design, technology and mitigation measures feasibility to minimize the intake and mortality of all forms of marine life."* OPA Section III. M 2.e.(3) provides the requirements to satisfy the marine life mitigation requirements of CWC Section 13142.5(b), which stipulate that the mitigation shall be accomplished through expansion, restoration or creation on one or more of the following: kelp beds, estuaries, coastal wetlands, natural reefs, MPA's or other projects approved by the regional water board that will mitigate for intake and mortality of all forms of marine life associated with the facility. Mitigation is based on the concept of replacing the area of fish production lost ('foregone') (APF) to entrainment and brine discharge through restoration of habitat that replaces the lost production. The APF approach has been adopted by California regulatory agencies to determine mitigation for desalination plants. Estimates of APF are based on both intake of surface water as well as discharge of brines. For the Poseidon Huntington Beach facility, the APF for the intake entrainment is 16.9 acres and for the discharge is 23.4 acres, for a total of 40.3 acres.

This analysis compares the restoration potential of ten Southern California wetlands according to meet the marine life requirements of the desalination amendment to the State Water Resources Control Board's (SWRCB) Water Quality Control Plan for the Ocean Waters of California. The following sites were examined for this 2016 update:

- San Diego Bay (Pond 20 Restoration) in San Diego County
- Mission Bay Re-Wild Project in San Diego County
- San Dieguito River Lagoon Wetland 6B in San Diego County
- Big Canyon Creek in Orange County
- Huntington Beach Wetlands in Orange County
- Bolsa Chica Inlet Maintenance in Orange County
- Los Cerritos Wetlands in Los Angeles County
- Colorado Lagoon in Los Angeles County
- Ballona Wetlands in Los Angeles County
- Ormond Beach in Ventura County

The final goal of this analysis is to rank the potential restoration sites against objectives and criteria contained in the Ocean Plan amendment for acceptable sites to provide mitigation for marine life impacts. This analysis includes a comparison of a number factors, including status of supporting technical studies conducted for restoration plans at each wetland, proposed distribution of habitats created, potential impacts on existing habitats, and potential for compliance with SWRCB OPA goals and objectives.

The following sites had been considered in 2010, but are no longer available or feasible for mitigation:

- Santa Ana River in Orange County: This site is privately owned and is proposed for restoration in association with the Banning Ranch project and is not available at this time for use by other entities. The Banning Ranch project is currently under review by the California Coastal Commission.
- Aqua Hedionda Lagoon in San Diego County: Caltrans has acquired the most feasible area identified for tidal restoration in the northeastern part of the lagoon and is proceeding with studies to restore tidal action to this property. No other landholdings are available or feasible for restoration. This project has restored nearly 11 acres of the lagoon and nearing completion in 2016.
- Tijuana Estuary in San Diego County: This project addresses critical planning needs for the continued adaptive restoration of the Tijuana River Estuary. This project has been designed in several phases including design, engineering, and permitting for the Tijuana Estuary Tidal Restoration Program, a long-term restoration program led by the Southwest Wetlands Interpretive Association (SWIA) and the Tijuana River National Estuarine Research Reserve. A recent grant for planning and design was just awarded to the SWIA. These funds are for the design and planning of the next phase of the project. The Project manager believes it will be 2018 before additional project funds are need and construction activities are undertaken.
- San Elijo Lagoon: The goal of the San Elijo Lagoon Restoration (SELRP) is to enhance and restore the biological functions and values of the San Elijo Lagoon Reserve. The SELRP is in the final design and engineering phase and this proposed augmentation will fund the completion of all pre-construction tasks for the SELRP. The U.S. Army Corps of Engineers, the federal lead agency for the SELRP, recently selected the Least Environmental Damaging Project Alternative, which will be the project it will permit. This authorization would be the final disbursement of the Conservancy's San Diego Association of Governments (SANDAG) funds to complete additional technical studies, final engineering submittals and construction specifications, a pre- and post-construction monitoring plan, implementation of pre-construction monitoring, and additional environmental and permit application information.
- Buena Vista Lagoon in San Diego County: In July 2012, SANDAG was asked to serve as the new lead agency for the environmental review process for the Buena Vista Lagoon Enhancement Project. It is being considered as part of the Comprehensive Environmental Projects for the North Coast Corridor project. Through the EIR process, SANDAG plans to engage stakeholders and the public in considering potential restoration options. If the process results in the selection of a preferred enhancement alternative, then SANDAG may lead the implementation of that alternative.
- Anaheim Bay in Orange County: This area is owned by the federal government and is still being considered under a Comprehensive Conservation Plan for restoration of transition habitat and upland habitat under the proposed plan. Tidal habitat restoration was reviewed as an alternative, but is not currently included in the proposed restoration alternative.
- San Diego Bay D Street Fill Restoration Project: The U.S. Fish and Wildlife Service (USFWS), in partnership with San Diego Gas and Electric (SDG&E), proposes to implement Alternative B which would restore 11.03 acres of tidally influenced coastal

wetland habitat and 1.41 acres of upland transition habitat within a 12.44-acre area at the southeast corner of the D Street Fill. Preparation of the site to support 0.62 acre of subtidal habitat, 0.98 acre of intertidal mudflat habitat, 6.60 acres of low salt marsh habitat, 2.83 acres of mid-high salt marsh habitat, and 1.41 acres of native upland/wetland transitional habitat would require the excavation of approximately 125,000 cubic yards of material. The material excavated from the restoration site would be relocated to the northwest portion of the D Street Fill to raise the elevation of approximately 29.85 acres of land managed by USFWS and the Port of San Diego as a California least tern (*Sterna antillarum browni*) nesting site. The restoration of 11.03 acres of coastal wetlands also represents compensatory mitigation for impacts to jurisdictional wetlands associated with the SDG&E South Bay Substation Relocation project. In addition, a construction staging area will be required on a disturbed portion of the D Street Fill, and another off-site construction staging area, if necessary, could be established on land immediately to the east of the D Street Fill in a currently disturbed area. Once excavation is completed, the restoration site will be planted with appropriate native vegetation and monitored and maintained for five years. The construction phase of this project was completed in early 2016.

2.0 POTENTIAL WETLAND RESTORATION PROJECTS AVAILABLE TO MEET OPA REQUIREMENTS

The analysis is presented in a geographical order, from south to north. A summary of existing restoration planning is presented for each wetland. The potential compatibility of each wetland restoration plan with the OPA is also provided for each wetland.

2.1 SAN DIEGO: POND 20 MITIGATION BANK

Pond 20, originally one of the salt ponds of the Western Salt Company, was purchased by the Port of San Diego in October 1998 as part of an 836-acre land acquisition. Most of this land was acquired to mitigate the expansion of Lindbergh Field when the airport operations were under the Port's control. As part of this mitigation effort, 722 acres were transferred to the State of California. This ultimately led to the creation of the South San Diego Bay National Wildlife Refuge. When the San Diego County Regional Airport Authority (Airport) became a separate agency on January 1, 2003, the Port retained ownership of Pond 20, and the Airport took over the remaining acreage. The Port has worked collaboratively with the cities of San Diego and Imperial Beach to explore opportunities for future uses.

Status of Existing Plans. A Memorandum of Understanding has been developed between the Port of San Diego and the cities of San Diego and Imperial Beach which outlines a process to solicit input and develop project concepts for Pond 20. On July 14, 2015, the Board of Port Commissioners approved a land use plan for the 95 acres of Pond 20 that will benefit Imperial Beach, the City of San Diego, and our entire region.

The long-term plan calls for:

- An 84-acre parcel in the center of the site designated for mitigation banking as specified in an RFP issued for development of this site.
- A 3.1-acre parcel on the western edge of Pond 20 designated commercial to complement the new Bikeway Village

- A 7.9-acre parcel on the eastern edge designated for low-intensity commercial development

A current plan for development into a mitigation bank is on-going and has yet to be published by the Port of San Diego.

The preferred alternative for the South San Diego Bay Unit includes the restoration of approximately 650 acres of tidal wetlands, primarily from the conversion of solar evaporation ponds to tidal wetlands accomplished by breaching existing levees and allowing low marsh habitat to develop.

Status of Environmental Documentation. Currently there are no environmental documents available for the development of Pond 20 into a mitigation bank. Several feasibility studies have been conducted:

- Port of San Diego's Pond 20 Wetland Mitigation Site Feasibility and Options prepared by Merkel & Associates, Inc., August 2014.
- Pond 20 Mitigation Bank Feasibility Analysis prepared by Keyser Marston Associates, Inc., July 1, 2015.
- Port of San Diego Staff Report: Presentation on Pond 20 Concerning Mitigation Bank Feasibility, Ancillary Parcel Development Feasibility, and Direction to Staff, July 14, 2015.

Status of Required Permits. The potential permits required for the development of Pond 20 into a mitigation bank are listed below. No permits have been issued for the site as of March 2016.

- U.S. Army Corps of Engineers Section 404 permit and Rivers and Harbors Act Section 10 permit
- U.S. Fish and Wildlife Service Section 7 Endangered Species Act consultation
- National Oceanic and Atmospheric Administration/National Marine Fisheries Service Consultation pursuant to the Magnuson-Stevens Fishery Conservation and Management Act
- Regional Water Quality Control Board Section 401 Water Quality Certification, and possibly, a waste discharge permit for breaching salt pond levees
- California Department of Fish and Wildlife Streambed Alteration Agreement
- California Coastal Commission Development Permit in compliance with the Marine Life Mitigation Plan
- City of San Diego Encroachment Permit for any impacts to lands owned by the City of San Diego

This potential restoration project is in the early planning stages and the required discretionary permits have not yet been identified.

Habitat Distribution. Design of the mitigation bank is still on-going and habitat distribution was not yet known.

Potential Impacts to Existing Habitats. According to the CCP/EIS, creation of intertidal wetlands at Pond 20 would convert some existing wetlands and hypersaline basins to tidal marsh and impact up to 6 acres of intertidal habitat, 3 acres of freshwater marsh, and 130 acres of uplands, primarily old agricultural fields. However, a refined restoration plan may reduce

those anticipated impacts. A federal Clean Water Act and a California Coastal Act wetland delineation is currently being prepared and will be reviewed by the respective agencies. The existing habitats are considered degraded and the restoration project will create improved wetland areas.

Land Ownership. The Pond 20 area is owned by the Port of San Diego. The cities of San Diego and Imperial Beach and USFWS are all stakeholders in the property, but are not the owners.

