Appendix H
Essential Fish Habitat Assessment

AECOM Environment

Prepared for:
Phillips 66
Port Costa Wharf, CA

Prepared by:
AECOM
Oakland, CA
60218502
April 2013

Essential Fish Habitat Assessment
Port Costa Wharf Deconstruction Project
Port Costa, California

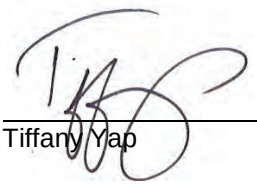
AECOM Environment

Prepared for:
Phillips 66
Port Costa Wharf, CA

Prepared by:
AECOM
Oakland, CA
60218502
April 2013

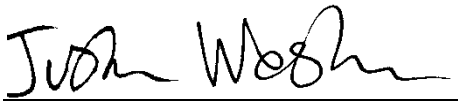
Essential Fish Habitat Assessment
Port Costa Wharf Deconstruction Project
Port Costa, California

Prepared By



Tiffany Yap

Reviewed By



Justin Westrum

Contents

List of Tables

List of Figures

List of Appendices

List of Acronyms and Abbreviations

ºC	degrees Celsius
ACM	asbestos-containing material
AECOM	AECOM Technical Services, Inc.
BMP	best management practice
CDFW	California Department of Fish and Wildlife
CESA	California Endangered Species Act
CSLC	California State Lands Commission
CWA	Clean Water Act
EEZ	Exclusive Economic Zone
EFH	Essential Fish Habitat
ESA	Endangered Species Act
ESU	evolutionarily significant unit
eTrac	eTrac Engineering, Inc.
FMP	Fishery Management Plan
HAPC	Habitat Area of Particular Concern
km	kilometers
LBP	lead-based paint
m	meter
MLLW	mean lower low water
MOT	marine oil terminal
NMFS	National Marine Fisheries Service
PFMC	Pacific Fishery Management Council
TXI	TXI/Pacific Custom Materials, Inc.
USACE	United States Army Corps of Engineers
USEPA	United States Environmental Protection Agency

1.0 Introduction

1.1 Essential Fish Habitat Assessment Requirements

The Magnuson-Stevens Fishery Conservation and Management Act (Magnuson-Stevens Act), as amended by the Sustainable Fisheries Act of 1996 (Public Law 104-267), establishes procedures designed to identify, conserve, and enhance Essential Fish Habitat (EFH) for those species regulated under a Federal fisheries management plan (FMP). The Magnuson-Stevens Act also requires Federal agencies to consult with the National Marine Fisheries Service (NMFS) on all actions or proposed actions permitted, funded, or undertaken by the agency that may adversely affect EFH. Since the Port Costa Wharf Deconstruction Project (Project), described in detail below, will require approval from the United States Army Corps of Engineers (USACE) under Section 404 of the Clean Water Act and potentially will have adverse effects on an area designated as EFH by the Pacific Fishery Management Council (PFMC), the Project requires EFH consultation with NMFS under the Magnuson-Stevens Act.

The objectives of this EFH assessment are to:

- Describe the proposed Project;
- Provide a discussion of the EFH and the federally-managed fish species potentially affected by the Project;
- Describe and analyze the Project's potential effects on EFH and federally-managed fish species; and
- Describe best management practices (BMPs) proposed to avoid or minimize potential adverse effects to designated EFH resulting from the Project.

1.2 EFH Designated Area

EFH is defined under the Magnuson-Stevens Act as "those waters and substrate necessary to fish for spawning, breeding, feeding, or growth to maturity". The main Project action area (i.e., the area to be directly and indirectly affected by the Project) occurs within the Carquinez Strait, which is situated between San Pablo Bay (west and downstream) and Suisun Bay (east and upstream). This area overlaps with an area designated by the PFMC as EFH for three federally-managed fisheries: Pacific Coast groundfish, coastal pelagic species, and Pacific Coast salmon.

The Pacific Coast Groundfish FMP (PFMC 2011) provides protection for 89 groundfish species throughout the Pacific Coast of the United States; three of these species have potential to occur within Suisun Bay and Carquinez Strait during part of their life history. Section 3 of this EFH assessment provides an overview of these three species. EFH for Pacific Coast groundfish includes all waters and substrate at depths less than or equal to 3,500 meters (m) to the mean higher high water level or the upriver extent of saltwater intrusion (where waters have salinities greater than 0.5 parts per thousand) in river mouths along the coasts of Washington, Oregon and California, seamounts greater than 3,500 m and areas designated as Habitat Areas of Particular Concern (HAPCs) not already identified by the other criteria. Under the Pacific Coast Groundfish FMP, HAPCs include estuary, seagrass, kelp canopy, and rocky reef. The Project action area contains Pacific Coast Groundfish EFH and, because it is an estuary, it is also an HAPC.

The Coastal Pelagics FMP (PFMC 1998) delineates EFH for five pelagic fish species, one of which may be found within Suisun Bay and Carquinez Strait during portions of its life cycle, the northern anchovy (*Engraulis mordax*). The EFH for coastal pelagics is defined as all marine and estuarine waters from the shoreline along the coasts of California, Oregon, and Washington, offshore to the limits of the Exclusive

Economic Zone (EEZ) and above the thermocline where the sea surface temperatures range between 10 to 26 degrees Celsius (ºC), and south to the United States-Mexico maritime boundary. The limits of the EFH are defined by temperature-based thermoclines and isotherms, and vary seasonally and annually. Generally, sea surface temperatures and habitat boundaries for coastal pelagic fish extend farther to the north during the summer months than during winter months. The Project action area overlaps with designated EFH for coastal pelagic species.

The Pacific Coast Salmon FMP (PFMC 2003) provides management protection for natural and hatchery salmon species that are fished off the coasts of Washington, Oregon and California. The EFH includes marine waters within the EEZ, and estuarine and freshwater habitat within Washington, Oregon, California, and Idaho. The Project action area overlaps with designated EFH for Pacific salmon species. The only species covered under the Pacific Salmon FMP that is known to currently occur in Suisun Bay and Carquinez Strait is Chinook salmon (*Oncorhynchus tshawytscha*), including the Central Valley Spring-Run and Sacramento River Winter-Run Evolutionarily Significant Units (ESUs). Coho salmon (*O. kisutch*), which is also covered under the Pacific Salmon FMP, is believed to have been extirpated from the San Francisco Estuary.

2.0 Project Summary

2.1 Purpose and Need

The Phillips 66 Company (Phillips 66) seeks authorization to remove the existing non-operational marine oil terminal (MOT) wharf located near Port Costa (Port Costa Wharf), in accordance with the terms and conditions of its existing lease (PRC 2869.1). The intent is to safely remove wood, steel, and concrete structures and other materials associated with the wharf that remain within the bounds of the historical and current California State Lands Commission (CSLC) leases. See Appendix A for photographs.

2.2 Project Location and Site Description

The Port Costa Wharf is a former MOT located in the southeast side of the Carquinez Strait in Port Costa, California, at latitude 38.03911º and longitude -122.17528º (see Figure 2-1). The Assessor's Parcel Number is 368-110-007.

The proposed wharf deconstruction would occur in approximately 8.89 acres within the Carquinez Strait (see Figure 2-2). Wharf remnants to be removed include timber, steel, and concrete structures. Additionally, up to 1.5 acres of temporary staging areas for upland parking, storage, and sanitary stations may be required for onshore access to the site by Phillips 66, its contractors, site monitors, agency representatives, or others wishing to observe operations. See Figure 2-3 for proposed onshore staging areas.

The Port Costa Wharf was first built around 1908. Its function was as a MOT that was utilized for storage and shipment of various petroleum products, including heavy fuel oil, residual fuel oil, gas oil, and catalytic cracker charge stock. Operations at the terminal stopped in 1968. In 1970, a fire destroyed more than half of the wharf, rendering it unusable (see Figure 2-4). Following removal of timbers and other material that had been destroyed during the fire, the boundaries of the 1.16-acre CSLC lease were revised to 0.48 acres on November 15, 1994.

Because the main action area is located in the Carquinez Strait, it is subject to the jurisdiction of the USACE under Section 404 the Clean Water Act (CWA) and Section 10 of the Rivers and Harbors Act, the California Department of Fish and Wildlife (CDFW) under the California Endangered Species Act (CESA), the San Francisco Bay Regional Water Quality Control Board under the CWA Section 401, and the San Francisco Bay Conservation and Development Commission under the McAteer-Petris Act. In addition to the approval from the CSLC, permits from these agencies will be obtained prior to deconstruction.

