Appendix D

Agency Consultation

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UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE
Southwest Region
501 West Ocean Boulevard, Suite 4200
Long Beach, California 90802-4213

February 6, 2012

In response, reply to:
2011/00324

Douglas Gilkey
Base Closure Manager
Department of the Navy
Base Realignment and Closure Program
Management Office West
1455 Frazee Road, Suite 900
San Diego, California 92108

Dear Mr. Gilkey:

Thank you for your letter of January 26, 2011 requesting initiation of consultation with NOAA's National Marine Fisheries Service (NMFS) pursuant to section 7 of the Endangered Species Act of 1973 (ESA), as amended. This consultation pertains to the U.S. Department of the Navy's (Navy) proposal to dispose of and transfer to the City and County of San Francisco (City), surplus property at the Hunters Point Shipyard (HPS) located in San Francisco, California.

NMFS has reviewed the information provided with the Navy's letter of January 26, 2011. Additional information regarding the Navy's action has been provided to NMFS via letter from the Navy dated May 13, 2011, and via telephone and electronic mail messages between March 2011 and January 2012. The Navy has also provided to NMFS the project's Draft Supplemental Environmental Impact Statement (DSEIS) (dated February 2011). Information regarding the site's re-use plan proposed by the City was provided by the Navy (*e.g.*, Navy's DSEIS). In addition, information was obtained from the Redevelopment Agency of the City and County of San Francisco's (Redevelopment Agency) Resolution No. 59-2010 (hereinafter "Resolution No. 59-2010"). The Resolution adopted and incorporated 1) the CEQA findings regarding the project (including the adoption and decision to substantially implement the Project identified in the Final Environmental Impact Report (FEIR) and 2) a Mitigation, Monitoring, and Reporting Program (MMRP) for the project.

The Navy proposes to authorize the execution of necessary transactional documents with the San Francisco Redevelopment Agency to transfer property located at HPS adjacent to and within San Francisco Bay, to the City. A total of 864 acres of which 421 acres of dry land and 443 acres of submerged property are proposed for disposal. Future development of HPS by the

Redevelopment Agency could include a variety of residential, commercial, industrial, and recreational uses over an approximately 25-year period. The reuse plan presented by the Navy and Redevelopment Agency includes: (1) approximately 125,000 ft^2 of neighborhood/ retail/other commercial/mixed use; (2) approximately 2,500,000 ft^2 of research and development; (3) approximately 255,000 ft^2 of artists' studios/new artist center; (4) approximately 50,000 ft^2 of community services; (5) approximately 231 acres of parks & open space; (6) a football stadium with 69,000 seats; (7) new Yosemite Slough Bridge; (8) shoreline improvements; and (9) marina with 300 boat slips. The Navy does not propose to construct these facilities associated with the re-use plan. The Navy states that it does not have the authority to regulate re-use activities by the Redevelopment Agency or City.

Proposed re-use facilities associated with the waters of San Francisco Bay include shoreline improvements, construction of a marina, and construction of the Yosemite Slough Bridge. For the purpose of this consultation with the Navy regarding the proposed transfer of the property, the re-use facilities are considered activities that are interrelated and/or interdependent with the Navy's action.

Based on the plans presented by the Navy and adopted and incorporated by Resolution No. 59-2010, the Yosemite Slough Bridge would be approximately 900 feet long with eight piers supporting the structure. Shoreline improvements would consist of modifying the shoreline along San Francisco Bay to remove existing debris and degraded seawall/bulkhead structures. The shoreline improvements would create a sloped surface which relocates the edge of San Francisco Bay from 3 feet and 20 feet landward. The new marina slips would be situated along existing quay walls associated with the North and South HPS Piers. Other existing pier, wharf, and dry dock structures will be removed, repaired, or modified for public safety and wildlife habitat restoration.