Compliance with OPA Requirements and Conditions. Selection of the San Diego Wildlife Refuge Pond 20 as a mitigation site holds potential as a fee based mitigation project. The Port of San Diego would be the sponsor of the site and would undertake the restoration based on a 'turn-key' mitigation project. While the Port does not have experience as a mitigation bank operator, it has created tidal wetlands for other projects and has the financial capacity and ability through its contractors to undertake the development of a migration bank to provide habitat for Poseidon. An evaluation of the potential for this site to meet the OPA requirements is provided below:

OPA Objectives and Criteria for Marine Life Mitigation	Potential for Compliance
Submit a Mitigation Plan, including project objectives, site selection, site protect instrument, baseline site conditions, a mitigation work plan, a maintenance plan, a long-term management plan, an adaptive management plan, performance standards, success criteria, monitoring requirements, and financial assurances.	Possible. A mitigation plan needs to be prepared that addresses the specific needs of the Poseidon mitigation requirements to address fish issues.
Mitigation shall be accomplished through expansion, restoration or creation of one or more of the following: kelp beds, estuaries, coastal wetlands, natural reefs, MPAs, or other projects approved by the regional water board.	Yes. Restoration of the Pond 20 to intertidal wetlands would restore areas that were formerly mapped as intertidal mudflats and salt marsh (1852 U.S. Coast Survey Map and 1859 Survey of the Coast of the United States, Coastal Survey Office). These wetlands have been converted to salt production facilities and their restoration to tidal wetlands would likely be successful.
The owner/operator shall demonstrate that the project fully mitigates for intake-related marine life mortality by including expansion, restoration, or creation of habitat based on the APF acreage calculated.	Yes. The project site is sufficient provide the expected mitigation requirement of 16.9 acres.
The mitigation project's production area shall overlap the facility's source water body. Impacts on the mitigation project due to entrainment by the facility must be offset by adding compensatory acreage to the mitigation project.	No. The project is located in south San Diego Bay and its production area does not overlap the facility's source water body
The owner/operator shall demonstrate that the project fully mitigates for discharge- and construction-related marine life	No. The anticipated benefits at Pond 20 are not sufficient to meet the APF of 22.4

OPA Objectives and Criteria for Marine Life Mitigation	Potential for Compliance
mortality projected in the MLMR.	acres estimated in the MLMR.
The regional water board may permit out-of-kind mitigation for mitigation of open water or soft bottom species. In-kind mitigation shall be done for all other species whenever feasible.	Possible. This project is out-of-kind but provides benefits for fish species associated with San Diego Bay. The South Bay's shallow subtidal habitat supports a group of twelve species of fish that are indigenous to the bays and estuaries of the Southern California Bight. The south end of San Diego Bay also functions as an important nursery area for juvenile California halibut and young spotted and barred sand bass.

2.2 RE-WILD MISSION BAY

Re-Wild Mission Bay is a project of San Diego Audubon to enhance and restore up to 170 acres of wetland habitat in the northeast corner of Mission Bay at the mouth of Rose Creek and contiguous with the existing Kendall Frost Marsh and expand opportunities for compatible community access to the marsh.

Status of Existing Plans. The City of San Diego developed a Master Plan for Mission Bay Park in 1978 and updated the plan in 1994 and 2002. In May 2014 a Feasibility Study was fully funded by the Coastal Conservancy and USFWS. A Mission Bay Historical Ecological Reconnaissance Study was completed in February 2016. A conceptual restoration plan with three alternatives will be released in the winter of 2017.

Status of Environmental Documentation. There are no current environmental documents available for the Re-Wild Mission Bay Project.

Status of Required Permits. No permits have been issued for the site as of April 2016. The following permits will be required for the restoration of the Re-Wild Mission Bay prior to project approval and implementation:

- U.S. Army Corps of Engineers Section 404 permits and Rivers and Harbors Act Section 10 permit
- U.S. Fish and Wildlife Service Section 7 Endangered Species Act consultation
- National Oceanic and Atmospheric Administration National Marine Fisheries Service Consultation pursuant to the Magnuson - Stevens Fishery Conservation and Management Act
- Regional Water Quality Control Board Section 401 Water Quality Certification
- California Department of Fish and Wildlife Streambed Alteration Agreement;
- California Coastal Commission Development Permit
- City of San Diego Encroachment Permit for any impacts to lands owned by the City of San Diego.

Habitat Distribution. The Planning area for Re-Wild Mission Bay consists of 460 acres:

- Kendall-Frost Marsh (65 Acres)
- Campland and DeAnza Cove Mobile Home Park (135 Acres)
- Mission Bay Golf Course (Approximately 120 acres)
- Subtidal Areas (Approximately 145 acres)

Potential Impacts to Existing Habitats. Exact impacts to existing habitats have yet to be determined; however, it is anticipated that approximately 170 acres of the planning area will be restored to wetland.

Land Ownership. The property for the Re-Wild Mission Bay project is owned by the City of San Diego and is leased to Campland and De Anza Mobile Home Park; the lease for both properties will expire in 2017.

Compliance with OPA Requirements and Conditions. Selection of the Re-Wild Mission Bay Site as mitigation site holds potential for compliance with some of the OPA requirements and conditions. The project could be completed as either a mitigation project to be conducted by Poseidon or under a fee based management arrangement. However, at this time, it is uncertain if the Audubon Society has the financial ability to conduct the project and it is likely to need significant assistance in formulating the approach to a final restoration plan.

An evaluation of the potential to meet the OPA requirements is provided below:

OPA Objectives and Criteria for Marine Life Mitigation	Potential for Compliance
Submit a Mitigation Plan, including project objectives, site selection, site protect instrument, baseline site conditions, a mitigation work plan, a maintenance plan, a long-term management plan, an adaptive management plan, performance standards, success criteria, monitoring requirements, and financial assurances.	Possible. A mitigation plan needs to be prepared that addresses the specific needs of the Poseidon mitigation requirements to address fish issues. It may take considerable time to develop a mitigation plan including environmental review, before the details are known as to the specifics required for submittal of a mitigation plan to the Regional Board.
Mitigation shall be accomplished through expansion, restoration or creation of one or more of the following: kelp beds, estuaries, coastal wetlands, natural reefs, MPAs, or other projects approved by the regional water board.	Yes. Restoration of the upland areas to intertidal wetlands would restore areas that were formerly mapped as intertidal mudflats and salt marsh (1852 U.S. Coast Survey Map and 1859 Survey of the Coast of the United States, Coastal Survey Office). These wetlands have been converted to recreational facilities and their restoration to tidal wetlands.
The owner/operator shall demonstrate that the project fully mitigates for intake-related marine life mortality by including expansion, restoration, or creation of habitat based on the APF acreage calculated.	Yes. The project site contains sufficient acreage to provide the expected mitigation requirement.

OPA Objectives and Criteria for Marine Life Mitigation	Potential for Compliance
The mitigation project's production area shall overlap the facility's source water body. Impacts on the mitigation project due to entrainment by the facility must be offset by adding compensatory acreage to the mitigation project.	No. The project is located in Mission Bay and its production area does not overlap the facility's source water body
The owner/operator shall demonstrate that the project fully mitigates for discharge- and construction-related marine life mortality projected in the MLMR.	Yes. The anticipated benefits at Mission Bay are sufficient to meet the APF estimated in the MLMR.
The regional water board may permit out-of-kind mitigation for mitigation of open water or soft bottom species. In-kind mitigation shall be done for all other species whenever feasible.	Possible. This project is out-of-kind but provides benefits for fish species associated with Mission Bay. Many of these fish species provide forage for coastal and marine species or are nursery grounds for off-shore species.

2.3 SAN DIEGUITO LAGOON WETLAND 6B

Wetland restoration planning at San Dieguito Lagoon has been on-going since the late 1970s when the City of Del Mar and the Coastal Conservancy prepared a plan for revitalizing and managing the lagoon and surrounding areas. As a result of that effort, the City of Del Mar adopted the San Dieguito Lagoon Resource Enhancement Program in 1979. In 1983, a portion of the enhancement plan was implemented with dredging of a 70-acre tidal lagoon. In the 1991, the CCC adopted new operating conditions for the San Onofre Nuclear Generating Station (SONGS) Units 2 and 3 operated by Southern California Edison (SCE). These conditions required SCE to restore 150 acres of tidal wetlands as mitigation for impacts to the marine environment from operation of SONGS Units 2 and 3. The CCC identified eight potential wetland mitigation sites including San Dieguito Lagoon as potential mitigation sites and ultimately selected San Dieguito Lagoon in 1992.

In 2000, the San Dieguito Wetland Restoration EIR/EIS was completed. That document was based on the final CCC conditions that SCE submit a plan for a total of 150 acres of credit, including creation or substantial restoration of 115 acres of tidal wetland with up to 35 acres credit for perpetual maintenance of the tidal inlet of the lagoon. SCE began construction of the restoration project in 2006.

In 2007, Poseidon Resources identified San Dieguito Lagoon as a potential site to mitigate for impacts to the marine environment from the proposed operation of its Carlsbad Desalination Plant in Carlsbad, California. Conceptual plans for approximately 42 acres of tidal wetland creation were developed and submitted to the CCC pursuant to Poseidon's application for a Coastal Development Permit.

Despite developing a conceptual restoration plan, Poseidon ultimately rejected the San Dieguito Lagoon restoration site following unsuccessful negotiations with SCE. The San Dieguito River Park Joint Powers Authority (JPA) has adopted a Memorandum of Understanding with Caltrans District 11 and SANDAG for restoration of the property.

In 2014, SCE decided to increase the wetland restoration acreage at San Dieguito in order to have sufficient acreage should a portion of the existing restoration not meet overall performance standards. The area of this expanded wetland (Area W6a) is approximately 1 acre. This wetland unit as planned serves as the mouth of the channel for a larger wetland restoration W6b (17.5 acres) to the south.

Status of Existing Plans. A Final Restoration Plan exists for the SCE San Dieguito Restoration project (2007). Conceptual Engineering and Grading Plans for W6a are currently being developed by SCE. No detailed plans have been prepared for W6b.

Status of Environmental Documentation. An Environmental Impact Report (2000) has been developed for the San Dieguito Lagoon, which includes the W6b area.

Status of Required Permits. No permits have been issued for W6b as of April 2016. The following permits will be required for the restoration of W6b in San Dieguito Lagoon prior to project approval and implementation:

- U.S. Army Corps of Engineers Section 404 permits
- Regional Water Quality Control Board Section 401 Water Quality Certification
- California Department of Fish and Wildlife Streambed Alternation Agreement;
- California Coastal Commission Development Permit
- City of San Diego Encroachment Permit for any impacts to lands owned by the City of San Diego.