Adjacent to the action area is the Union Pacific Railroad right-of-way, which includes two active rail lines for both passenger and freight transport. Areas between the mean high tide line and the rail lines are primarily ruderal/disturbed areas consisting of concrete rip rap that is serving as shoreline stabilization, and weedy vegetation such as non-native annual grasses (e.g., *Avena* spp. and *Bromus* spp.) and fennel (*Foeniculum vulgare*).

2.2.1 Biological and Aquatic Setting

Aquatic Setting

The Project site is located in the Carquinez Strait, which is within the San Francisco Estuary and is designated as EFH for Pacific coast groundfish, coastal pelagic species, and Pacific coast salmon. Because it is an estuary, NMFS also considers it an HAPC.

The Carquinez Strait is a deep, narrow passage that joins San Pablo Bay in the west to Suisun Bay and upstream watersheds in the east. Depths in the area surrounding the Project site range from approximately 50 to 100 feet (Smith et al. 2003). A bathymetric survey using sonar technology revealed that depths close to the shore and within the Project area are 20 to 90 feet.

Aquatic habitat consists of pelagic, soft sediment and hard bottom areas. Sediment types include sand, silt and clay (Monroe and Kelly 1992). Terrestrial habitats in the Project area include ruderal and barren/developed areas. However, the Project site is directly southeast of Carquinez Strait Regional Shoreline, a 1,415 acre park that consists of annual grassland, oak woodland, and coastal scrub vegetation.

The Carquinez Strait and Suisun Bay are unique because of their varying salinities among seasons and years, and this creates a dynamic fish assemblage within them. During normal hydrologic years, the Carquinez Strait and Suisun Bay generally support a mesohaline community (NMFS 2007). Species typical of mesohaline/oligohaline waters with soft sediment substrate in the San Francisco Bay include white sturgeon (*Acipenser transmontanus*), green sturgeon (*Acipenser medirostris*), Sacramento splittail (*Pogonichthys macrolepidotus*), longfin smelt (*Sprinchus thaleichthys*), and the starry flounder (*Platichthys stellatus*). Mesohaline/oligohaline hard bottom taxa include prickly sculpin (*Cottus asper*).

The Carquinez Strait is an important migration corridor for many species of fish, including striped bass (*Morone saxatilis*), Chinook salmon, steelhead trout (*Oncorhynchus mykiss*), and northern anchovy. During wet years, when salinities are lower, distributions of freshwater, estuarine and anadromous species can extend downstream into San Pablo Bay (Armor and Herrgesell 1985), although it is unclear whether marine species are found more upstream during dry years when salinities are higher.

Between 2000 and 2007 more than 30 fish species were observed in the benthic habitats of the Carquinez Strait, including the Bay goby (*Lepidogobius lepidus*), English sole (*Parophrys vetulus*), striped bass, plainfin midshipmen (*Porichthys notatus*), Pacific staghorn sculpin (*Leptococottus armatus*), longfin smelt (*Spirinchus thaleichthys*), yellowfin goby (*Acanthogobius flavimanus*), cheekspot goby (*Ilypnus gilberti*), white croaker (*Genyonomus lineatus*), speckled sanddab (*Citharichthys stigmaeus*), shiner surfperch (*Cymatogaster aggregata*), California halibut (*Paralichthys californicus*), starry flounder, Pacific herring (*Clupea pallasii*), American shad (*Alosa sapidissima*), and diamond turbot (*Pleuronichthys guttulatus*) (CDFW 2000-2007).

Vegetation communities

On May 3, 2012, AECOM Technical Services, Inc. (AECOM) biologists conducted a reconnaissance-level site survey to identify vegetation and habitat types in the Project area. No eelgrass (*Zostera marina*) was observed in or adjacent to the Project area. This is likely due to the high sediment content of the water, the steep slope of the shoreline, and the high energy flow of the channel. The Project area is not suitable for eelgrass to survive or flourish; eelgrass needs shallow, muddy-bottom habitats with ample light availability to grow.

Terrestrial habitat adjacent to the main Project area includes ruderal and barren/developed areas. AECOM biologists identified several plant species; vegetation was dominated by non-native annual grasses and sweet fennel, with several patches of California poppy (*Eschscholzia californica*), coyote brush (*Baccharis pilularis*), and eucalyptus trees (*Eucalyptus spp.*).