The MMRP, adopted and incorporated by Resolution No. 59-2010, identifies environmental issues for which monitoring is required, the required mitigation measures, the time frame for monitoring, and the responsible implementing and monitoring agencies. The following MMRP measures are designed to protect aquatic habitat and listed fish species (MMRP numbers and page numbers refer to Resolution 59-2010):

- All in-water construction will occur June 1 to November 30. **(MM BI-12a.1 on pages 64 and MMRP-120; and MM BI-9b on pages 63 and MMRP-118).**

- A Storm Water Pollution Prevention Plan (SWPPP) will be developed and will include an Erosion and Sediment Control Plan. Erosion control measures will be implemented, including the application of straw mulch, seeding with fast growing grasses, and construction of berms, silt fences, hay bale dikes, stormwater detention basins, and other energy dissipaters. All exposed slopes and banks will be stabilized immediately following completion of construction activities. **(MM HY-1a.1 on pages 42 and MMRP-77).**

- Best Management Practices (BMP) , including the use of berms, silt fences and detention basins, will be implemented to ensure contaminants are prevented from entering the San

Francisco Bay. **(MM BI-4a.2 on pages 45 and MMRP-104).**

- In tidal areas, work will occur only in dewatered sites and during periods of slack tide. **(MM BI-4a.2 on pages 45 and MMRP-104).**

- A Seafloor Debris Minimization and Removal Plan will be prepared and implemented. **(MM BI-12b.2 on pages 56 and MMRP-123).**

- The proposed bridge and marina structures will be designed and engineered such that the amount and size of piles, and the duration of installation are minimized. **(MM BI-9b on pages 63 and MMRP-118).**

- Piles will be driven with a vibratory device when feasible. **(MM BI-9b on pages 63 and MMRP-118).** If vibratory hammer use is not feasible, steel piles driven with an impact hammer and will use an air curtain, or the area around the piles being driven will be dewatered using a cofferdam. **(MM BI-9b on pages 63 and MMRP-118).**

- During use of an impact hammer for pile driving, in-water sound levels will be monitored to ensure that the air curtain is functioning properly and project-generated sound waves do not exceed the threshold of 180-decibels generating 1 micropascal. **(MM BI-9b on pages 63 and MMRP-118).**

- Clean Marinas California Program will be implemented and BMPs listed in the National Management Measures to Control Nonpoint Source Pollution from Marinas and Recreational Boating will be employed. The BMPs will address petroleum containment, topside boat maintenance and cleaning, underwater boat hull cleaning, marina operations, marina debris, boat sewage discharge, solid waste, liquid waste, fish waste, hazardous materials, and stormwater runoff. **(MM HY-6b.3 on pages 58 and MMRP-96) (MM BI-12b.1 on pages 45 and MMRP-121).**

The Navy has requested NMFS' concurrence with its finding that the proposed transfer of surplus property at the HPS to the City is not likely to adversely affect ESA-listed salmonids, green sturgeon, or critical habitat.

Endangered Species Act

Available information indicates the following listed species (Evolutionarily Significant Units [ESU] or Distinct Population Segments [DPS]) under the jurisdiction of NMFS may be affected by the proposed project:

Central California Coast steelhead (*Oncorhynchus mykiss*) **DPS**
threatened (January 5, 2006, 71 FR 834)
critical habitat (70 FR 52488, September 2, 2005); and
North American green sturgeon southern (*Acipenser medirostris*) **DPS**
threatened (71 FR 17757, April 7, 2006)
critical habitat (74 FR 52300, October 9, 2009).

The life history of steelhead is summarized in Busby *et al.* (1996). Central California Coast (CCC) steelhead are the anadromous form of *Oncorhynchus mykiss*. They make migrations between the marine and freshwater environments to complete their life cycle. Older juveniles and adults live in the marine environment until they migrate into freshwater rivers and creeks to spawn. Upstream migration occurs during the winter months, peaking in January and February, and steelhead spawning extends from December through April. Juveniles may rear in freshwater anywhere from 1-3 years. Smolt emigration usually occurs in late winter through early spring. Some variability of these life history characteristics has been documented (Shapovalov and Taft 1954, Barnhart 1986, Busby *et al.* 1996, McEwan 2001).