Habitat Distribution. Area W6a (± 2.5 acres) is proposed primarily as an inlet channel to provide tidal flow to Area W6b. W6a will support wetland habitat and will be constructed independent of area W6b. Area W6b (± 17.5 acres), which was not proposed to be constructed as part of the SCE project, could be excavated and connected to area W6a in the future, should that be the desire of the property owners, the 22nd District Agricultural Association/JPA, and City of San Diego. If area W6b is restored in the future, the channel created in W6a at elevation +0.5 foot NGVD would be extended south into area W6b. Construction of Area W6b could occur after the completion of the SCE components without the need to impact any of the restored wetlands.

Potential Impacts to Existing Habitats. Exact impacts to the existing habitats are not yet known without a Final Grading and Restoration Plan, but it is anticipated that only ruderal upland vegetation will be impacted by construction of W6b.

Land Ownership. The area proposed for W6b is owned by the 22nd Agricultural District, San Diego JPA, and the City of San Diego. The Ag District would need to agree to the use of this property by Poseidon which may present a significant constraint as did the other restoration project proposed by Poseidon that is currently being planned by Caltrans.

Compliance with OPA requirements and conditions. It is likely that Poseidon would need to enter into an agreement with the current landowner and with SCE to undertake the proposed restoration. This was not successful previously; however, Caltrans is currently preparing and EIR/EIS on its expansion project. Information contained in that document could be useful in evaluating the potential for W6b to be implemented without adversely affecting the existing wetland restoration being undertaken by SCE.

In addition, the potential for successful wetland restoration at the San Dieguito Lagoon W6B site identified is dependent upon the success of the SCE restoration. The two projects would be

physically linked, with the 17+-acre site essentially an extension of the SCE W6a site. Failure by SCE to provide the requisite tidal flushing through maintenance of the tidal inlet or failure to excavate or maintain the proposed elevations would negatively affect both restorations and ultimately prevent achievement of the stringent CCC success conditions.

An evaluation of the potential of this site meeting the OPA requirements is given below:

OPA Objectives and Criteria for Marine Life Mitigation	Potential for Compliance
Submit a Mitigation Plan, including project objectives, site selection, site protect instrument, baseline site conditions, a mitigation work plan, a maintenance plan, a long-term management plan, an adaptive management plan, performance standards, success criteria, monitoring requirements, and financial assurances.	Possible. A mitigation plan needs to be prepared that addresses the specific needs of the Poseidon mitigation requirements to address fish issues.
Mitigation shall be accomplished through expansion, restoration or creation of one or more of the following: kelp beds, estuaries, coastal wetlands, natural reefs, MPAs, or other projects approved by the regional water board.	Yes. Restoration of the W6b to intertidal wetlands would convert upland areas to tidal wetlands.
The owner/operator shall demonstrate that the project fully mitigates for intake-related marine life mortality by including expansion, restoration, or creation of habitat based on the APF acreage calculated.	No. The project site is too small to provide the expected mitigation requirement.
The mitigation project's production area shall overlap the facility's source water body. Impacts on the mitigation project due to entrainment by the facility must be offset by adding compensatory acreage to the mitigation project.	No. The project is located in San Diego County and its production area does not overlap the facility's source water body.
The owner/operator shall demonstrate that the project fully mitigates for discharge- and construction-related marine life mortality projected in the MLMR.	No. The anticipated benefits at W6b are not sufficient to meet the APF estimated in the MLMR.
The regional water board may permit out-of-kind mitigation for mitigation of open water or soft bottom species. In-kind mitigation shall be done for all other species whenever feasible.	Possible. This project is out-of-kind but provides benefits for fish species associated with Southern California wetland systems. Independent monitoring by the Coastal Commission has found that, after restoration, fish populations are very similar to reference wetlands in both species diversity and density. Success depends upon maintaining an open tidal inlet.

2.4 BIG CANYON CREEK

The Big Canyon Creek Restoration Project is located in the City of Newport Beach, Orange County, California. The Big Canyon Creek Watershed covers approximately two square miles and drains directly into Upper Newport Bay. The lower portion of Big Canyon is within the Upper Newport Bay State Ecological Reserve. Big Canyon is the only natural, undeveloped portion of the Big Canyon Creek watershed, and the only significant remaining natural canyon on the east side of Newport Bay.

Natural tidal flow into Big Canyon was impeded in the mid-1900s with the construction of Back Bay Drive and placement of dredged materials from Upper Newport Bay, both of which effectively created a barrier and eliminated more than five acres of tidal wetlands. There has been significant habitat degradation throughout the canyon due to decades of dredged fill, invasive non-native plants from surrounding developed areas, erosion, and lack of a comprehensive plan. Dredged materials placed in Big Canyon have resulted in large areas of saline and infertile soils which cannot support native plant communities. A freshwater pond was constructed in the early 1980s but is now a very shallow marsh filled with sediment. The pond water is characterized by temperatures too high to support native aquatic animal populations.

Newport Bay is listed as an impaired water body under the federal Clean Water Act due to the high levels of constituents of concern flowing into the Bay. Unfiltered urban runoff carried by Big Canyon Creek is a water quality issue having potentially negative impacts on Upper Newport Bay and the nearly 500 species of animals, fish, and plants that reside in the Bay.

Additionally, high levels of naturally-occurring selenium have been documented in the Big Canyon Creek Watershed by a 2007 water quality study by Weston Solutions, Inc. Selenium, a bioaccumulative compound, has been associated with reproductive impairment in wildlife. The Santa Ana Regional Water Quality Control Board (RWQCB) has expressed concern about the high levels of selenium in the watershed and potential reproductive effects on fish and birds. Selenium measured in water samples collected throughout the Big Canyon Creek Nature Park and immediately upstream of the park exceeded the California Toxics Rule (CTR) freshwater chronic criterion for selenium of 5 micrograms per liter ($\mu\text{g/L}$) under both wet and dry conditions (Santa Ana RWQCB 2010).

The Big Canyon Nature Park has been heavily used by local communities for passive recreation and by the Orange County Department of Education for outdoor education. It is an integral part of the Upper Newport Bay ecological preserve and provides unique opportunities for the public to learn about the diversity of biological resources and environmental protection within a short walking distance.

The project intends to achieve the following objectives:

- Restore Tidal Marsh
- Improve Water Quality
- Enhance Riparian Habitat
- Reduce Flood/Erosion/Sedimentation Damage
- Encourage Public Participation and Provide Education
- Provide Recreational Opportunities

Status of Existing Plans. Community Conservancy International and a team of wetlands restoration consultants and project stakeholders prepared a Historic Tidal Wetlands Conceptual

Restoration Plan for the Big Canyon Creek Restoration Project in 2004. The comprehensive plan is available on the City of Newport Beach website (<http://www.newportbeachca.gov>). The plan identified two restoration alternatives: 1) a constructed tidal wetlands alternative, and 2) a historic tidal wetlands alternative. The historic tidal wetlands alternative was ultimately identified as the preferred alternative.

The preferred restoration alternative would create 5.66 acres of salt marsh habitat. The restored tidal marsh would improve the transition between fresh and saltwater habitat, enhance habitat for benthic invertebrates, and increase habitat diversity and complexity. Additional freshwater marsh, freshwater pond, riparian, and native upland habitats would be restored as part of the preferred restoration alternative. These areas would provide additional habitats for native plants and wildlife.

A mitigated negative declaration (MND) was prepared for the preferred alternative and approved in 2007. Following the 2007 water quality study which identified elevated levels of selenium in the restoration area, restoration plans were revised to isolate and minimize the effects of selenium on restored wetland habitats. In 2009, the MND was revised for a new project design which would create 2 acres of freshwater marsh and restore 3.6 acres of historic tidal wetlands at the mouth of Big Canyon. Other freshwater restoration and native habitat enhancement elements were still included in the revised MND.

Following discussions with the Santa Ana RWQCB about selenium issues at the Big Canyon Creek Restoration Project, restoration plans were put on hold. The RWQCB was concerned that the form of selenium discharged from the Big Canyon Creek system had the potential to be readily absorbed by wildlife. The RWQCB recommended running a pilot program and establishing a monitoring period for evaluation of potential effects on wildlife. The RWQCB stated that reclaimed water would not be allowable in the proposed freshwater marsh restoration because there would be a potential for it to overflow into the Bay. The RWQCB recommended water column water quality tests with associated bird and bird egg tissue sampling.

In 2011, the City of Newport Beach submitted a selenium mitigation plan to the Regional Board outlining a detailed strategy for reducing selenium concentrations in Big Canyon Creek below the California Toxic Rule standard of 5 parts per billion (ppb). That program is actively being implemented. In 2016, the City intends to start construction of a selenium removal wetland downstream of Jamboree Road.

Status of Environmental Documentation. A MND was approved for the original preferred restoration alternative and a notice of determination was issued by the City of Newport Beach on September 17, 2007. In 2009, the MND was revised for a new project design which sought to isolate and minimize the effects of selenium on water quality and wildlife. The environmental review process is currently on hold while selenium sampling and monitoring methods are implemented to determine if the Restoration Project would have significant effects on water quality and wildlife.

Status of Required Permits. The following permits would be required for the Big Canyon Creek Restoration Project and were in various stages of preparation and approval by WRA, Inc. before the issue of high selenium halted the project:

- U.S. Army Corps of Engineers Nationwide Permit 27
- Regional Water Quality Control Board 401 Water Quality Certification

- California Department of Fish and Wildlife Lake and Streambed Alteration Agreement
- California Coastal Commission Local Coastal Plan Coastal Development Permit
- U.S. Fish and Wildlife Service Endangered Species Act Section 7 Consultation

Habitat Distribution.

The native plant communities in the upper part of Big Canyon include arroyo willow (*Salix lasiolepis*) scrub, alkali meadow, freshwater marsh, and sagebrush (*Artemisia californica*) scrub. The lower portion (western) of the canyon is dominated by a large area of freshwater marsh, along with cottonwood-willow riparian forest, alkali meadow, brackish marsh, mulefat scrub, alkali grassland, chenopod scrub, coyote brush scrub, and sagebrush scrub. The canyon slopes contain areas of coastal bluff scrub and coyote brush scrub. The tidal wetlands on the bayside of Back Bay Drive are dominated by saltmarsh, with smaller areas of alkali grassland, alkali meadow, alkali marsh, brackish marsh, mulefat scrub and sagebrush scrub along the edges of the roadway.