Figure 2-1 Project Site Location

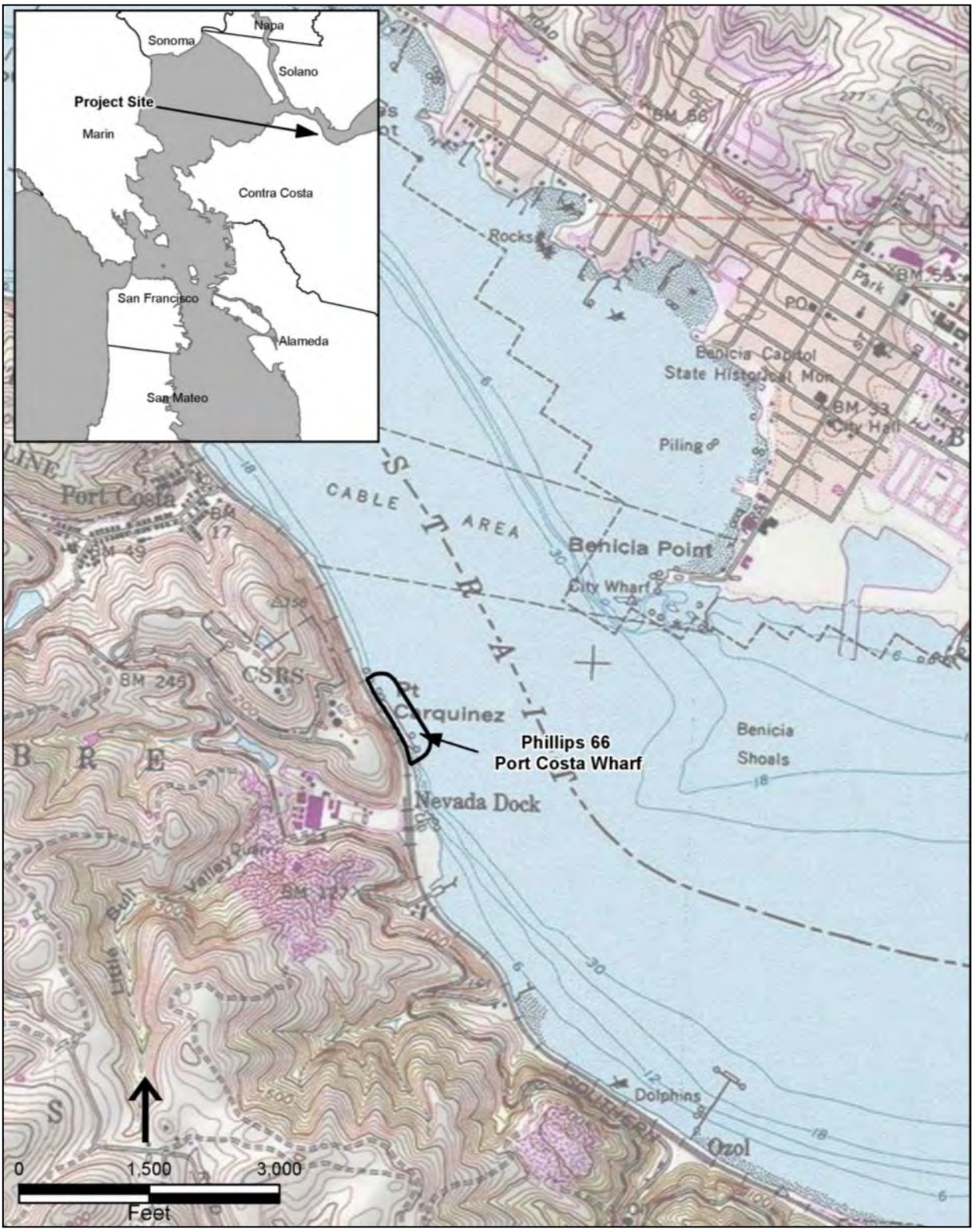


Figure 2-2 Site Map

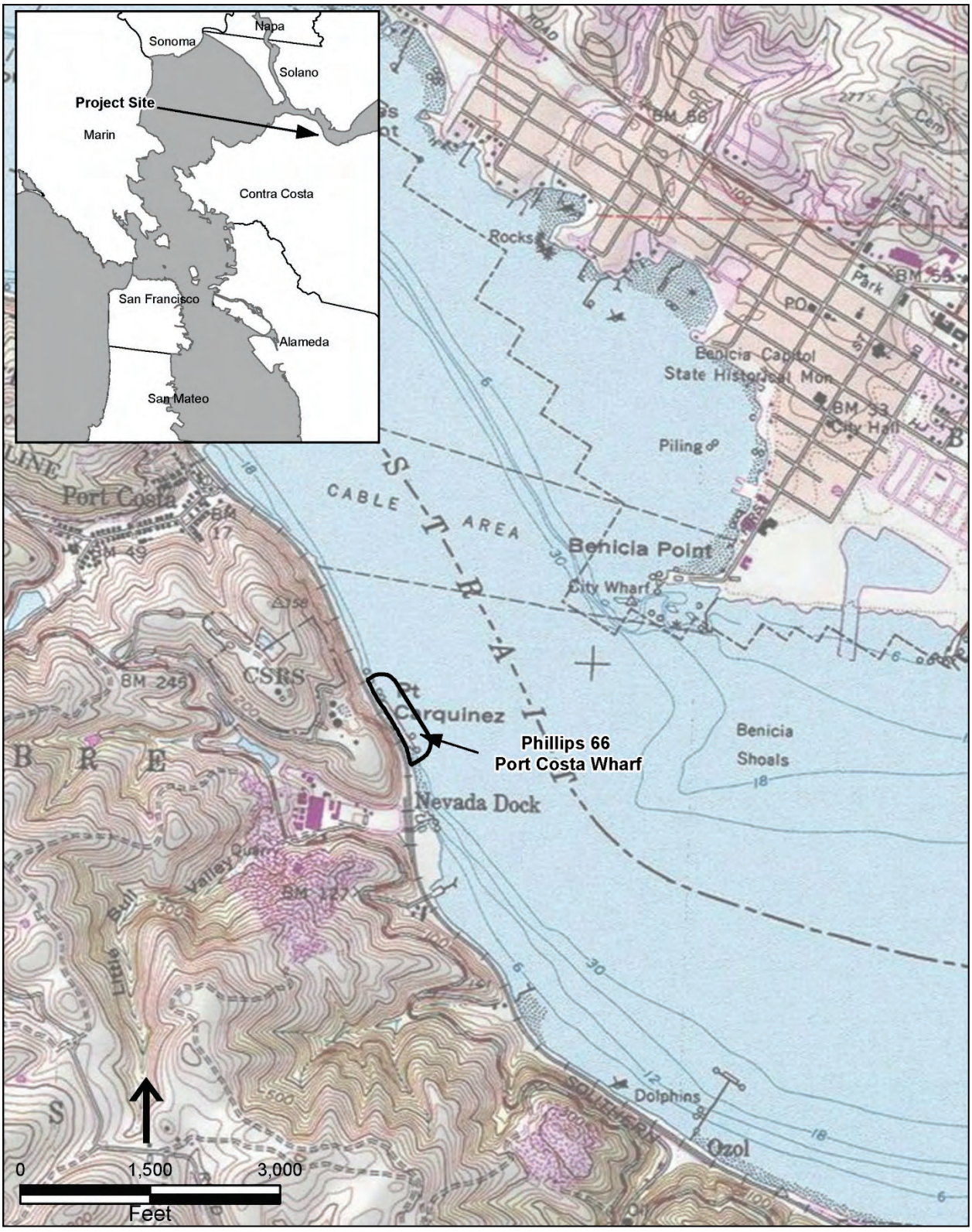


Figure 2-3 Proposed Onshore Staging Areas

Figure 2-4 Aerial photographs taken June 8, 1959 (a) and October 29, 2011 (b)

Source: Pacific Aerial Surveys, a division of Photo Science Geospatial Solutions (2011) (a); Google Earth (accessed January 25, 2012) (b).

2.3 Project Description

Underlying goals of the Project are the safe removal of wood, steel, and concrete structures associated with the wharf that remain within the bounds of the historical and current CSLC leases while maintaining embankment stability to ensure the safety of existing rail operations. Phillips 66 plans to complete deconstruction and removal within approximately 5 months. The remaining structures (see Figure 2-2) include:

- One approximately 34-foot by 103-foot remnant main wharf structure running parallel to the western shoreline of the Carquinez Strait;
- Three deteriorated timber-pile-supported wood-beam/deck platforms/piers of approximately 24-foot by 30-foot, 18-foot by 36-foot, and 18-foot by 36-foot size, respectively, each perpendicular to the shoreline, which were formerly connected to the larger wharf structure;
- Two steel pipe pile and concrete deck mooring dolphins of approximately 9-foot by 15-foot size, located northwest and southeast of the main wharf structure;
- Two concrete-pile-supported wood-deck mooring platforms of 30-foot by 18-foot and 21-foot by 18-foot size, respectively, located on the shoreline south of the main wharf structure; and
- Two wood-pile dolphins consisting of a total of 10 to 13 piles, located in the northernmost section of the Project area.

Miscellaneous concrete, metal, and timber debris were observed along the shoreline. The concrete debris is generally functioning as rip rap shore protection. It is not clear where this concrete debris came from, but may be intentional rip rap placed on the embankment over a number of years. Phillips 66 proposes to keep the concrete debris in place to minimize the potential for destabilizing the rail bed embankment.

2.4 Deconstruction Procedures

The deconstruction work breakdown structure includes the following distinct work activities:

- Lead-based paint (LBP), asbestos-containing material (ACM), and hazardous materials surveys, and if indicated, abatement and/or appropriate disposal or reuse;
- Deconstruction of marine structures;
- Diamond wire saw cutting of concrete structures; and
- Processing, transport, and recycling/disposal of resulting deconstruction debris.

2.4.1 Pre-Deconstruction Surveys, Abatement, Disposal or Reuse

Phillips 66 completed LBP and ACM surveys of the wharf structures in February 2013. Samples were collected and analyzed by a certified technician. Results of the survey indicate that LBP is present on some wharf structures but found no ACM. Since LBP is present on the wharf, Phillips 66 will retain a licensed LBP abatement contractor to address LBP prior to the general deconstruction of the wharf. An LBP Management Plan including health and safety procedures will be prepared and included as part of the Project's Deconstruction Work Plan.

Although little, if any, is anticipated, potentially hazardous materials may also be present, including remnants of mercury switches, petroleum product residues, and hydraulic fluids. Prior to commencement of activities to abate these materials at the wharf, a site specific Health and Safety Plan for these activities will be prepared by Phillips 66 or its contractor that will, at a minimum, comply with applicable State and Federal regulations. If any such equipment is identified, procedures will be implemented to flush, drain, or remove the materials so that the hazardous waste can be safely removed without risking releases. A Water Quality/Storm Water Pollution Prevention Plan will be prepared to include procedures to prevent a potential release of hazardous materials to the Carquinez Strait, and handling and disposal of hazardous waste. Equipment such as switches and gauges that contain mercury will be tagged prior to removal for special handling to prevent an inadvertent discharge of mercury on the deck surfaces or in Carquinez Strait waters..

2.4.2 Materials and Equipment

Anticipated materials and equipment to complete the work are listed below. The materials required for the Project are limited, as the primary activity is deconstruction.

Materials

The following materials may be required to execute the deconstruction Project:

- Diesel fuel;
- Gasoline to power small portable equipment;
- Compressed gases for metal cutting;
- Penetrating oil to lubricate corroded fittings;
- Marking paint;
- Diamond wire cable;
- Lumber for debris catchment scaffolding;
- Oil spill booms and sorbent material (on-hand as contingency); and
- Miscellaneous materials to be identified at the time specifications for deconstruction are developed.

Equipment

The following equipment may be required to execute the deconstruction Project:

- Crane (200 ton);
- Crane (20 ton);
- Derrick crane;
- Barge (approximately 50 feet by 130 feet);
- Barge (approximately 40 feet by 80 feet);
- Excavator with shear;
- Concrete drill;
- Portable electrical generator(s);
- Diamond wire saw;
- Pulverizer;
- Hydraulic pile cutter;
- Vibratory pile extractor;
- Tug boat (1,000 horsepower);
- Tug boat (500 horsepower);
- Anchor boat;
- Loader;
- Compactor;
- Dump truck;
- Roll-off bins;
- Diver support equipment;
- Hand tools; and
- Miscellaneous equipment to be identified at the time specifications for deconstruction are developed.

Work activities at the Project site will be conducted entirely from vessels anchored offshore, adjacent to the wharf structures. One construction derrick barge, approximately 130 feet by 50 feet, will be required. The crane will be mounted on this barge. A second support barge, approximately 80 feet by 40 feet, will also be on site to collect and transport the demolition debris. Proper first-aid and safety stations, portable sanitary stations, an office and break areas will also be located on these barges. Both barges will be brought to the site daily by a tugboat, which will stay in the Project area during deconstruction activities should the barges need to be moved. Each barge will be anchored with about two to four standard marine anchors.