The life history of threatened green sturgeon in California is summarized in Adams *et al.* (2002) and NMFS (2005). The southern DPS of North American green sturgeon include a single spawning population in the Sacramento River. They are anadromous, making migrations to the Sacramento River in the spring, with peaks in April-June (based on when they have been collected there; Moyle 1995). The juveniles spend 1-4 years in freshwater, before migrating to the ocean. As juvenile green sturgeon age, they migrate downstream and live in the lower delta and bays, spending from three to four years there before entering the ocean.

NMFS has evaluated the proposed action for potential effects to threatened CCC steelhead, threatened green sturgeon, and designated critical habitat. The Navy's proposed action consists of the transfer of the HPS property to the City. The administrative transfer of land from the Navy to the City is an administrative process, which is expected to have no effect on listed species or critical habitat. The potential effects of the proposed re-use plan, including the Yosemite Slough Bridge, new 300-slip marina, and shoreline improvements, are evaluated below as effects of other activities that are interrelated and/or interdependent with the Navy's action.

Hunters Point was initially developed in the late 1800's as a private commercial dry dock for ship repair. Acquired by the Navy during World War II, HPS rapidly expanded and developed during the first years of United States involvement in World War II. Between 1939 and 1945, approximately eight million cubic yards of earth was used to fill in the bay at this site. Fill was placed north and south of Hunters Point to create a submarine service area. Between Hunters Point and Yosemite Slough, fill was placed to create a large flat area for development of the shipyard. During this time, HPS was expanded from 48 acres to 583 acres. This major expansion included construction of a 1,092-foot long dry dock (Dry dock 4), three 420-foot long dry docks for submarines (Dry docks 5, 6, and 7 near India Basin), the leveling of a good portion of Hunters Point Hill, and the construction of dozens of buildings. HPS served as a working naval shipyard from 1941 until the Navy ceased operations in 1974. Currently, HPS is primarily comprised of vacant buildings and unused infrastructure. The site reflects its history as a heavy industrial naval shipyard with facilities for ship repair, storage and trucking, light manufacturing, construction storage and shops, laboratories, scrap metal recycling, and other former Navy uses dating largely from the World War II era.

The waterfront along San Francisco Bay at HPS is characterized by abandoned and deteriorated buildings, piers, dry docks, and the Re-Gunning Crane which is located at the end of the Re-Gunning Pier. Aquatic habitat along the shoreline has been degraded due to a combination of riprap-protected slopes, concrete submarine dry docks, dilapidated piers and wharves, quay-wall

structures, and disposal of debris (broken concrete, broken bricks, and random pieces of rock). Extending inland from the South Basin at HPS, Yosemite Slough is a remnant tidal channel that contains narrow patches of salt marsh habitat, varying in length from 20 to 100 ft, as well as mud flats that are exposed at low tides once or twice a day. Starting in the late 1800s, portions of Yosemite Slough were filled, raising the ground surface to a level approximately 5 to 20 feet above sea level.

The Redevelopment Agency's proposed re-use plan includes improvements to create a more natural shoreline area, construction of a 300-slip boat marina, and construction of a new bridge over Yosemite Slough. Although the existing land fill and quay-walls would generally remain in place, the proposed shoreline improvements would remove existing dilapidated piers/wharves and remove shoreline debris. Through grading/excavation and removal of the upper portion of fill along bulkheads, the project would create a sloped surface that results in portions of the shoreline of San Francisco Bay being relocated 3 to 20 feet landward and reduces the HPS landfill surface area by 8.51 acres. The 300-slip boat marina would be located along existing quay-walls adjacent to the HSP North and South Piers. New gangways and floating docks would be constructed to access the marina's boat slips. The proposed Yosemite Slough Bridge would be 81 feet wide, with seven lanes. It would cross the slough at its narrowest point and would primarily function for transit, bicycle, and pedestrian use. The bridge span across Yosemite Slough would be approximately 902 feet long with abutments on the north and south ends connecting the bridge to land. Impacts associated with construction of these facilities include degradation of water quality and elevated levels of underwater sound during pile driving. Future operations may affect listed fish through marina operations and recreational boat traffic.