Potential Impacts to Existing Habitats. Under the original project design (preferred restoration alternative), the net gain in salt marsh habitat is approximately 5.25 acres after subtracting existing intertidal habitat within the project.

Land Ownership. The City of Newport Beach owns the 70-acre Big Canyon Creek Restoration Project Area. The property is part of the Upper Newport Bay State Ecological Reserve managed by CDFW. Numerous other agencies and community organizations have partnered with the CDFW and City of Newport Beach for the Big Canyon Creek Restoration Project and the management of the entire Upper Newport Bay State Ecological Reserve.

Compliance with OPA Requirements and Conditions. Big Canyon Creek is relatively small and cannot meet the acreage requirements. However, the potential to meet other OPA criteria is described below:

OPA Objectives and Criteria for Marine Life Mitigation	Potential for Compliance
Submit a Mitigation Plan, including project objectives, site selection, site protect instrument, baseline site conditions, a mitigation work plan, a maintenance plan, a long-term management plan, an adaptive management plan, performance standards, success criteria, monitoring requirements, and financial assurances.	Possible. A mitigation plan has been prepared and the initial plan was reviewed under CEQA. Since then, additional issues related to selenium have come up that need to be resolved before initiating a larger project. Orange County Public Works Department is currently building a small wetland to sequester selenium before it enters Newport Bay. Further research will need to be completed to determine if this action will be successful. It is unlikely that the restoration project will move forward until further investigation into the success of the selenium sequestration wetland.
Mitigation shall be accomplished through expansion, restoration or creation of one or more of the following: kelp beds, estuaries, coastal wetlands, natural reefs, MPAs, or	Yes. Restoration of Big Canyon can have benefits through restoration of tidal wetlands on a portion of the proposed

OPA Objectives and Criteria for Marine Life Mitigation	Potential for Compliance
other projects approved by the regional water board.	project footprint.
The owner/operator shall demonstrate that the project fully mitigates for intake-related marine life mortality by including expansion, restoration, or creation of habitat based on the APF acreage calculated.	No. The portion of the site to be restored to tidal wetlands is too small to meet the expected mitigation requirement.
The mitigation project's production area shall overlap the facility's source water body. Impacts on the mitigation project due to entrainment by the facility must be offset by adding compensatory acreage to the mitigation project.	No. While the project is located in Orange County, its production area is associated more with fish populations in Upper Newport Bay than coastal fish populations.
The owner/operator shall demonstrate that the project fully mitigates for discharge- and construction-related marine life mortality projected in the MLMR.	No. The anticipated benefits at Big Canyon are not sufficient to meet the APF estimated in the MLMR.
The regional water board may permit out-of-kind mitigation for mitigation of open water or soft bottom species. In-kind mitigation shall be done for all other species whenever feasible.	Possible. This project is out-of-kind but would restore some habitat for fish and soft bottom species, especially on the mudflats being proposed.

2.5 HUNTINGTON BEACH WETLANDS

The Huntington Beach Wetlands consist of Talbert Marsh (27 acre), Brookhurst Marsh (67 acres), Magnolia Marsh, including Upper Marsh (43 acres), and Newland Marsh (44 acres):

- Talbert Marsh was restored in 1990, although there has been some sediment deposition issues at the restored marsh, which is located at immediately east of the mouth of the Santa Ana River and is connected to the ocean via Talbert Ocean Channel. Talbert Ocean Channel is a manmade tidal inlet protected by armored jetties.
- Brookhurst Marsh was restored to tidal marsh in 2008.
- The Magnolia Marsh component of Huntington Beach Wetlands was restored in 2010.
- Newland Marsh is the only component of the system that has not been restored. Newland Marsh is currently owned by the California Department of Transportation (Caltrans). The Huntington Beach Wetlands Conservancy (HBWC) has recently added the acquisition of the Newland Marsh Property to the Southern California Wetland Work Plan as a priority. The estimated cost of this property has not been made public, but Caltrans is considering transfer of the property which consists of degraded coastal saltmarsh and brackish water marsh. A portion of the property had been filled for a boat yard and is non-wetland.

The situation at present is that CalTrans is going through the administrative process of declaring the Newland Marsh property surplus and determining its valuation for sale to another state agency such as the California Coastal Conservancy. Once that transfer occurs, the property is likely to be leased to the Huntington Beach Wetlands Conservancy for restoration. Once acquired, Newland Marsh will present the Conservancy with some challenges as it proceeds with restoration of the full tidal access enjoyed by Talbert, Brookhurst and Magnolia marshes. Highways, housing developments and a mobile home park lie immediately adjacent to the property and will need protection from flooding. It is likely that since the flood control channel bisects the property, a muted or dampened tidal wetland may be the best option. The wetlands will in turn need protection, or “buffering,” from the residential developments. Electrical transmission lines, including a high voltage line, run across the middle of the property and will need to be relocated or protected in place, and a long abandoned oil well on the site needs to be evaluated. Finally, the disposition of the small former boatyard parcel must be determined. Any development on that parcel will need to be buffered from the wetlands. Despite these issues, Newland Marsh has the potential to become a biologically productive coastal wetland on par with the other three marshes comprising the Huntington Beach Wetlands.

Status of Existing Plans. A conceptual restoration plan for the Huntington Wetlands was completed on April 10, 2006.

Status of Environmental Documentation. A Mitigated Negative Declaration (MND) for all HBWC-owned lands was prepared by the County of Orange in December 2007 and adopted in January 2008. This MND did not include Newland Marsh, which is owned by Caltrans, and therefore a CEQA document would need to be prepared for the Newland Marsh.

Status of Required Permits. Eight permits were identified in the conceptual restoration plan:

- City of Huntington Beach – Coastal Development Permit
- County of Orange Flood Control Agency - Encroachment Permit
- Regional Water Quality Control Board Section - 401 Water Quality Certification, Dewatering Permit;
- California Department of Parks and Recreation Encroachment Permit;
- California Coastal Commission Coastal Development Permit;
- California State Lands Commission Encroachment Permit;
- California Department of Fish and Wildlife Streambed Alteration Agreement;
- U. S. Army Corps of Engineers – Sections 404 permits

These permits would be necessary prior to the restoration implementation.

Habitat Distribution. It is expected that subtidal and intertidal habitats will be created within the Newland Marsh. Depending upon the need for flood protection levees around the perimeter, up to 50 acres of restored wetland may be created at the site.

Potential Impacts to Existing Habitats. The conceptual plan developed for Newland Marsh would require installing culverts to provide muted tidal influence, enlarging existing channels and creating new channels, and installing protective levees. Creating and enlarging channels would impact an undetermined area of existing non-tidal wetlands.

Land Ownership. Caltrans currently owns the Newland Marsh property. The sale of the Newland Marsh property has been a long process. In May, 2011 the LA Times reported that the sale of Newland Marsh to the HBWC was imminent, and the only hurdle to cross was the transfer of the land to the HBWC. This transaction has still to date not been realized, CalTrans is going through the administrative process of declaring the Newland Marsh property surplus and determining its valuation for sale to another state agency. As of April 2016 the transaction still had yet to be completed.

Compliance with OPA Requirements and Conditions. The Huntington Beach Wetlands Conservancy (HBWC) has long included the restoration of the Newland Marsh as part of its mission. The most likely scenario would be that project would be completed under a fee based mitigation program. The Huntington Beach Wetlands Conservancy has a highly successful record in receiving and managing funds used to permit, construct, and monitor previous wetland restoration projects in Orange County.

The potential for this site to meet the OPA requirements is:

OPA Objectives and Criteria for Marine Life Mitigation	Potential for Compliance
Submit a Mitigation Plan, including project objectives, site selection, site protect instrument, baseline site conditions, a mitigation work plan, a maintenance plan, a long-term management plan, an adaptive management plan, performance standards, success criteria, monitoring requirements, and financial assurances.	Yes. A conceptual mitigation plan has been prepared. The HBWC has a successful record in preparing detailed plans and undertaking the construction and monitoring of restoration projects.
Mitigation shall be accomplished through expansion, restoration or creation of one or more of the following: kelp beds, estuaries, coastal wetlands, natural reefs, MPAs, or	Yes. Restoration of Newland Marsh will restore historic tidal wetlands to this degraded site that is no longer connected

OPA Objectives and Criteria for Marine Life Mitigation	Potential for Compliance
other projects approved by the regional water board.	to the ocean due to levees and surrounding development.
The owner/operator shall demonstrate that the project fully mitigates for intake-related marine life mortality by including expansion, restoration, or creation of habitat based on the APF acreage calculated.	Yes. The Newland Marsh will provide restored tidal wetlands sufficient to meet the APF.
The mitigation project's production area shall overlap the facility's source water body. Impacts on the mitigation project due to entrainment by the facility must be offset by adding compensatory acreage to the mitigation project.	Yes. The project is located adjacent to the proposed facility and will support fish populations that provide forage to coastal species.
The owner/operator shall demonstrate that the project fully mitigates for discharge- and construction-related marine life mortality projected in the MLMR.	Yes. Monitoring conducted by the HBWC on other wetlands restored to tidal flows have shown that fish populations typical of estuarine wetlands have been established in a density and diversity similar to other wetlands nearby.
The regional water board may permit out-of-kind mitigation for mitigation of open water or soft bottom species. In-kind mitigation shall be done for all other species whenever feasible.	Yes. This project is out-of-kind and would restore sufficient habitat for fish and soft bottom species with the proposed vegetated and open water portions of the project site.

2.6 BOLSA CHICA WETLAND RESTORATION AND INLET MAINTENANCE

Bolsa Chica is an approximately 1,341-acre coastal estuary located in Huntington Beach, Orange County, California (Figure 1-1). Portions of the the site are used for oil and natural gas production. Previous restoration actions at Bolsa Chica included the construction and opening of the Full Tidal Basin (FTB) to the ocean, which was completed at the end of 2006 (Figure 1-2). Within Bolsa Chica, 317 acres of habitat were restored as full tidal habitat and require tidal exchange to function and provide ecological value to marine fish. However, since completion, the Bolsa Chica inlet has nearly closed once, and tidal exchange is muted due to shoaling inside the inlet. This has resulted in a smaller volume of ocean water exchanged during the tidal cycle, a narrower tidal range, and lowered wetland functions. In addition, the 200 acres of muted tidal areas that are connected to the FTB do not adequately drain, causing lowered water quality in these areas.