An approximately 18-foot aluminum or steel personnel work boat will also be used during deconstruction activities; it will be launched from the construction barge to transport workers to the Project area. This vessel will also be utilized during the day to allow workers to mobilize within the Project area.

2.4.3 Temporary Facilities

Temporary construction facilities in and near the Project site may be required during the Project to support the safe and efficient execution of the work. Most temporary facilities will be located on a barge or in the water (i.e., marker buoys) within the 8.89-acre Project site. The deconstruction activities will only be conducted from vessels located offshore and at the selected contractor's existing shore base and associated facilities. Temporary facilities likely to be located offshore within the Project site include:

- Barge-mounted first-aid and safety stations;
- Barge-mounted portable sanitary stations;
- Barge-mounted office and break areas;
- Barge-mounted secured storage facilities;
- Utilities as required to execute the work; and
- Marker buoys delineating the construction work area.

To facilitate completing the deconstruction work, the selected contractor's existing shore base and associated facilities may include secured storage facilities, shore-side staging areas, and landings/dock facilities. These facilities already exist should they be needed, are located away from the Project site, and will not require any construction.

There also may be a need to provide other incidental temporary facilities such as parking, storage, and sanitary stations located onshore near the site. This will allow for access from onshore locations for the Applicant, its contractors, site monitors, agency representatives or others wishing to observe the operations. A temporary construction easement will be needed within the adjacent uplands to accommodate these incidental temporary facilities. The proposed locations are approximately 700 feet southwest and upland of the Project action area on the adjacent former TXI/Pacific Custom Materials, Inc. (TXI) property (see Figure 2-3).

This property contains existing developed roads and parking areas that can accommodate upland access and the aforementioned incidental temporary facilities. Phillips 66 and its contractors will work with the property owner prior to the start of deconstruction activities to secure temporary easements to the property. There is existing parking at the site so there will be no need to construct any new facilities, and agreements will be made with the property owner to use the property for these temporary purposes. To provide some flexibility in planning, we have assumed that incidental parking, sanitary, and storage facilities will likely not exceed 1.5 acres total. Once parked, individuals will access the Project site on foot, making sure to notify UPRR in advance and taking appropriate precautionary and railroad safety measures.

A specific listing of temporary facilities that may be used to execute the work will be prepared following selection of the construction contractor; however, the analysis considered in this document assumes that all of the temporary facilities identified herein, as shown in Figure 2-3, will be used and represents the worst case.

2.4.4 Deconstruction

MOT deconstruction will be initiated using a CSLC approved Project-specific Marine Safety Plan. Key MOT deconstruction work activities will include:

- Wharf fixtures removal/deconstruction;
- Concrete and wood deck and mooring dolphin deconstruction;

- Wood, concrete, and steel pile deconstruction; and
- Removal of debris and marker buoys.

Removal of the wharf remnants will involve several types of work activities including the use of cutting torches (hot-work), air- or electric-powered tools, rigging equipment, and barge-mounted cranes. Large pieces of structures to be removed will have tag lines attached to facilitate recovery from the Carquinez Strait in the event of an accident. Deconstruction materials that cannot be salvaged will be disposed of through sale as components for scrap or disposed in a permitted landfill.

Fixtures Removal/Deconstruction

Deck fixtures and remnants of equipment will be removed and deconstructed. Deck fixtures include metal fenders, mooring bits, mooring cleats, nails, coils, wiring, chain link fencing, and mooring posts. Fixture removal and deconstruction may proceed concurrently with deck deconstruction.

Concrete Deck Deconstruction

The MOT includes two mooring dolphin decks made of concrete. Each mooring dolphin deck measures approximately 9 feet by 15 feet. The average deck thickness is about 2 feet. It is anticipated that each mooring dolphin will be cut into multiple pieces for removal. The actual size of the concrete pieces will depend on the availability of equipment at the time deconstruction services are procured and will be detailed in a Project-specific Rigging and Lifting Plan that will be prepared for review and approval by the CSLC prior to implementing the deconstruction and removal work.

It is anticipated that each concrete structure will be cut into smaller pieces, if necessary, using a diamond-wire saw. Rigging will be secured to each piece prior to it being cut free from the pile caps. Alternatively, the top slab may be removed by cutting piles with cutting torches. Prior to implementing the concrete deconstruction process, provisions will be made to contain debris and cutting fluids associated with the concrete deconstruction process. If cutting fluids are used during the drilling or concrete sawing process, the process will be conducted in accordance with Federal and State environmental protection regulations. Debris and cutting fluid containment details will be provided by the selected contractor in a Deconstruction Work Plan.

Wooden Deck Deconstruction

The MOT facility includes a central predominantly wood landing platform measuring approximately 103 feet by 34 feet, and three smaller pier platforms approximately 24 feet by 30 feet, 18 feet by 36 feet, and 18 feet by 36 feet, respectively. In addition, there are two mooring platforms with wood decking on concrete piles; one is approximately 30 feet by 18 feet and the other is approximately 21 feet by 18 feet. The timber decking is likely creosote-treated, and will be removed and disposed of at facilities licensed to take creosote.

Wood, Concrete, and Steel Pile Deconstruction

Removal of Timber Piles

Phillips 66 proposes pile removal to approximately 2 feet below the mudline. The MOT facility has approximately 117 timber piles that are likely creosote-treated. Associated with the main wharf structure are approximately 63 timber piles. There are approximately 28 piles lying on the Carquinez Strait bottom. The three smaller piers/platforms running perpendicular to the shore are supported by approximately 13 timber piles total. Last, the two wood pile dolphins in the northern section of the Project area are supported by approximately 13 timber piles total: 6 for the southern dolphin and 7 for the northern dolphin.

The MOT is located in the central area of the Carquinez Strait, adjacent to the southern edge of the shipping channel, which is approximately 0.5 mile wide in this area. The location of the MOT is a high energy environment where water moves through the Carquinez Strait between Suisun Bay upstream and San Pablo Bay downstream. Predictions for several water years indicate that Suisun Bay exports sediment during the wet season, and imports sediment from San Pablo Bay during the dry season (Ganju and Schoellhamer, 2006). There is little net deposition within the Project area. A May 2012 bathymetric survey conducted by eTrac Engineering, Inc. (eTrac) indicated that the general water depth under the MOT structures is currently approximately -20 feet referenced to mean lower low water (MLLW). The federal channel is maintained to -30 feet MLLW. The water level in this area of the Strait increases to depths of -90 feet MLLW within approximately 500 feet of the wharf.

Phillips 66 proposes that creosote-treated timber pile removal will occur using a barge-mounted crane consistent with a CSLC-approved Marine Safety Plan. Because of the embedded depth (likely 40 feet below mudline) and age (well over 50 years) of the timber piles, it is likely not feasible to completely remove the timber piles, which have a high probability of breaking during the removal procedure. In addition, extraction of piles near the shoreline has the potential to destabilize the embankment that supports the rail line. Finally, there are many battered piles that are difficult if not impossible to extract. Phillips 66's proposed method will utilize a barge-mounted crane to grab the timber piles and break them off. After pile removal, a diver will inspect the area and provide further direction on how to remove any timber remnants to a depth 2 feet below the existing mudline.

The following BMPs will be used to minimize creosote release, sediment disturbance, and total suspended solids generation: (a) install a floating surface boom to capture floating surface debris; (b) keep all equipment (e.g., bucket, steel cable) out of the water and grip piles above the waterline; (c) slowly lift the pile from the sediment and through the water column; and (d) dispose of all removed piles, floating surface debris, sediment spilled on work surfaces, and all containment supplies at a permitted upland disposal site that accepts creosote treated wood and materials contaminated with creosote.

Removal of Concrete Piles

The various structures associated with the MOT include an estimated total 11 20-inch square concrete piles. The two wood deck mooring platforms to the south of the wharf are supported by 8 and 3 concrete piles each. Neither the main wharf structure nor the three wood-deck platforms running perpendicular to the shoreline and formerly connecting to the wharf are supported by concrete piles.

Concrete piles will be removed after the timber decking is removed. Given their proximity to the embankment that supports the active rail line, these piles, if attempted to be completely removed, could destabilize the rail bed embankment. Therefore the piles will be cut off to no lower than the mean high water line using a hydraulic shear or another suitable device.

The proposed Project will attempt to process and recycle the concrete as aggregate rather than dispose of it at a local landfill. An alternative may be to use it as rip rap on site to shore up the existing embankment. If this alternative is not approved, the concrete remnants will be loaded onto a barge and transported back to the selected contractor's onshore staging area where the concrete will be reduced and recycled or disposed of as appropriate at a permitted facility.