Temporary impacts to water quality are likely to occur when old pilings are removed, new pilings are installed, cofferdams are installed, and shoreline areas are graded. These activities can generate increased levels of turbidity in the adjacent water column as soft sediments are disturbed on the bay floor and along the shoreline. High levels of turbidity may affect fish by disrupting normal feeding behavior, reducing growth rates, increasing stress levels, and reducing respiratory functions (Benfield and Minello, 1996: Nightingale and Simenstad, 2001). To address the potential degradation of water quality, the Redevelopment Agency has proposed measures to avoid and minimize this impact. All in-work will be limited to the period between June 1 to November 30 to avoid the migration seasons of adult and juvenile CCC steelhead in the project's action area. Furthermore, in-water work will occur during periods of low tide which will reduce the distribution of fine sediments in the water column. Current plans require cofferdams for construction of the Yosemite Slough Bridge. Cofferdam installation would occur on mudflats in Yosemite Slough during periods of low tide which would avoid degradation of water quality and impacts to fish. Once the cofferdams are enclosed, bridge construction and pile driving would be isolated from the waters of San Francisco Bay and no degradation of water quality is anticipated. For construction of shoreline improvements, proposed erosion control measures include the installation of berms, silt fences, hay bale dikes, stormwater detention basins, and other energy dissipaters. Post-construction, straw mulch and seeding with fast growing grasses will be applied to stabilize exposed slopes and banks. Taking into account these measures, any elevated levels of turbidity associated with this project's construction activities are expected to be temporary, localized, and minor. Green sturgeon may be present in the vicinity of the project during construction, but this benthic fish species is well adapted to living in estuaries

with fine sediment bottom and tolerant of high levels of turbidity; specifically, they are tolerant of levels of turbidity that exceed levels expected to result from this project. For these reasons, the resulting impacts to water quality during construction are expected to be discountable or insignificant.

Pile driving associated with construction of the marina and the Yosemite Slough Bridge may create high underwater sound levels. Available information indicates that fish may be injured or killed when exposed to very high levels of elevated underwater sound pressure waves generated from driving steel piles with impact hammers. To assess the potential effects of pile driving, NMFS uses a dual metric criteria of 206 dB re one micropascal peak sound pressure level for any single strike and an accumulated Sound Exposure Level (SEL) of 187 dB re one micropascal squared-second to correlate physical injury to fish from underwater sound produced during the installation of piles with hammers (Caltrans 2009). As distance from the pile increases, sound attenuation reduces levels and the potential harmful effects to fish also decrease. For this project, pile driving will be limited to the period between June 1 to November 30, and therefore, adult and juvenile CCC steelhead will not be present in the project's action area during pile driving activities. Green sturgeon may be present in the vicinity of the action area year round. The Redevelopment Agency proposes to use a vibratory hammer device to drive piles when feasible. If a vibratory device proves to be infeasible, the Redevelopment Agency proposes to use an air curtain when using an impact hammer to drive steel piles. To ensure the air curtain is functioning properly and sound levels do not exceed the dual metric sound thresholds, the Redevelopment Agency would monitor in-water sound during pile driving. At the Yosemite Slough Bridge, the dewatered cofferdams would serve to attenuate high sound pressure levels during pile driving. Therefore, the resulting sound levels are expected to be lower than the NMFS thresholds for the onset of physical injury to fish. Disturbance and noise associated with construction at the pile driving sites may startle fish and result in dispersion from the action area. If listed green sturgeon react behaviorally to the sound produced by pile driving, adequate water depths and the open water area of San Francisco Bay adjacent to the project site will provide startled fish sufficient area to escape and elevated sound levels should not result in more than an insignificant effect on them.