There have been two dredging events in early 2009 and 2011 that restored full tidal connectivity. In 2015, there was a reduced dredging event that did not remove all the sediment from the sediment basin, yet it appears to have been effective in restoring the tidal range. The SLC believes that this latter type of inlet maintenance will be necessary in order to sustain the tidally influenced habitats within Bolsa Chica. Without continued maintenance dredging, the inlet is likely to close completely and the benefits of the restoration lost. If closure were to

occur, the FTB would be effectively isolated from the ocean and would no longer provide habitat for coastal marine fish. The muted tidal areas would also suffer degradation under a closed inlet condition.

Status of Existing Plans. Restoration plans for the lagoon have been approved and restoration has been completed. An inlet maintenance plan has been undertaken to maintain tidal action; however, it is not fully funded and the inlet is subject to muting due to the flood shoal filling with sand.

Status of Environmental Documentation. All necessary environmental documentation has been completed and approved by the CCC, USACE, USFW, State Lands, and Regional Water Quality Board.

Status of Required Permits. The State was responsible for obtaining permits and authorization from the U.S. Army Corps of Engineers, the Regional Water Quality Control Board, the Coastal Commission, and California State Parks for inlet maintenance. These permits have been issued and restoring the inlet was completed in 2015.

Habitat Distribution. The Bolsa Chica Lowland is an approximately 1,300 acre coastal estuary. Habitats include open water, mudflats, salt marsh, coastal dunes, seabird nesting islands, riparian, and freshwater marsh. The full tidal basin that is subject to inundation via a maintained tidal inlet is approximately 317 acres and a muted tidal basin that is connected to the full tidal area is approximately 200 acres.

Potential Impacts to Existing Habitats. Impacts from the inlet maintenance plan will be minimal and are incidental to the larger benefit of having full tidal exchange within the lagoon. Dredging the inlet shoal is a necessary action to assuring that the habitat values as discussed in Section 2.0 are maintained over time. According to modeling and initial monitoring undertaken at Bolsa Chica when the inlet was first opened, the inlet would need to be managed by dredging every two years and the placement of the dredged sand on the downcoast beach

Land Ownership. Bolsa Chica Ecological Preserve is owned by the State of California and managed by the California Department of Fish and Wildlife.

Compliance with OPA Requirements and Conditions. Inlet maintenance is part of the overall restoration plan and is an essential feature of assuring that the full tidal basin continues to function as planned. Previous actions by the regulatory agencies have recognized that tidal inlet maintenance is a part of the restoration of coastal wetlands because either natural stream flows that historically kept the inlet open have diminished due to upstream development and/or the tidal prism of the coastal wetland has been diminished such that volume of water moving through the inlet has been reduced and it is more prone to filling with sand from longshore currents.

In the case of Bolsa Chica, the full tidal basin is less than a quarter of historic acreage that once supported a tidal inlet. The designation of habitat credits for inlet maintenance has been made for other projects including San Dieguito Wetlands, Baticuitos Lagoon, and the Los Penasquitos wetlands. Poseidon has estimated that the fish benefits within the fully tidal basin alone could generate up to 200 acres of habitat credit. In addition, inlet maintenance is important in sustaining over 100 acres of eelgrass habitat in the full tidal basin. This eelgrass habitat supports coastal and estuarine fish and was not part of the credits provided to the Ports of Los Angeles and Long Beach when they funded the wetlands restoration project.

The State Lands Commission would enter into an agreement with Poseidon for the inlet maintenance to achieve restoration of the tidal wetlands. It would either be in the form of a lease to allow Poseidon to enter and complete the necessary actions for a period of time or be in the form of a fee-based mitigation where funds would be placed in escrow for State Lands to conduct the necessary inlet activities.

The ability of this site to meet the requirements of the OPA is described below:

OPA Objectives and Criteria for Marine Life Mitigation	Potential for Compliance
Submit a Mitigation Plan, including project objectives, site selection, site protect instrument, baseline site conditions, a mitigation work plan, a maintenance plan, a long-term management plan, an adaptive management plan, performance standards, success criteria, monitoring requirements, and financial assurances.	Yes. A MLMP for the restoration and maintenance of the inlet has been prepared by Poseidon that contains the elements described in this criterion.
Mitigation shall be accomplished through expansion, restoration or creation of one or more of the following: kelp beds, estuaries, coastal wetlands, natural reefs, MPAs, or other projects approved by the regional water board.	Yes. The inlet maintenance is an essential part of the overall restoration of the Bolsa Chica wetlands. Inlet maintenance has been recognized by regulatory agencies as vital to coastal wetland restoration and they have provided habitat credit to parties completing such work.
The owner/operator shall demonstrate that the project fully mitigates for intake-related marine life mortality by including expansion, restoration, or creation of habitat based on the APF acreage calculated.	Yes. The fish benefits through restoration of full tidal action to Bolsa Chica far exceeds that necessary to meet the APF.
The mitigation project's production area shall overlap the facility's source water body. Impacts on the mitigation project due to entrainment by the facility must be offset by adding compensatory acreage to the mitigation project.	Yes. The project is located adjacent to the proposed facility and will support fish populations that provide forage to coastal species.
The owner/operator shall demonstrate that the project fully mitigates for discharge- and construction-related marine life mortality projected in the MLMR.	Yes. The fish benefits through restoration of full tidal action to Bolsa Chica far exceeds that necessary to meet the APF.
The regional water board may permit out-of-kind mitigation for mitigation of open water or soft bottom species. In-kind mitigation shall be done for all other species whenever feasible.	Yes. This project is out-of-kind and would restore sufficient habitat for fish and soft bottom species within the full tidal basin.

2.7 LOS CERRITOS WETLANDS

Los Cerritos Wetlands is a degraded relic wetland complex flanking the lower San Gabriel River in Los Angeles County. A number of stakeholders have been involved with restoration planning of these wetlands. In 2006, a joint powers agreement was adopted to form the Los Cerritos Wetlands Authority (LCWA). This JPA consists of the City of Long Beach, the City of Seal Beach, Rivers and Mountains Conservancy, and the California State Coastal Conservancy. Since 2006, the LCWA has made a number of land acquisitions to consolidate stakeholder properties.

In 2015, a final conceptual restoration plan for approximately 565 acres was prepared by Moffat & Nichol for the LCWA. The final conceptual restoration plan includes primarily conceptual-level engineering and hydrology but does not include in depth analysis of biological resources.

In 2010, the LCWA received two grants from the Rivers and Mountains Conservancy for funding to start the Conceptual Restoration Planning and in 2011 the State Coastal Conservancy allocated funds to expand the original parameters and include more area in the Planning process.

In July 2012, the LCWA prepared a detailed summary of existing site conditions and related them to opportunities and constraints to affecting a tidal wetland restoration plan for the project site properties. This report was superseded by the 2015 Final Conceptual Restoration Plan. This CRP presents the preliminary designs and phasing of alternatives. Analyses were performed of their habitats, public accessibility, tidal hydrology, likely construction scenarios, maintenance requirements and construction costs. Analyses are summarized below by alternative. For public access, the LCW Stewardship Program (LCW SP) presently provides guided access to the site. Programming of public access by the LCW SP will continue and be developed as appropriate for each alternative.

In January 2015, one of the land owners at Los Cerritos wetlands, Synergy, proposed to create a 76 acre tidal wetland mitigation bank. The bank would allow the oil operator to receive credits for restoring the wetlands and then making them available for sale to others that need mitigation for their approved projects. The mitigation bank requires approval from the Interagency Mitigation Bank Review Team. According to Synergy, it will take until February 2018 to complete all the permitting, receive CEQA entitlements and establish the mitigation bank. Once that is done, actual work could begin such that the first phase of the work would be completed by 2020. As part of the mitigation bank, the existing oil wells on the property would be consolidated to a few locations.

Status of Existing Plans. A Final Conceptual Restoration Plan was published in 2015 by Moffat and Nichol. A Habitat Assessment Report (Habitat Types and Special Status Species) was completed in 2012. No publicly available files on the Mitigation Bank have been released.

Status of Environmental Documentation. No Environmental Documentation currently available; however, an EIS is being prepared and should be released in mid-2016. Federal funding may require an analogous NEPA document.

Status of Required Permits. The permits required for restoration were identified in the conceptual restoration plan. Permit applications will need to be submitted to the following jurisdictional agencies at a minimum:

- Cities of Long Beach and Seal Beach – Special Use Permits (assuming Coastal Development Permits (CDPs), CDPs would be processed by the State)
- City of Los Angeles – Special Use Permits (assuming the CDP for work at Callaway Marsh and use of Haynes Channel would be processed by the State), and possibly Counties of Los Angeles and Orange – Encroachment Permits
- Regional Water Quality Control Board – See below:
 - o Section 401C Water Quality Certification
- NPDES Permit
- Waste Discharge Requirements
- Dewatering Permit.
- California Coastal Commission – Coastal Development Permit approval would be by the State
- State Lands Commission – Lease of State Lands for work below the mean high tide line and any modifications to the State Lands Parcel
- Department of Fish and Wildlife – Possibly a Streambed Alteration Agreement if a river or stream is modified (Los Cerritos Channel and San Gabriel River)
- USACE – Sections 10 and 404 permit; Section 105 permit if disposal occurs offshore; a Section 408 permit would be required for any modifications to the San Gabriel River levee and that process requires a long lead time (more than a year). A Mitigation Banking Instrument would need to be approved for any portion of the property that would be used for mitigation banking and credit sales.

Habitat Distribution. Ruderal wetlands (15.8 percent) and ruderal uplands (22.0 percent) make up 37.8 percent of the land cover within the study site. Vegetation free zones (14.6 percent) and developments (2.9 percent) cover another 17.5 percent of the study site. 55.3 percent of the study site currently supports areas that have little to no habitat value. Furthermore, another 12.5 percent of the study site is composed of subtidal areas (32.2 percent) of the study site is composed of discernable wetland habitats, and of that acreage, 11.7 percent are tidal wetlands. The CRP details 3 project alternatives resulting in three different levels of impact and habitat restoration. All three plans call for the creation and enhancement of subtidal, mudflat, saltmarsh (low, mid, high), transitional and upland habitats

Potential Impacts to Existing Habitats. The restoration of the LCW could potentially impact the existing habitat, the level and type of impact will depend on the restoration alternative that is chosen. All project alternatives include processes that incorporate some type of tidal flow conveyance, whether it is installation of culverts or the construction of new channels. It likely that much of the ruderal and vegetation free zones will be converted to coastal salt marsh, and existing wetlands will be expanded.