Removal of Steel Piles

Each mooring dolphin is supported by approximately 12 steel piles for a total of up to 24 steel piles. Once the concrete decking and fixtures have been removed, the steel piles will be extracted using a vibratory hammer or cut off just below the mud line if extraction proves too difficult. The steel pile remains will be

loaded onto a barge and transported to a staging area, and transported to a recycling center if the waste material is acceptable for recycling.

Removal of Debris

There are a number of concrete slabs that serve as rip rap along the shoreline. These slabs should stay in place to reduce the potential for destabilizing the embankment supporting the rail bed.

A pre-deconstruction bathymetric survey, conducted in May 2012, identified pile remnants and other debris on the seafloor. A follow-up underwater inspection was conducted on March 19-21, 2013, by trained divers aided by a scanning sonar head. Results of the survey are summarized below.

The underwater inspection identified two steel pipe sections lying within a few feet of each other near the south end of the main wharf structure. One pipe section is 8 inches in diameter and 228 feet long pipe, and the other is 12 inches in diameter and 275 feet long. These pipe sections will be recovered and disposed of during deconstruction activities. The 8-inch diameter pipe has two timber piles lying on top of it that are in generally good condition and can be easily recovered. The 8-inch pipe terminates in a “tee” fitting; one side of the tee is open, with the opposite side blind flanged. The northern end of the pipe is flanged and blanked. The diver reported that there may be some support members attached at a few points along the 8-inch pipe that are presently buried. Excavation would be required to determine if this is the case, however these miscellaneous supports, if they exist, will not likely present a significant impediment to removal of the piping.

The 12-inch diameter pipe trails down-slope at its northern extremity to a depth of approximately 66 feet of water. It has a flanged valve in place on the south end of the pipe, and northern end of the pipe is blind flanged. Three flanged couplings were reported along the length of pipe, and appeared to be secure and tight.

Due to the extreme currents experienced in the area, there is some scour occurring on the offshore sides of the two pipes, with mud cover accumulated on the inshore sides of the piping. This scour is relatively minor and will lessen the difficulty of establishing recovery rigging.

The underwater inspection also detected a number of piles and a large truck tire on the seafloor. These objects appeared to be in satisfactory condition to allow for easy rigging and intact recovery to the surface. The submerged piles and truck tire will be removed and disposed of during deconstruction activities.

Following completion of the deconstruction, final confirmation of the removal of all timber pile stubs or debris on or above the mud line will be made during a post-deconstruction survey. Any remaining timber pile stubs or debris will be removed and disposed of using the same method used during the deconstruction phase.

2.4.5 Post-Deconstruction Surveys and Sea Floor Debris Removal

A pre-construction survey was conducted for the Project site in May 2012 by eTrac. Per requirements of the CSLC lease, after removal of the MOT is completed, a similar survey of the lease area will be conducted, including the MOT work area. The survey will document the condition of the Strait’s floor and identify debris from previous MOT operations and/or from the deconstruction activities. Identified debris will be removed from the Strait’s floor and disposed of or recycled as appropriate in accordance with a Sea Floor Debris Removal Plan. Following are key details for sea floor debris removal:

1. The post-deconstruction survey will use the same methods employed in the pre-deconstruction survey to verify debris is removed. Debris determined not to be associated with the MOT or deconstruction process will not be recovered.

2. After the post-deconstruction survey has been completed, the deconstruction contractor will attempt recovery of submerged debris, if detected, from the surface using appropriate equipment. If a diver is required to recover debris, the debris will be rigged and raised to the deck of a barge or support vessel. Rigging methods will depend on the sizes, weight, and type of debris. Heavy debris will be choked with wire rope slings and raised to the surface using a crane. Heavy lifts, if required, will be subject to a Rigging and Lifting Plan, which will be approved by the CSLC prior to deconstruction activities. Lighter pieces of debris may be fastened to soft-line and raised to the surface by hand.

   As described above, the objects located by the dive team consist of piping timber pilings, and a large tire. These objects, as far as could be determined by touch, are in generally good condition, although encrusted with marine growth, and should hold together during recovery to the surface. The timber pilings and truck tire can be easily rigged and recovered to the surface in single crane picks. Recovery of the two steel pipes will likely require lifting one end up to the barge deck, and cutting the piping into lengths required for handling and transport.

3. Recovered debris, if any, will be transported to the deconstruction contractor's shore base and disposed onshore at local landfill facilities or recycled.

4. The following personnel and equipment may be used to identify and recover debris:

   - Personnel: Construction Manager, Contractor Project Manager, Foreman, Crane Operator, Riggers, Tugboat Operator, Crew Boat Operator, Crew Boat Deckhand, Divers, and Diver Tenders.
   - Equipment: Barge with 100-ton crane and 4-point anchor spread, support tugboat, crew boat, industrial air compressor, jet pump (150 horsepower), diver's air compressor, electrical generators, and airlift.

2.4.6 Contractor's Shore Base

At the present time, Phillips 66 has not selected a deconstruction contractor to perform this deconstruction Project. Once a Request for Quotes has been issued, Phillips 66 will provide a list of companies that have expressed interest in bidding on the Project. For the purposes of this document, it is assumed that the contractor's shore base and the facilities for equipment, barges, materials, and waste handling will be at the commercial/industrial facility selected by the contractor to perform this task.

Daily work crews will likely be picked up at commercial marina facilities closer to the MOT. Docks to be used for picking up work crews on a daily basis are available at Vallejo Municipal Marina on Harbor Way, Vallejo, and at the Martinez Marina, in Martinez. Due to the proximity of a very active rail line on shore, access to the site will be by water.

3.0 Deconstruction Schedule

3.1.1 Schedule

Deconstruction of the MOT is scheduled for 2013, prior to expiration of the CSLC lease. Deconstruction activities will occur over approximately 3 to 5 months. Work will be conducted Monday through Friday generally from 8 am to 5 pm.

The Project is currently projected to start in September 2013 and be completed by the end of November 2013, based on the forecasted permit schedule. The forecasted schedule corresponds with the recommended NMFS deconstruction window to protect salmonids; however, because deconstruction methods do not include pile driving or dredging activities and are expected to result in minimal sediment disturbance, adverse effects on migrating salmonids are not expected. Deconstruction activities at the MOT will be limited to normal workdays and hours.

The NMFS in-water work window in the Carquinez Strait is June through November. Should deconstruction be postponed until 2014, it will occur within this 5-month window. All environmental analyses were conducted assuming the worst case scenario of a 5-month duration of deconstruction activities.

3.1.2 Workforce

Deconstruction activities at the MOT will require approximately 8 to 12 deconstruction personnel, depending on the stage of deconstruction and removal activities. At the peak of deconstruction and removal, an estimated 12 deconstruction workers will be on site.

4.0 EFH Species Descriptions-Federally Managed Species

Federally managed fish species with life history stages that may be found within the waters of Suisun Bay and Carquinez Strait where the Project action area is located are described below. Table 4-1 provides a summary list of these species and provides information on life stages that may be affected by the proposed Project.

Table 4-1 Species with Essential Fish Habitat Designated in the Suisun Bay and Carquinez Strait

Species	FMP[1]	Life Stage Present[2]	Abundance
English sole (*Parophrys vetulus*)	GF	J, A	Few
starry flounder (*Platichthys stellatus*)	GF	J, A	Abundant
brown rockfish (*Sebastes auricultus*)	GF	J	Few
northern anchovy (*Engraulis mordax*)	CP	L, J, A	Abundant
Chinook salmon (*Oncorhynchus tshawytscha*)	PS	J, A	Present

Notes:

[1] Fisheries Management Plans:
GF – Pacific Coast Groundfish FMP
CP – Coastal Pelagics FMP
PS – Pacific Salmon FMP

[2] Life Stages:
L - Larvae
J – Juvenile
A – Adult

Source: NMFS, Southwest Regional Office Website. FMP Species Distributions in San Francisco, Suisun Bay and Carquinez Strait. http://swr.nmfs.noaa.gov/hcd/loclist.htm

4.1 Federally Managed Species Accounts

4.1.1 Pacific Coast Groundfish

The following section provides life history information on groundfish species covered under the Pacific Coast Groundfish FMP that have potential to occur in waters of Suisun Bay and Carquinez Strait in the vicinity of the Project. The information below was summarized from the life history descriptions provided in Appendix B Part 2 of the Pacific Coast Groundfish FMP (PFMC 2005).

English Sole (*Parophrys vetulus*)

Life Stage Presence/Abundance in Project Region

Juvenile and adult English soles are few in the Carquinez Strait/Suisun Bay.