A portion of Yosemite Slough may be dewatered with the installation of a cofferdam for construction of the new bridge. Listed anadromous salmonids will not be present during the construction period and, thus, not expected to be affected by this activity. Although green sturgeon could be presented in the vicinity of Hunters Point and Yosemite Slough, cofferdams will be installed during low tides when the slough's mudflats are exposed. During low tide, the area is too shallow to support large fish such as green sturgeon. In addition, habitat conditions in Yosemite Slough are degraded and green sturgeon are unlikely to be holding or foraging in this area. For these reasons, green sturgeon are unlikely to be affected by cofferdam construction. The likelihood of adverse impacts to green sturgeon from installation of the project's cofferdam is discountable.

In addition to the above water-associated facilities, the re-use plan proposes construction of upland facilities at the HPS consisting of: (1) approximately 125,000 ft^2 of neighborhood/ retail/other commercial/mixed use; (2) approximately 2,500,000 ft^2 of research and development; (3) approximately 255,000 ft^2 of artists' studios/new artist center; (4) approximately 50,000 ft^2 of

community services; (5) approximately 231 acres of parks & open space; and (6) a football stadium with 69,000 seats. These facilities are not expected to impact listed fish or designated critical habitat because they are located in upland areas, which are set back from the shoreline and isolated from the waters of San Francisco Bay. The proposed measures associated with the construction and future operation of the upland facilities include the use of BMPs to avoid degradation of water quality and detention of storm water runoff.

Upon completion of the marina, recreational boat traffic and marina operations could affect water quality and disturb listed fish in the project's action area. The Redevelopment Agency proposes to implement BMPs from the Clean Marinas California Program to address petroleum containment, topside boat maintenance and cleaning, underwater boat hull cleaning, marina operations, marina debris, boat sewage discharge, solid waste, liquid waste, fish waste, hazardous materials, and stormwater runoff. Regarding the potential for recreational boats to disturb listed fish, the current water depths of up to 16 feet between the North and South Piers will provide adequate water depth for both fish passage and recreational boat traffic. Large and small power boats and sailboats are expected to utilize the marina and their noise may startle fish, but the open-water nature of San Francisco Bay adjacent to the marina provides sufficient area to escape this potential disturbance. Based on the Redevelopment Agency's proposed measures to construct in-water facilities during a seasonal work window, employ BMPs to avoid degradation of water quality during construction, use a vibratory hammer and/or air bubble curtain to address elevated sound levels during pile driving, and implement BMPs from the Clean Marinas California Program, the impacts of construction and future operation of the marina at this location are expected to be discountable or insignificant.

Primary constituent elements (PCEs) of designated critical habitat for CCC steelhead in the action area include water quality and quantity, foraging habitat, natural cover including large substrate and aquatic vegetation, and migratory corridors free of obstructions. PCEs for designated green sturgeon critical habitat in estuarine areas include food resources, water flow, water quality, migratory corridor, water depth, and sediment quality. The proposed shoreline improvements, new marina and bridge are not expected to further degrade the condition of PCE's in the action area and may benefit critical habitat. For example, the proposed shoreline improvements would ultimately reduce erosion, create a more natural shoreline and reduce the land surface area by 8.51 acres, thus creating more open water aquatic habitat, while improving water quality. Removal of pier structures which are composed of creosote treated wood will benefit aquatic habitat in the project area by removing this source of leaching contaminants. Creosote wood, a distillate of coal tar, is a complex chemical mixture, up to 80% of which is comprised of polycyclic aromatic hydrocarbons (PAHs). PAHs are acutely toxic to aquatic life. The project will benefit designated critical habitat in the project area by removing these existing deteriorated structures. Overall, removal of the creosote treated wood pilings and removal of the existing dilapidated overwater structures at the Hunters Point Shipyard are expected to benefit designated critical habitat.

Based on the best available information, NMFS concurs with the Navy's determination that the effects of the Navy's proposed transfer of surplus property at HPS, together with the effects of the Redevelopment Agency's planned reuse, an activity interrelated and/or interdependent with the Navy's action, are not likely to adversely affect threatened CCC steelhead, threatened

southern DPS green sturgeon and designated critical habitat. This concludes consultation in accordance with 50 CFR 402.13(a) for the proposed Hunters Point Shipyard Disposal and Reuse project. However, further consultation may be required if: 1) new information becomes available indicating that listed species or critical habitat may be affected by the project in a manner or to an extent not previously considered; 2) current project plans change in a manner that causes an effect to listed species or critical habitat in a manner not previously considered; or 3) a new species is listed or critical habitat designated that may be affected by the action.