Land Ownership. Land ownership at Los Cerritos Wetlands has been an impediment to a unified restoration strategy in the past. However, these properties are being acquired by the State over time. Property within the Los Cerritos Wetlands Complex is held by eleven land owners with four oil leases, and split into even more parcels. The private entities who retain ownership over different parcels include Synergy, Loynes LLC, Studebaker LLC, Hellman Properties LLC, and Lyon Communities) The public sector, or non-profit entities that own parcels include LCW Partners, Alamitos Bay Partners, City of Long Beach, LCWA, County of Orange Flood Control District, City of Los Angeles DWP, and the State Lands Commission. The Synergy ownership group is seeking approval for a mitigation bank on a portion of their property.

Compliance with OPA Requirements and Conditions. It is most likely that the project would be undertaken as a fee based mitigation either with the City of Long Beach or through a “turn key” mitigation within the proposed Synergy mitigation bank. The City of Long Beach does have the capacity and experience to undertake a restoration project on behalf of Poseidon; however, no information is available for the Synergy banking option.

Compliance with the OPA requirements is described below:

OPA Objectives and Criteria for Marine Life Mitigation	Potential for Compliance
Submit a Mitigation Plan, including project objectives, site selection, site protect instrument, baseline site conditions, a mitigation work plan, a maintenance plan, a long-term management plan, an adaptive management plan, performance standards, success criteria, monitoring requirements, and financial assurances.	Yes. A conceptual mitigation plan has been prepared. More detail is expected once the CEQA document is released in mid-2016.
Mitigation shall be accomplished through expansion, restoration or creation of one or more of the following: kelp beds, estuaries, coastal wetlands, natural reefs, MPAs, or other projects approved by the regional water board.	Yes. Restoration of Los Cerritos wetlands will restore historic tidal wetlands to this degraded site that is no longer connected to the ocean due to levees and surrounding development.
The owner/operator shall demonstrate that the project fully mitigates for intake-related marine life mortality by including expansion, restoration, or creation of habitat based on the APF acreage calculated.	Yes. The Los Cerritos wetlands will provide restored tidal wetlands sufficient to meet the APF.
The mitigation project's production area shall overlap the facility's source water body. Impacts on the mitigation project due to entrainment by the facility must be offset by adding compensatory acreage to the mitigation project.	Possible. The project is located north of the proposed facility and may support fish populations that provide forage to coastal species.
The owner/operator shall demonstrate that the project fully mitigates for discharge- and construction-related marine life mortality projected in the MLMR.	Yes. The Los Cerritos wetlands will provide restored tidal wetlands sufficient to meet the APF.
The regional water board may permit out-of-kind mitigation for mitigation of open water or soft bottom species. In-kind mitigation shall be done for all other species whenever feasible.	Yes. This project is out-of-kind and would restore sufficient habitat for fish and soft bottom species associated with coastal wetlands. The final project design is not yet completed and no other marsh restoration has been completed within this complex to judge its success. However, given previous restorations in the vicinity in Anaheim Bay, fish populations to mitigation the losses are likely to be restored at the Los Cerritos wetlands.

The presence of current oil development in the Los Cerritos Wetlands reflects the uncertainty regarding eventual restoration of this site. Any proposed restoration would require extensive testing for contaminants, as well as planning, engineering, environmental documentation, and permitting required for such projects. In addition, Los Cerritos Channel, is used by two power plants for once-through cooling. The elevated water temperature associated with once-through cooling of existing power plants may influence establishment target of species.

However, the size of the properties now acquired by the State, the public input and support that exists for their restoration, and the fact that alternatives are being developed that would reflect reasonable and efficient plans to restore tidal action make this site attractive for potential mitigation.

2.8 COLORADO LAGOON

The Colorado Lagoon (Lagoon) is a 28.3-acre tidal water body in an urban setting in the City of Long Beach (City). It is currently connected to the open ocean tides (via the Marine Stadium and Alamitos Bay) by an underground culvert. According to the City of Long Beach website (City of Long Beach 2013), the Lagoon:

Serves three main functions: 1) hosting sensitive estuarine habitat; 2) providing public recreation (including swimming); 3) and retaining and conveying storm flows. The Lagoon is listed on the State of California's 303(d) list as an impaired water body, due to high levels of water and sediment contamination. In addition, the Lagoon's estuary habitat has deteriorated over time as native plant species have significantly declined due to the encroachment of invasive ornamental landscaping.

The Colorado Tidal Lagoon Restoration Project is being led by the City with support and advocacy by the Friends of Colorado Lagoon (FOCL). The Coastal Conservancy funded a restoration feasibility study which was completed in 2004 and identified restoration potential for the Lagoon. The Restoration Project is occurring in two phases. Phase 1 improved stormwater management in the project area, remediated contaminated marine sediments, and enlisted community members to restore disturbed habitats and install interpretive information for visitors. Approximately 2 acres of tidal salt marsh habitats, as well as additional upland and coastal bluff habitats, were restored as part of Phase 1. This restoration was completed in 2011. The final elements of the community-based restoration of Phase 1 include restoring the western arm of the Lagoon by recontouring its banks, and installing perimeter fences, erosion control, signage, educational kiosks, and native plants. Phase 1 was completed in August 2013.

Phase 2 of the project is currently under design and planning and is detailed in the following section. The City had started to develop a mitigation bank on the lagoon with the help of Moffat and Nichol and WRA. This effort was halted by the lack of available funding.

Status of Existing Plans. Phase 2 will consist of a 2 acres tidal creek restoration, reconnecting the Lagoon to full tidal flushing. When the Restoration Project's EIR was certified by the City Council, they requested that the FOCL examine additional alternatives that could improve the restoration site's tidal circulation. A conceptual restoration study examining four alternatives for Phase 2 of the restoration was completed in 2010 by Moffat and Nichol. Based on this study, state and federal regulators, and the FOCL, identified a preferred restoration alternative. The preferred restoration design entails a complete open tidal channel with two

bridges on either side of the channel. Approximately 2.2 acres of tidal wetlands would be created under this preferred restoration alternative. The Long Beach City Council approved this alternative on November 16th, 2010 (FOCL 2013).

Now that a preferred restoration design has been selected for Phase 2, the City and FOCL will need to secure a funding source, create a 100 percent restoration design schematic, permit the project, and implement the restoration. The FOCL estimates that this process will take from three to five years (FOCL 2013). The City is also seeking to create a mitigation bank for the tidal creek portion of the property and has filed an application with the Corps of Engineers Interagency Mitigation Banking Team. The proposal is under consideration.

Status of Environmental Documentation. In October, 2008, the City Council certified the EIR for the Restoration Project. Upon certification, the City Council requested that the FOCL examine additional alternatives that could improve the restoration site's tidal circulation. A preferred alternative was selected in 2010.

Status of Required Permits. No permits have been acquired for Phase 2 of the Restoration Project. Permits required will likely include:

- Regional Water Quality Control Board Section - 401 Water Quality Certification, Dewatering Permit;
- California Department of Fish and Wildlife Streambed Alteration Agreement;
- U. S. Army Corps of Engineers – Sections 10 and 404 permits;
- California Coastal Commission Coastal Development Permit; Approved Mitigation Banking Instrument should a mitigation bank be approved.
- U.S. Fish and Wildlife Service/National Marine Fisheries Service Section 7 Federal Endangered Species Act Consultation.

Habitat Distribution. The Lagoon, Marina Vista Park, and a small area of Marine Stadium (which comprise the proposed project area) consist of approximately 48.61 acres in the City of Long Beach. The historic Los Cerritos Wetlands were dredged in the 1920s to form the Lagoon, which has subsequently been used for a variety of public and private recreational events.

The Lagoon is located in a park setting and is owned and maintained as a City park by the City Department of Parks, Recreation, and Marine. Existing improvements include the Lagoon habitat, a wetland and marine science education center, picnic area, and play equipment. The Lagoon lies northwest of the mouth of the San Gabriel River and is north of Marine Stadium and Alamitos Bay. Land uses adjacent to the project area are predominantly residential and recreation.

The topography in the project vicinity is relatively flat with a gently sloping transition from the Lagoon waters to upland areas. The project area is dominated by the Lagoon, an 11.7-acre tidal water body that is connected through an underground tidal culvert to Marine Stadium, which in turn is connected to Alamitos Bay and the Pacific Ocean.

Potential Impacts to Existing Habitats. Under the preferred restoration alternative, the Restoration Project has the potential to impact California least tern foraging habitat. Additionally, open tidal waters, existing tidal wetlands in the Lagoon, and sensitive eel grass habitats could be impacted by the project. However, according to the 2010 Colorado Lagoon Final EIR Addendum, prepared by LSA Associates (LSA 2010):

The certified 2008 EIR concluded that the project as analyzed would not have a significant impact on biological resources. Based on the analysis and information presented above, there is no evidence that the revised Colorado Lagoon Restoration Project would result in more substantial or new significant cumulative impacts related to Biological Resources compared to those disclosed and analyzed in the certified 2008 EIR. Therefore, in consideration of all of the above, the changes to the revised Colorado Lagoon Restoration Project do not require any major changes to the certified 2008 EIR and would not result in any new significant cumulative environmental impacts.

Land Ownership. The 48.61 acre site is owned by the City of Long Beach and restoration is being implemented by the City with assistance from the Friends of Colorado Lagoon.

Compliance with OPA Requirements and Conditions. The City of Long Beach is considering developing a mitigation bank at this site and has filed an application with the Corps of Engineers. If this approach is approved, the site could offer a fee-based mitigation opportunity for Poseidon.