Range

English soles are found from the Bering Sea off the coast of Alaska to Baja California Sur, Mexico.

Habitat

Eggs and larvae are pelagic. Eggs are neritic and buoyant, but sink just before hatching. Eggs are mostly found in polyhaline waters at temperatures of 4 to 12ºC. Larvae are found primarily in polyhaline and euhaline waters less than 200 m deep. Juveniles and adults are demersal and prefer soft bottoms composed of fine sands and mud but also are reported to occur in eelgrass habitats. English soles are typically found in depths less than 250 m. They use nearshore coastal and estuarine waters, including the San Francisco Estuary, as nursery areas. Juveniles prefer shallow-water coastal bays and estuaries; as they grow, they move to deeper water (generally in the fall/winter). Large juveniles commonly occur out to depths of 150 m. Juveniles occur in polyhaline and euhaline waters; adults are found primarily in euhaline waters.

Migrations and Movement

Adults make limited migrations. Larvae are transported to nearshore nursery areas (i.e., shallow coastal waters and estuaries) by tidal currents. Larvae metamorphose into juveniles in spring and early summer and rear until fall/winter at which time most emigrate to deeper waters. Although many post-larvae settle outside of estuaries, most will enter estuaries during some part of their first year of life. Early- and late-stage larvae undergo diel vertical migrations. There is a general movement to deeper waters as fish grow. Smaller fish tend to be restricted to shallow waters, with larger fish more abundant in deeper water.

Reproduction

Spawning occurs from winter to early spring (November to May) and takes place offshore over soft-bottom substrates at depth between 50 to 70 m.

Trophic Interactions

Prey: Larvae are planktivorous and eat copepods and other small planktonic organisms. Juveniles and adults are carnivorous and feed on harpacticoid copepods, gammarid amphipods, cumaceans, mysids, polychaetes, small bivalves, clam siphons and other benthic invertebrates. English soles feed primarily by day, using sight and smell, and sometimes dig for prey.

English sole larvae are probably eaten by larger fishes. A juvenile English sole's main predators are probably piscivorous birds such as great blue heron (*Ardia herodias*), larger fishes, and marine mammals. Adults may be eaten by marine mammals, sharks, and other large fishes. The English sole's sharp anterior anal spine may provide a defense against predators.

Starry Flounder (*Platichthys stellatus*)

Life Stage Presence/Abundance in Project Region

Juvenile and adult starry flounders are abundant in the Carquinez Strait/Suisun Bay.

Range

Starry flounders are found in the western Bering Sea and north of the Bering Strait south to Avila Beach in central California.

Habitat

Starry flounders are important members of the inner continental shelf and shallow sublittoral communities. Older juveniles and adults are found from 120 kilometers (km) upstream seaward to the outer continental shelf at depths of 375 m; however, most adults are found in depths of less than 150 m. Eggs and larvae are epipelagic; juveniles and adults are demersal. Eggs occur at or near the surface over water 20 to 70 m deep. Larvae are found in estuaries and up to 37 km offshore. Juveniles are found in estuaries and the

lower reaches of major coastal rivers. Juveniles prefer sandy to muddy substrata and adults prefer sandy to coarse substrata, including gravel. Eggs are found in polyhaline to euhaline waters; juveniles are found in mesohaline to fresh water; adults and larvae are found in euhaline to fresh water.

Migration and Movement

Starry flounder is not considered to be a migratory species. Adults move inshore in late winter-early spring to spawn and offshore and deeper in the summer and fall, but these coastal movements are generally less than 5 km.

Reproduction

Spawning occurs annually in a short time frame in winter and spring, with the exact timing depending on location. In California, starry flounder spawn from November to February, peaking in December. Most spawning occurs in estuaries or sheltered inshore bays, in less than 45 m of water.

Trophic Interactions

Larvae are planktivorous and juveniles and adults are carnivorous. Larvae eat copepods, eggs and nauplii, as well as barnacle larvae and diatoms. Juveniles feed on copepods, amphipods and annelid worms. Adults feed on a wide variety of aquatic species, including crab. Starry flounder do not feed during spawning or coldwater periods.

Starry flounder larvae are eaten by larger fish and herons. Juveniles and adults are eaten by larger fishes, sharks, and by pinnipeds and other marine mammals. Wading and diving seabirds such as herons and cormorants feed on juvenile starry flounder. Starry flounder probably competes with other soft-bottom benthic fishes of estuaries and shallow nearshore bays.

Brown *Rockfish* (*Sebastes auricultus*)

Life Stage Presence/Abundance in Project Region

Juvenile brown rockfish are few in the Carquinez Strait/Suisun Bay.

Range

Brown rockfish are found from Baja California to southeastern Alaska. They are most common in Puget Sound and from central California to southern California.

Habitat

Brown rockfish are common in shallow water and occur from depths of 0 to 135 m, but are most common in waters less than 50 m. Brown rockfish use inland seas as nursery grounds, utilizing shallow, vegetated habitats such as beds of kelp or eelgrass. Juveniles usually live in shallower water than adults and are widely distributed in shallow water bays. Sub-adult and adult brown rockfish are generally residential, though they may migrate into somewhat deeper water in the winter. Off California, young brown rockfish occur in hard substrata, low relief reefs, patches of drift algae on the bottom, and on the walls of submarine canyons. Brown rockfish are bottom dwellers, frequently living on low-profile hard bottom. They aggregate near sand-rock interfaces and rocky bottoms of artificial and natural reefs over a fairly wide depth range, in eelgrass beds, and near oil platforms, sewer pipes, or debris. Brown rockfish maintain small home ranges on rocky reefs and display strong reef fidelity that is not affected by season. Occurrence in inland seas and oceanic waters suggests a relatively broad salinity and temperature tolerance compared to other rockfish.

Migrations and Movement

Movements of greater than 3 km are rare for brown rockfish and they are said to have a strong homing tendency. Juveniles gradually move into deeper water as they mature.

Reproduction

The spawning season for brown rockfish varies by location. In California, the spawning season is longer than in other areas, typically from December to July. Also, in California females may spawn more than once per season.

Trophic Interactions

Brown rockfish eat small fishes, crabs, shrimp, isopods, and polychaetes. As juveniles they feed on small crustaceans, amphipods, and copepods, but at approximately 13 centimeters, shift to crabs and small fish. An adult brown rockfish (over 30 centimeters) will feed on larger fish, shrimp, crabs and other crustaceans, and polychaetes.

Little is known about predation on larval brown rockfish, but it is thought to be similar to that of other nearshore rockfish species. In general, predation most likely lessens as individuals grow. Birds, dolphins, seals, sharks, lingcod (*Ophiodon elongates*), cabezon (*Scorpaenichthys marmoratus*), and salmon have been observed to feed on juvenile and adult brown rockfish.

4.1.2 Coastal Pelagics

The northern anchovy is the only coastal pelagic species covered under the Coastal Pelagic Species FMP that has potential to occur in waters of Suisun Bay and Carquinez Strait in the vicinity of the Project. The information below was summarized from the life history descriptions provided in Appendix A of the Coastal Pelagic Species FMP (PFMC 1998).

Northern Anchovy (*Engraulis mordax*)

Life Stage Presence/Abundance in Project Region

Northern anchovy larvae, juveniles, and adults are abundant in the Carquinez Strait/Suisun Bay.

Range

Northern anchovies are distributed from Baja California to the Queen Charlotte Islands, British Columbia.

Habitat

Estuaries and bays provide important habitat for the northern anchovies, which spend significant time in these habitats. Adults and juveniles are pelagic and are found in estuaries and nearshore waters up to 300 m deep.

Migrations and Movement

While anchovies move along the shore and offshore, they do not migrate extensively.

The northern anchovy spawns throughout the year depending on the region; usually within 100 km of the coast near the surface. Anchovies are abundant in bays and estuaries in the spring, summer and fall.

Reproduction

Anchovies spawn during every month of the year, but spawning increases in late winter and early spring and peaks from February to April. Females spawn batches of eggs throughout the spawning season at intervals as short as seven days to ten days. The eggs, found near the surface, require two days to four days to hatch, depending on water temperatures.

Trophic Interactions

Northern anchovies eat phytoplankton and zooplankton. Northern anchovies are subject to natural predation throughout all life stages. Eggs and larvae fall prey to an assortment of invertebrate and vertebrate planktivores. As juveniles, anchovies are vulnerable to a wide variety of predators, including many recreationally and commercially important species of fish. As adults, anchovies are fed upon by numerous fish, mammals, and birds, including endangered salmon stocks and special-status birds (e.g., California brown pelican [*Pelecanus occidentalis californicus*] and least tern [*Sternula antillarum browni*]).