This letter does not provide for coverage of any potential incidental take, including any take that may occur as a result of the future construction or future operation of the City's planned re-use. Furthermore, it is anticipated that federal permit authorization from the U.S. Army Corps of Engineers (Corps) pursuant to Section 404 of the Clean Water Act and/or Section 10 of the Rivers and Harbors Act will be required for certain project components, including the construction of shoreline improvements, the Yosemite Slough Bridge, and the marina. Accordingly, consultations between the Corps and NMFS are expected to occur pursuant to Section 7 of the ESA.

Fish and Wildlife Coordination Act

The purpose of the FWCA is to ensure that wildlife conservation receives equal consideration, and is coordinated with other aspects of water resources development (16 U.S.C. § 661). The FWCA establishes a consultation requirement for federal departments and agencies that undertake any action that proposes to modify any stream or other body of water for any purpose, including navigation and drainage (16 U.S.C. § 662(a)). Consistent with this consultation requirement, NMFS provides recommendations and comments to federal action agencies for the purpose of conserving fish and wildlife resources. The FWCA allows the opportunity to offer recommendations for the conservation of species and habitats beyond those currently managed under the ESA and MSA. NMFS has no FWCA recommendations to offer regarding this project because the project has proposed measures that adequately protect the marine environment.

Please contact Lael Will at 707-578-8554 (Lael.Will@noaa.gov) or Gary Stern at 707-575-6060 (Gary.Stern@noaa.gov) if you have questions concerning this consultation or require additional information.

Sincerely,

for Rodney R. McInnis
Regional Administrator

cc: Ronald Bochenek, Department of the Navy
Copy to File Administrative Record # 151422SWR2011SR00095

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Ser BPMOW.rjb/0556
MAY 13 2011

Mr. Gary Stern
National Marine Fisheries Service
777 Sonoma Avenue, Room 325
Santa Rosa, California 95404

Dear Mr. Stern:

This letter follows our previous letter dated January 26, 2011 which initiated informal consultation under Section 7 of the Endangered Species Act (ESA) and our March 24, 2011 conference call regarding the Department of the Navy's (Navy's) disposal of surplus federal property at Hunters Point Shipyard (HPS), San Francisco, California. At issue are the potential effects on critical fish habitat from the proposed in-water construction (i.e., marina and bridge over Yosemite Slough) associated with the City and County of San Francisco's redevelopment of the surplus property following disposal by the Navy. The disposal of the property by the Navy may affect, but is not likely to adversely affect listed species or adversely modify critical habitat.

The following addresses the specific requests made by the National Marine Fisheries Service (NMFS) during the March 24, 2011 conference call:

1.) NMFS inquired about which reuse alternative was to be the subject of Navy consultation. The Navy requests that the NMFS utilize Alternative 1 (Stadium Plan Alternative) as the reasonably foreseeable reuse of HPS and as the basis of the consultation. Under Alternative 1, the Navy would dispose of the shipyard property and the City and County of San Francisco would redevelop the property with a wide range of uses including 2,650 residential units, retail (125,000 square feet), research and development (R&D) (2.5 million square feet), community services (50,000 square feet), and parks and recreation open space (232 acres). A major component would include a new 69,000 seat football stadium. This alternative would also include a 300-slip marina, improvements to stabilize shoreline, and a new bridge over the Yosemite Slough. New infrastructure would also serve the development as necessary. Development is proposed to occur in four phases (Phases 1 through 4) with full build-out of the project site by 2032. **Attachment 1** illustrates the land use plan for Alternative 1.

The redevelopment of the shipyard would include the construction and operation of the following in-water components. Of note, final design of the following components has not been completed.