The potential to meet the OPA requirements is as follows:

OPA Objectives and Criteria for Marine Life Mitigation	Potential for Compliance
Submit a Mitigation Plan, including project objectives, site selection, site protect instrument, baseline site conditions, a mitigation work plan, a maintenance plan, a long-term management plan, an adaptive management plan, performance standards, success criteria, monitoring requirements, and financial assurances.	Yes. A detailed mitigation plan has been prepared. The City of Long Beach is the sponsor and has received grants in the past for restoration work in the lagoon and has successfully completed them.
Mitigation shall be accomplished through expansion, restoration or creation of one or more of the following: kelp beds, estuaries, coastal wetlands, natural reefs, MPAs, or other projects approved by the regional water board.	Yes. Restoration of the Colorado Lagoon will restore historic tidal wetlands and create a new tidal channel in upland areas. The final project design is not yet completed and no other marsh restoration has been completed within this complex to judge its success. However, given previous restorations in the vicinity in Anaheim Bay, fish populations to mitigation the losses are likely to be restored at the Los Cerritos wetlands.
The owner/operator shall demonstrate that the project fully mitigates for intake-related marine life mortality by including expansion, restoration, or creation of habitat based on the APF acreage calculated.	No. The benefits associated with restoration and creation of habitat are insufficient to meet the APF requirements. Phase I actions resulted in a functional lift of approximately 13 acres of habitat. The Phase II actions will result in additional functional lift to the lagoon, increase in high marsh habitat in the lagoon, and create 2 acres of additional intertidal and subtidal habitat in the new

OPA Objectives and Criteria for Marine Life Mitigation	Potential for Compliance
	channel alignment.
The mitigation project's production area shall overlap the facility's source water body. Impacts on the mitigation project due to entrainment by the facility must be offset by adding compensatory acreage to the mitigation project.	No. The project is located at the head of Anaheim Bay and is quite far from the production area.
The owner/operator shall demonstrate that the project fully mitigates for discharge- and construction-related marine life mortality projected in the MLMR.	No. There is insufficient acreage.
The regional water board may permit out-of-kind mitigation for mitigation of open water or soft bottom species. In-kind mitigation shall be done for all other species whenever feasible.	Possible. This project is out-of-kind but will provide fish and soft bottom habitat. However, it is constrained by its distance and small size.

2.9 BALLONA WETLANDS

The Ballona Wetlands Ecological Reserve (BWER), located south of Playa del Rey, is the last major wetland remaining in Los Angeles County. Efforts to preserve and restore this wetland have spanned approximately the last 30 years and have included the efforts of a host of non-profit organizations, state and federal resource agencies and other stakeholders.

The BWER site consists of approximately 600 acres of open space in the Playa Vista neighborhood of Los Angeles, in Los Angeles County, California. Of these 600 acres, 540 acres are owned by the CDFW and 60 acres are owned by the State Lands Commission (SLC). The 60 acres belonging to the SLC was leased to the CDFW and the entire property was named the Ballona Wetlands Ecological Reserve. Funds for the purchase were acquired from Proposition 25 which set aside \$300 million for coastal wetland acquisition and restoration in southern California. Funding for the planning and restoration of the property was provided by the CCC under Proposition 12. Together, the CDFW, SLC, and CCC are working with stakeholders, scientists, and other agencies to restore the wetlands. Five groups have been primarily responsible for the development of the restoration: the Ballona Wetlands Scientific Advisory Committee, the Ballona Wetlands Working Group, the Ballona Wetlands Project Management Team, the Ballona Wetlands Technical Advisory Committee, and the Ballona Wetlands Agency Advisory Committee.

In 2005, the California State Coastal Conservancy funded the Ballona Wetlands Restoration Feasibility Study (PWA et al., 2008). This study culminated in the development of five restoration scenarios, ranging from minimal wetland creation and enhanced upland restoration to maximum wetland restoration that includes the removal of Ballona Creek Flood Control Channel and significant infrastructure modification. In 2010, members of the BWER PMT met with agencies, businesses, and organizations that have an interest in infrastructural elements within and adjacent to the BWER to discuss future infrastructure plans under restoration

alternatives. Detailed descriptions of existing infrastructure can be found in the preferred alternatives memorandum (PWA 2010) and the existing conditions report (PWA et al. 2006).

A Conceptual Habitat Restoration and Management Plan (CHRAMP) have been prepared for the BWER. The CHRAMP examines restoration strategies under a single preferred restoration alternative identified by PWA (PWA 2010).

Status of Existing Plans. A restoration feasibility study was completed September 2008 with funding from the Coastal Conservancy. Five alternative restoration plans were developed for further consideration, including:

- Enhance existing habitat with minimal grading
- Muted tidal wetland restoration within existing constraints
- Full tidal wetland restoration, supporting all associated habitat types and requiring significant site alteration
- Full tidal wetland and subtidal habitat restoration, providing a connection between these habitats with the project site, and requiring significant site alteration
- Realignment of Ballona Creek, allowing interaction between the creek and wetland, and providing much more habitat and functional connectivity; and, requiring significant site alteration

The realignment of Ballona Creek was identified as the proposed restoration alternative in 2010 (PWA 2010). WRA, Inc. completed the Conceptual Habitat Restoration and Management Plan (CHRAMP) for the BWER in 2013. The CHRAMP examines restoration strategies under a single preferred restoration alternative identified by PWA (PWA 2010).

Status of Environmental Documentation. The need for a project-specific EIR has been identified. In late 2009, the Coastal Conservancy selected a contractor to prepare the EIR for the project, anticipated to begin early 2010. The formal environmental review of the proposed restoration project was kicked-off a public scoping meeting for the EIR/EIS in August 2012 with over 70 stakeholders attending. Staff also prepared and circulated the public notices and press releases for the scoping to the media in coordination with the U.S. Army Corps of Engineers and the CDFW. A variety of input was received from the public on alternatives to be evaluated and that input was considered in the preparation of the Draft Environmental Impact Report, which is scheduled to be released in 2016.

Status of Required Permits. The following permits will be required prior to project approval and implementation:

- U.S. Army Corps of Engineers Section 404 permit
- Regional Water Quality Control Board Section 401 Water Quality Certification
- California Department of Fish and Wildlife Streambed Alteration Agreement
- California Coastal Commission Coastal Development Permit
- California State lands Commission Encroachment Permit
- Los Angeles County Air Pollution Control District dredge operation permit

To date, there has been no action regarding acquisition of the identified permits.

Habitat Distribution and Potential Impacts to Existing Habitats. The proposed habitat distribution for each of the five restoration alternatives provided below. Impacts to existing

habitats have not been analyzed to date. In general, alternatives 3-5 propose to create fully tidal estuarine habitat with a resultant loss of fresh water marsh/ riparian and upland habitats.

Summary of Habitat Acreages by Alternative, Ballona Wetlands, 2009.

Habitat Type	Existing	Alternative 1	Alternative 2	Alternative 3	Alternative 4	Preferred Alternative
Subtidal	74.0	74.0	74.0	74.0	115.4	48.6
Intertidal Channel and Mudflat	1.7	10.4	11.7	20.4	40.6	26.2
Low Marsh	8.5*	66.0 (64.7*)	66.3 (37.0*)	102.0	87.6	131.0
Mid Marsh	17.6*	35.1 (34.3*)	38.6 (19.6*)	66.3	58.4	85.2
High Marsh	40.6*	18.6 (17.8*)	29.2 (10.2*)	66.3	58.4	85.2
Transitional Habitat	0.0	31.9	81.1	123.5	95.2	96.1
Brackish marsh	3.0	2.7	2.6	2.6	2.6	2.6
Total Estuarine	167.9	238.7	303.5	455.0	458.2	474.8

*Area of muted tidal influence

Land Ownership. All potentially restorable land is owned by the State of California.

Compliance with OPA Requirements and Conditions. The feasibility study completed in 2008 does not identify a preferred alternative. Subsequently, two alternatives (4 and 5) were revised and proposed for further analysis in the project EIR. In 2010, Alternative 5 was identified as the preferred restoration design (PWA 2010). Currently, the site is dominated by disturbed upland habitats with a small muted tidal marsh and the fully-tidal, concrete-lined Ballona Flood Control Channel.

Ballona’s potential for restoration is high, as is the potential for eventually supporting the habitats and species required by the OPA. However, the lack of consensus by stakeholders on a restoration strategy suggests that selection of a preferred alternative and further refinement may take considerable time. Restoration of Ballona Wetlands will require excavation and disposal of millions of cubic yards of material. Significant infrastructure modifications and updates will be required under the preferred restoration alternative (PWA 2010), including realignment of the Ballona Flood Control Channel.

The ability to meet the OPA requirements is:

OPA Objectives and Criteria for Marine Life Mitigation	Potential for Compliance
Submit a Mitigation Plan, including project objectives, site selection, site protect instrument, baseline site conditions, a mitigation work plan, a maintenance plan, a long-term management plan, an adaptive management plan, performance standards, success criteria, monitoring requirements, and financial assurances.	Possible. A plan will need to be prepared for submission that meets these various requirements. A final plan will not be known until the EIR/EIS process is completed in a number of years.

OPA Objectives and Criteria for Marine Life Mitigation	Potential for Compliance
Mitigation shall be accomplished through expansion, restoration or creation of one or more of the following: kelp beds, estuaries, coastal wetlands, natural reefs, MPAs, or other projects approved by the regional water board.	Possible. A number of alternatives have been proposed and depending upon the selected alternative, it may meet the requirements set forth in this criterion.
The owner/operator shall demonstrate that the project fully mitigates for intake-related marine life mortality by including expansion, restoration, or creation of habitat based on the APF acreage calculated.	Yes. The acreage proposed for restoration is substantial and is sufficient to meet the APF requirements.
The mitigation project's production area shall overlap the facility's source water body. Impacts on the mitigation project due to entrainment by the facility must be offset by adding compensatory acreage to the mitigation project.	No. The project is located on Santa Monica Bay and may be too far from the facility to overlap with the facility's source water body.
The owner/operator shall demonstrate that the project fully mitigates for discharge- and construction-related marine life mortality projected in the MLMR.	Yes. Depending upon the restoration alternative selected, it is likely that fish production will be enhanced or restored in sufficient acreage.
The regional water board may permit out-of-kind mitigation for mitigation of open water or soft bottom species. In-kind mitigation shall be done for all other species whenever feasible.	Possible. This project is out-of-kind and depending upon the alternative selected, it may provide sufficient fish and soft bottom habitat.

2.10 ORMOND BEACH

The Ormond Beach Restoration Project is a California State Coastal Conservancy-funded project located in Ventura County adjoining the cities of Port Hueneme and Oxnard. Approximately 1,500 acres of Ormond Beach is undeveloped and includes a mix of degraded wetlands, beach and dunes, agriculture, and mixed industry, including an abandoned metals-processing plant and an existing electricity generating plant. A 560-acre duck club with artificially maintained ponds and remnant intertidal habitat exists to the north of Ormond Beach. The goal of the Ormond Beach Restoration Project is the acquisition of approximately 1,100 acres at Ormond Beach and the 560 acres of the duck club for a total restoration of approximately 1,600 acres.

To date the Coastal Conservancy has acquired 540 acres at Ormond Beach. Prior to the planned restoration, the Conservancy must acquire 210–340 acres of the Southland Sod Farm. Sale of a portion (210 acres) of this farm has been offered by the owner, contingent upon completion of the City of Oxnard's Specific Plan for Ormond Beach.