4.1.3 Pacific Salmon

The Chinook salmon is the only coastal pelagic species covered under the Salmon FMP that has potential to occur in waters of Suisun Bay and Carquinez Strait in the vicinity of the Project. Juvenile and adult Chinook salmon are potentially present in the Carquinez Strait/Suisun Bay. The information below was summarized from the life history descriptions provided in Pacific Coast Salmon FMP (PFMC 2003).

Chinook salmon (*Oncorhynchus tshawytscha*)

The current Pacific Coast Salmon FMP (PFMC 2003) provides management protection for the coast-wide aggregate of natural and hatchery salmon species within the EEZ that are fished off the coasts of Washington, Oregon, and California. These species include Chinook, coho, pink (*Oncorhynchus gorbuscha*), and all salmon protected under the Endangered Species Act (ESA). The Pacific Salmon FMP also contains requirements and recommendations for the EFH for the managed salmon species. The EFH includes marine waters within the EEZ, and estuarine and freshwater habitat within Washington, Oregon, California and Idaho. Chinook salmon are the only Pacific Salmon FMP salmonid that exists in the San Francisco Estuary (coho salmon is believed to be extirpated). The Chinook salmon occurring within the San Francisco Estuary include two ESUs, the Central Valley Spring-Run ESU and the Sacramento River Winter-Run ESU.

The Central Valley Spring-Run ESU is listed as threatened under the Federal ESA and the CESA. This ESU includes all naturally spawned populations of spring-run Chinook salmon in the Sacramento River and its tributaries in California. Currently, only three naturally spawning populations are known to exist, in Deer, Mill, and Butte Creeks, which are tributaries to the Sacramento River. Spring-run Chinook enter the Sacramento River from late March through September. Adults hold in cool water habitats through the summer, then spawn in the fall from mid-August through early October. Juveniles may spend from 3 months to 2 years in freshwater before migrating to estuarine areas as smolts and then into the ocean to feed and mature. Chinook salmon juveniles exhibit two generalized freshwater life histories, stream-type and ocean-type. Stream-type juveniles reside in freshwater for a year or more before migrating to marine environments, whereas ocean-type juveniles migrate within their first year of life.

The Sacramento River Winter-Run ESU is listed as endangered under the Federal ESA and CESA. The ESU includes all naturally spawned populations of winter-run Chinook salmon in the Sacramento River and its tributaries in California, as well as two artificial propagation programs. The life history of the Sacramento River Winter-Run ESU is similar to that of the Central Valley Spring-Run Chinook ESU discussed above. The primary difference is that adults migrate to spawning grounds between December and July, peaking in March, and spawn from early March through July, peaking in May through June. Juveniles begin migrating to marine environments between July and October, residing in estuarine waters from 5 to 10 months prior to entering the ocean.

Freshwater streams and estuaries provide important habitat for Chinook salmon. They feed on terrestrial and aquatic insects, amphipods, and other crustaceans while young, and primarily on other fish when older. Eggs are laid in deeper water with larger gravel, and need cool water and good water flow (to supply oxygen) to survive. Mortality of Chinook salmon in the early life stages is usually high due to natural predation and human induced changes in habitat, such as siltation, high water temperatures, low oxygen conditions, loss of stream cover and reductions in river flow. Estuaries and associated wetlands provide nursery areas for the Chinook prior to its departure to the open ocean.

5.0 Potential Project Effects on EFH

An “adverse effect” to EFH is defined in 50 CFR Part 600.810 as any impact that reduces the quality and/or quantity of EFH. Adverse effects may include direct or indirect physical, chemical, or biological alterations of the waters or substrate and loss of, or injury to, benthic organisms, prey species and their habitat, and other ecosystem components. Adverse effects to EFH may result from actions occurring within EFH or outside of EFH and may include site-specific or habitat-wide impacts, including individual, cumulative or synergistic consequences of actions.

Deconstruction activities associated with the Project could result in temporary adverse impacts to federally-managed fish species within the Project area. General activity may cause a disturbance and displacement of fish species. Demersal and pelagic fish will likely avoid the area during activity. There will also be a temporary loss of foraging habitat and prey species, particularly when the piles are removed to a depth of at least 2 feet below the sediment level. This sediment disturbance will increase turbidity, displace benthic prey species, and may injure slow or non-moving organisms. Once activity is complete the sediment will resettle and benthic organisms may re-colonize, which could facilitate fish species to return to forage.

Additionally, the pilings likely contain the wood preservative creosote, a toxic substance made up of harmful chemicals such as polycyclic aromatic hydrocarbons, phenols, and creosols. Removal of the pilings may release creosote into the water, which could have negative impacts on fish species that utilize the Project area during migration or for foraging. However, creosote could be leaching out of the pilings as they exist; therefore, removal of the pilings could potentially reduce creosote exposure over the long-term.

Other parts of the structures may also contain other hazardous materials such as LBP, mercury switches, petroleum product residues, and hydraulic fluids. LBP was detected on wharf surfaces during pre-deconstruction surveys and will be addressed by a licensed LBP abatement contractor; ACM was not detected during these surveys. If detected, other hazardous substances will be abated in accordance with Federal, State and local regulations. Removal of the wharf remnants, if they contain these contaminants, would have a beneficial, long-term effect.

Other temporary adverse impacts may occur from the use of equipment for the Project. There may be injury or disturbance to federally-managed fish species caused by noise pollution or physical injury caused by the equipment. There is also potential for the release of oil or fuel into the Strait from equipment operation, which could smother organisms or expose them to harmful petroleum hydrocarbons or other hazardous materials. Other debris such as pilings or concrete could be accidentally dropped into the Strait, which could impair sea floor habitat or release toxic materials into the water.

There is minimal potential for long-term adverse effects that could result from deconstruction activity. Exposure to contaminants either re-suspended from beneath the sediment surface during pile removal, from oil or fuel released during equipment operation, or released from the wood pilings could have negative impacts on special-status species. Also, if the embankment is not properly stabilized, potential erosion over time could lead to increased turbidity and increased exposure to contaminants that may have accumulated in the soil during MOT operations. These chemicals can bioaccumulate within individuals and biomagnify up the food chain. Adverse impacts could include reproduction impairment, suppressed immune function, liver lesions, fin abnormalities, and issues with embryonic development. However, long-term negative effects are unlikely; creosote-treated wood pilings will be removed from the environment, spill prevention and control measures will be taken to minimize such effects, and Phillips 66 will not jeopardize the stability of the embankment.

The Project may result in less than significant short-term and long-term adverse impacts. Phillips 66 would implement BMPs and minimization measures described in the following Section 5.0 to avoid adverse impacts to fish species that may utilize the EFH in the Project area. Additionally, a potential positive long-term impact is that the removal of the creosote-treated pilings could reduce the amount of creosote that would leach out of them over time.

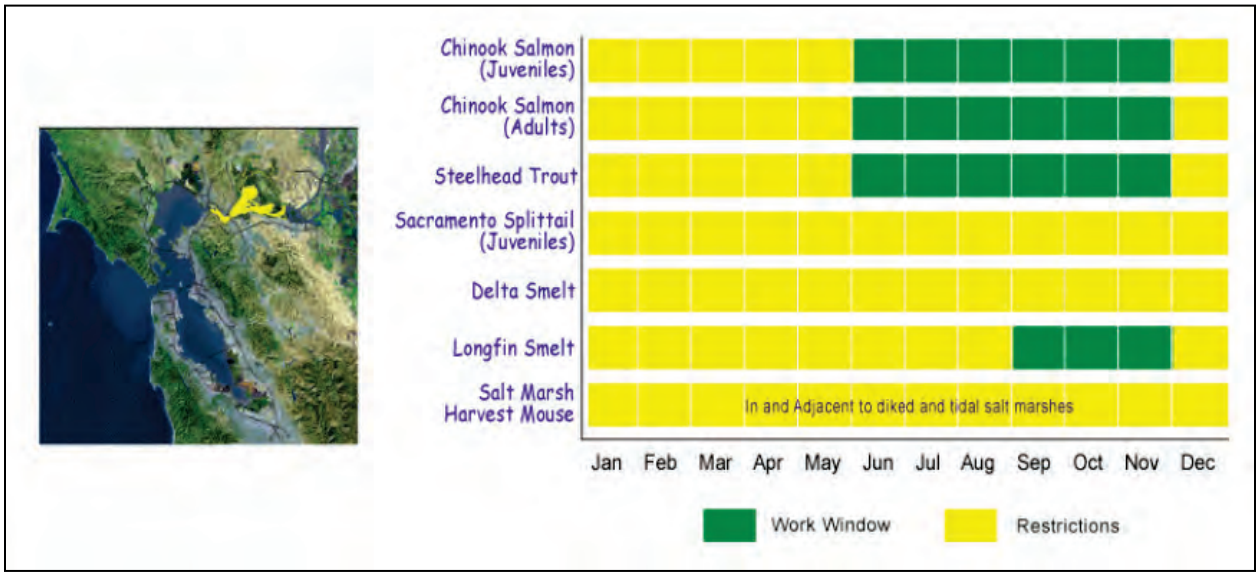
6.0 Avoidance and Minimization Measures

Appropriate BMPs shall be implemented to avoid or reduce adverse impacts to EFH and the species that rely on it. These include the following:

- The Project disturbance area shall be limited to the minimum required to complete the Project.
- Phillips 66 shall adhere to the NMFS work windows for species that occur in the Carquinez Strait and Suisun Bay when feasible (see Figure 5-1).
- Phillips 66 completed LBP and ACM surveys of the wharf structures in February 2013. Samples were collected and analyzed by a certified technician. Results of the survey indicate that LBP is present on some wharf structures, but no ACM was detected. Since LBP is present on the wharf, Phillips 66 shall retain a licensed LBP abatement contractor to address LBP prior to the general deconstruction of the wharf. An LBP Management Plan including health and safety procedures shall be prepared and included as part of the Project's Deconstruction Work Plan.
- Other hazardous materials may also be present, including remnants of such equipment as mercury switches, petroleum product residues, and hydraulic fluids. Prior to commencement of activities to abate these materials at the MOT, site specific health and safety plans for these activities would be prepared by Phillips 66 that, at a minimum, comply with applicable State and Federal regulations. If any such equipment is identified, procedures shall be implemented to flush or drain the materials, so that the hazardous waste can be safely removed without risking petroleum or other hydrocarbon releases.
- Equipment such as switches and gauges that contain mercury would be tagged prior to removal for special handling to prevent an inadvertent discharge of mercury on the deck surfaces or in Strait waters.
- In consultation with the regional agencies, the Applicant shall prepare a Water Quality/Storm Water Pollution Prevention Plan to prevent adverse impacts to nearby waterways and riparian areas associated with deconstruction. The plan shall include, but not necessarily be limited to, a description of BMPs for handling creosote-containing materials, spill prevention and containment, erosion and sedimentation prevention, and monitoring requirements.
- Petroleum, oil, and lubricant spill prevention and control measures shall be implemented though the Water Quality/Storm Water Pollution Prevention Plan, and if a spill occurs, it shall be contained and cleaned up immediately to the extent work can be accomplished safely.
- A floating boom and skirt suitable for conditions in the Carquinez Strait shall be deployed around the action area to prevent the escape of any floating debris, such as creosote-treated wood pieces, or sheen-producing liquids. Boom inspections shall be conducted daily and any waste shall be removed.
- A supply of absorbent booms and pads shall be available on vessels on site during deconstruction activities to contain any spilled liquids containing hazardous substances.
- Waste material from the site shall be transported off site and disposed of in accordance with California and Federal regulations.

- Piles shall be gripped above the waterline and slowly lifted from the sediment through the water column to minimize creosote release and sediment disturbance.
- Within upland areas, stormwater BMPs shall include implementation of silt fences, straw waddles and other measures determined appropriate for erosion and sediment control.
- Vessel fueling shall be required at the staging area or at an approved docking facility. No cross-vessel fueling shall be allowed.
- Marine vessels generally shall contain petroleum products within tankage that is internal to the hulls of the vessels. All deck equipment shall be equipped with drip pans to contain leaks and spills. All fuels and lubricants aboard the work vessels shall have a double containment system. Chemicals used on the MOT and marine vessels shall be stored using secondary containment.
- The Applicant shall not store fuel or oil at the proposed Project's parking and staging area upland of the work site. Fuel containment at the contractor's existing shore base may store quantities of oil and fuel.
- Vessel traffic and movements shall be minimized to reduce potential physical displacement of fish.
- Deconstruction activity shall be conducted during daytime hours only. The use of bright lights during the night could affect the normal behavior of special-status fish species and migratory birds, and could potentially increase predation on these species.
- A Sea Floor Debris Removal Plan shall be prepared and implemented should any equipment, tools, pilings, or other materials or debris accidentally drop into the Strait during deconstruction activities. For example, large pieces of structures to be removed would have tag lines attached to facilitate recovery from the Strait in the event of an accident.
- Deconstruction materials that cannot be salvaged shall be disposed of through sale as components for scrap, or disposed in a permitted landfill.
- Waste storage areas shall be kept clean, well-organized, and equipped with ample clean-up supplies as appropriate for the materials being stored.
- A Worker Environmental Awareness Program (WEAP) shall be mandated for all personnel involved in deconstruction activities. Training shall include the importance of the marine environment to special-status species and the environmental protection measures that are being implemented to avoid and/or minimize negative impacts to designated critical habitats and the species that depend on them. The WEAP shall also cover other important biological resources with potential to occur in the Project area, including Alameda whipsnake, nesting birds, and the potential wetland in the former TXI property.
- Construction crew members shall keep the work area well-maintained and free from trash or litter to reduce attracting predators.

Figure 5-1 NMFS In-Water Work Windows for Carquinez Strait and Suisun Bay (Dredging)



Source: http://swr.nmfs.noaa.gov/overview/sroffice/2dredge_restriction_Suisun_carquinez.html

7.0 Conclusions

In summary, there is potential for less than significant short-term and long-term adverse impacts to EFH due to the proposed Project. Deconstruction activities associated with the Project could result in impacts to EFH and the federally-managed fish species that rely on these habitats. Temporary, insignificant negative impacts may include disturbance and displacement of fish species; degraded local water quality due to increased turbidity, release of hazardous contaminants such as creosote, hydrocarbons, LBP, or mercury; reduced habitat quality due to noise pollution; and displaced prey species.

Potential long-term adverse effects include bioaccumulation of hydrocarbons or other harmful chemicals due to exposure to contaminants re-suspended from beneath the sediment surface during pile removal; released from Wharf remnants or equipment operation; or erosion due to an unstable embankment. However, a potential positive long-term effect is the removal of creosote-treated wood, LBP, and other remnants potentially containing hazardous materials from the area.

To avoid and/or minimize potential adverse impacts to biological resources, appropriate BMPs, discussed in Section 5.0, will be implemented before, during and after deconstruction activities.

8.0 References

Armor C, Herrgesell PL. 1985. Distribution and abundance of fishes in the San Francisco Bay estuary between 1980 and 1982. Hydrobiologia 129: 211-227

California Department of Fish and Wildlife (CDFW). 2000-2007. Interagency Ecological Program for San Francisco Estuary. *Monthly Mid-water and Otter-trawl survey data for San Francisco Estuary*, as cited by Environmental Science Associates 2009.

Environmental Science Associates, 2009. Coscol petroleum/El Paso Corporation marine terminal deconstruction and pipeline abandonment project: final mitigated negative declaration.

Ganju, NK and Schoellhamer, DH. 2006. *Annual sediment flux estimates in a tidal strait using surrogate measures.* Estuarine, Coastal and Shelf Science 69 (2006) 165-178. June.

Monroe, MW, and Kelly, J. 1992. *State of the Estuary: A report on conditions and problems in the San Francisco Bay/Sacramento-San Joaquin Delta Estuary*. Association of Bay Area Governments, Oakland, California. as cited by NOAA 2007.

National Marine Fisheries Services (NMFS). 2007. *Report on the subtidal habitats and associated biological taxa in San Francisco Bay*. Santa Rosa, California.

Pacific Fisheries Management Council (PFMC). 1998. Appendix D Description and Identification of Essential Fish Habitat for the Coastal Pelagic Species Fishery Management Plan. December

———2003. Pacific Coast Salmon Plan. Fishery Management Plan for Commercial and Recreational Salmon Fisheries off Coasts of Washington, Oregon, and California as Revised through Amendment 14. March.

———2005. Pacific Coast Groundfish Fishery Management Plan for the California, Oregon, and Washington Groundfish Fishery, Appendix B Part 2, Groundfish Life History Descriptions.

———2011. Pacific Coast Groundfish Fishery Management Plan for the California, Oregon, and Washington Groundfish Fishery, as amended through Amendment 23 including Secretarial Amendment 1. September.

Smith RE, Foxgrover A, and Jaffe, BE. 2003. *Suisun Bay and Delta Bathymetry: Production of a 10m grid*, poster presentation at CALFED Science Conference.