The 50-acre Reliant Power Plant is situated on fill that was formerly coastal lagoon. This parcel divides the proposed restoration in half, obstructing potential hydrologic and biological connectivity. This plant is expected to cease operation within the next five years due to

fundamental inefficiencies and adverse effects on marine life caused by its intake and outfall (P. Brand, Coastal Conservancy).

The 40-acre Halaco metals processing facility also occupies former coastal lagoon. The goal of the restoration plan is to acquire the Halaco property and restore the former wetlands after the EPA has remediated this Superfund site.

The acquisition of the Ventura County Duck Club is contingent upon the member owners being allowed to continue hunting on apportion of the 560-acre site. (P. Brand, Coastal Conservancy).

Status of Existing Plans. The Ormond Beach Restoration Feasibility Study, funded by the Coastal Conservancy, was completed in October 2009. Six possible alternatives for habitat restoration, enhancement and creation were identified, as well as a No Project Alternative.

Overall, the alternatives include three concepts: 1) creation of a new lagoon with a permanent ocean inlet (Alternative 1); 2) restoration of the project area's historic wetland habitat mosaic with intermittently open inlets and seasonal ponds (Alternative 2); and 3) enhancement of existing habitats with minimal hydrologic and ground surface modifications (Alternative 3). Due to uncertainties regarding potential land acquisitions, two variants were developed for each alternative. The "unconstrained" alternatives assume that the Coastal Conservancy and its partners will be able to secure all of the candidate properties identified for the project; the "constrained" alternatives assume that some candidate properties will not be available in the foreseeable future. As such, the Feasibility Study identifies a maximum "project area" of 1,730 acres for unconstrained alternatives, and approximately 770-790 acres of constrained alternatives. Project alternatives are presented below:

- Alternative 1 Unconstrained (Alternative 1U): Create New Tidal Lagoon
- Alternative 1 Constrained (Alternative 1C): Create New Tidal Lagoon
- Alternative 2 Unconstrained (Alternative 2U): Restore Seasonally Open Wetland Habitats/Ponds
- Alternative 2 Constrained (Alternative 2C): Restore Seasonally Open Wetland Habitats/Ponds
- Alternative 3 Unconstrained (Alternative 3U): Enhance Existing Non-tidal Wetlands Habitats
- Alternative 3 Constrained (Alternative 3C): Enhance Existing Non-tidal Wetlands Habitats

These alternatives are considered preliminary and subject to further refinement. No preferred alternative was identified in the Feasibility Study.

Status of Environmental Documentation. No Environmental Documentation currently exists. The need for a project-specific EIR, as well as other high priority planning issues, has been identified. The EIR and other project analyses are pending. The Nature Conservancy is currently funded to undertake further analysis, environmental review, and design for the wetland restoration. An RFP for services is expected to be released in 2016.

Status of Required Permits. The Feasibility Study lists the anticipated discretionary permits typically associated with coastal wetland restoration:

Federal

- United States Army Corps of Engineers (Corps)
- United States Environmental Protection Agency (USEPA)
- U.S. Fish and Wildlife Service (USFWS)
- National Marine Fisheries Service (NMFS)

State

- State Historic Preservation Officer (SHPO) and Advisory Council on Historic Preservation (ACHP)
- California Department of Fish and Game (CDFG)
- State Water Resources Control Board (SWRCB) and Los Angeles Regional Water Quality Control Board (LARWQCB)
- California Coastal Commission
- California Air Resources Board (CARB)

Local

- Ventura County Planning Division
- Ventura County Air Pollution Control District (VCAPCD)
- Ventura County Watershed Protection District (VCWPD)
- City of Oxnard
- City of Port Hueneme

Habitat Distribution and Potential Impact to Existing Habitats. The Feasibility Study presents a complex and somewhat incomplete analysis of potential habitats to be created and habitats potentially impacted. These ultimately depend upon proposed habitat acquisitions and final planning. The Feasibility Study presents a breakdown of the restored, created or enhanced habitat types by alternative. Fifteen upland and wetland habitat types are identified and quantified. Creation, restoration and enhancement of intertidal wetlands, such as those required of Poseidon for mitigation, range from 437 acres (Alternative 1U) to 0 acres (Alternative 3C).

Land Ownership. There are many land owners of the Ormond Beach Restoration Project area. Public entities include City of Oxnard, CCC, USEPA (Former Halaco Superfund Site), Conservation organizations include The Nature Conservancy and Oxnard Duck Club annex; other private land owners include Southland Sod Farms and Reliant Energy, Agromin. The State Coastal Conservancy has recently entered into an agreement with the Nature Conservancy to be responsible for restoration planning.

Compliance with OPA Requirements and Conditions. The Nature Conservancy is overseeing the development of a restoration plan for Ormond Beach. Therefore, it is likely that the restoration would need to be undertaken as a fee-based mitigation program.

Compliance with the OPA requirements is provided below:

OPA Objectives and Criteria for Marine Life Mitigation	Potential for Compliance
Submit a Mitigation Plan, including project objectives, site selection, site protect instrument, baseline site conditions, a	No. It will take some time before a mitigation plan can be submitted as no

OPA Objectives and Criteria for Marine Life Mitigation	Potential for Compliance
mitigation work plan, a maintenance plan, a long-term management plan, an adaptive management plan, performance standards, success criteria, monitoring requirements, and financial assurances.	alternative has been selected for development. Substantial work is needed before any plan is available to evaluate.
Mitigation shall be accomplished through expansion, restoration or creation of one or more of the following: kelp beds, estuaries, coastal wetlands, natural reefs, MPAs, or other projects approved by the regional water board.	Possible. Restoration of the Ormond Beach wetlands will restore historic tidal and non-tidal wetlands; however, the degree of connection to the ocean is unknown at this time.
The owner/operator shall demonstrate that the project fully mitigates for intake-related marine life mortality by including expansion, restoration, or creation of habitat based on the APF acreage calculated.	Possible. The site is very large and has sufficient acreage; however, the amount of tidal restoration is unknown at this time.
The mitigation project's production area shall overlap the facility's source water body. Impacts on the mitigation project due to entrainment by the facility must be offset by adding compensatory acreage to the mitigation project.	No. The project is located at the head north of Pt Mugu and is quite far from the production area.
The owner/operator shall demonstrate that the project fully mitigates for discharge- and construction-related marine life mortality projected in the MLMR.	Possible. The project is not developed sufficiently to judge.
The regional water board may permit out-of-kind mitigation for mitigation of open water or soft bottom species. In-kind mitigation shall be done for all other species whenever feasible.	Possible. This project is out-of-kind but will provide fish and soft bottom habitat.

It is difficult to assess the potential for the Ormond Beach Restoration Plan to comply with OPA conditions given the level of information that is currently available. The Feasibility Study identifies 30 short-term and long-term recommendations for further analysis required to refine the plan. The complexity of the project and associated land acquisitions suggests a long-term restoration approach. While this approach may be financially and ecologically sound, short-term restoration success as required of Poseidon by the OPA does not appear to be achievable. Furthermore, the project includes acquisition and remediation of an active Superfund site, a process that often takes a number of years and imposes unknown risks to restoration success.

3.0 RANKING OF POTENTIAL MITIGATION SITES RELATED TO OPA CRITERIA

Each potential wetland mitigation site was evaluated based on its ability to meet OPA requirements which are summarize below. If a site did not meet any one requirement, it was not considered a viable alternative for the project. Two sites, Newland Marsh and Bolsa Chica

restoration and inlet maintenance met all requirements, and Los Cerritos wetlands met most requirements with one possible.

Summary of Potential Mitigation Sites as meeting OPA requirements.

Green means Yes, Yellow is Possible, and Red is No.

Wetland	Mitigation Plan available	Will restore coastal wetlands, eelgrass beds	Fully mitigates for intake marine life APF	Production Area overlaps source water body	Fully mitigates for discharge and construction related impacts	Out of Kind but provides habitat for fish and inverts
Pond 20	Yellow	Green	Green	Red	Red	Yellow
Mission Bay	Yellow	Green	Green	Red	Green	Yellow
San Dieguito River 6B	Yellow	Green	Red	Red	Red	Yellow
Big Canyon	Yellow	Green	Red	Red	Red	Yellow
Newland Marsh (HB wetlands)	Green	Green	Green	Green	Green	Green
Bolsa Chica FTB inlet	Green	Green	Green	Green	Green	Green
Los Cerritos Wetlands	Green	Green	Green	Yellow	Green	Green
Colorado Lagoon	Green	Green	Red	Red	Red	Green
Ballona Wetlands	Yellow	Yellow	Green	Red	Green	Yellow
Ormond Beach	Red	Yellow	Yellow	Red	Yellow	Yellow

Bolsa Chica

Bolsa Chica wetlands have been restored to full tidal action and are currently managed by the California Department of Fish and Wildlife. However, the inlet maintenance is not currently funded and inlet closure may be catastrophic to the fish and birds that are dependent upon daily tidal exchange. Inlet maintenance is necessary to secure the long-term viability of the wetlands and regulatory agencies have recognized this when providing habitat credits to other projects. The amount of habitat credits available through inlet maintenance is in excess of that required as APF. The project site is in close proximity to the source water body. The activities associated with inlet maintenance are well known based on previous experience by State Lands. Therefore, this project ranks high as a potential site to meet OPA requirements for the Poseidon facility.

Huntington Beach Wetlands.

All of the components of the Huntington Beach Wetlands Restoration plan have been constructed with the exception of Newland Marsh. Newland Marsh is approximately 50 acres in area and is proposed for transfer to the State Coastal Conservancy for habitat restoration. Its restoration to tidal action will meet the APF requirements for both intake and discharge. It is also the closest site to the source water body. Restorations conducted for other portions of the Huntington Beach wetlands were accomplished within the normal timeframe for such actions. Based on monitoring results to date, the success achieved at the other wetland sites restored by the Huntington Beach Wetlands Conservancy has met expectations. Therefore, this project ranks high as a potential site to meet OPA requirements for the Poseidon facility.

Los Cerritos Wetlands

The Los Cerritos Wetlands restoration plan will provide sufficient acreage to meet the APF requirements. Detailed restoration plans and environmental documentation are being developed. A portion may be available as a fee based mitigation program. However, there will be considerable delay before this site is available given the current oil production on a portion of the site that would be restored. This production would need to be moved prior to the site being used for mitigation. The project certainly has the potential to meet the OPA requirements; however, the timing of its availability is unknown.