Marina – A marina would be constructed along the east shoreline of HPS. The marina piers are proposed along the existing North and South Piers. The marina would include up to 300 slips accessed by a series of gangways and floating docks. Guide piles would horizontally restrain the floating docks. Each slip would include potable water, electric, cable television, and telephone connections. The marina would provide sewage pump-out stations at each slip or at a central

pull-up station. Landside improvements adjacent to the marina could include parking, restroom facilities, a classroom to teach sailing, and a harbormaster's office.

The marina would require installation of two breakwaters approximately 1,300 to 1,650 feet in total length, split into two or three sections (ranging between 300 and 650 feet). The breakwaters would create two 10.7 to 11.3-acres basins. The footprint of the breakwaters would cover 0.05 to 0.1 acres of bay bottom. The existing North and South piers would remain and provide protection to the marina basins by acting as breakwaters. Additional breakwaters would be constructed using concrete sheet pile supported by batter piles and installed using water-based equipment.

The current water depths of up to 16 feet of the proposed marina basin would be adequate for recreation craft, and the basin would not require initial dredging. However, maintenance dredging would be required in the future to maintain adequate clearance. Maintenance dredging would be conducted in accordance with applicable federal and state regulations.

Yosemite Slough Bridge - A new bridge would extend Arelious Walker Drive and connect the HPS property with the Candlestick Point area. The bridge would be located partially on the HPS property and partially offsite (a final bridge alignment has not been determined). The 81-feet wide, seven-lane bridge would cross the slough at its narrowest point and would primarily function for transit, bicycle, and pedestrian use. The bridge and its approach streets would have two dedicated 11-feet wide bus rapid transit (BRT) lanes and a separate 12-foot wide Class I bicycle and pedestrian facility, which would be open at all times. The bridge would also have a 40-feet wide greenway, which would be converted to four peak-direction automobile lanes on football game days only. The roadway would be planted with grass and would serve as an open space amenity on all non-event days. Two-ft tall barriers would separate the BRT lanes from the bicycle/pedestrian lanes and the vehicle lanes. The greenway would also be designed to function as a stormwater treatment control facility for the automobile travel lanes. Runoff from the BRT lanes would also be routed to the greenway and/or to land based stormwater treatment facilities, in accordance with the city's requirements for stormwater treatment.

The 81-feet wide span across Yosemite Slough would be approximately 902-feet long with abutments on the north and south ends connecting the bridge to land. Eight piers, with two columns each, would support the bridge. The columns of the three southernmost piers would rest on bedrock. Ten sets of steel piles would be driven to support the columns of the five piers to the north.

Shoreline Improvements. The shoreline along the HPS boundary consists of a variety of edge conditions, many of which need to be improved to reduce erosion, provide public access, protect against present and future coastal flooding due to rising sea levels, and extend the life of

the structural edges. Types of edge conditions include piers, wharves, bulkheads, revetments, and natural shoreline consisting of sandy beaches and vegetated marsh.

Alternative 1 would repair and improve the existing shoreline edge at HPS. The proposed improvements are based on an assessment of the condition of the existing shoreline, including analysis of the potential for coastal flooding and recommendations to reduce potential effects of storm-induced flooding and ongoing sea level rise.

Along some areas of the HPS shoreline, piers and wharves have deteriorated due to structure age and lack of maintenance and near-shore settlement has occurred. Repairs of existing HPS shoreline structures vary based on the type of edge, and include repair of piles and deck, concrete crack repairs and rock buttresses along base of the drydocks; removal of the upper portion of fill along bulkheads; and riprap placement. Several piers and drydocks would be modified by removing short sections of piers and/or bulkheads (near the shore) to preclude public access, thereby creating opportunities for water birds to roost on the retained portions of these structures. In addition, some of the shoreline improvements associated with Alternative 1 include transforming the revetment edge in wave-protected reaches to a more natural looking shoreline by placing suitable fill to cover the revetment, which may include articulated concrete block mats and/or marsh soils. Shoreline wave berms may be included along the southwest facing shoreline at the bayward end of the articulated concrete block mats.

Attachment 2 summarizes the proposed shoreline improvements at HPS and **Attachment 3** identifies the location of shoreline improvements for Alternative 1. Additional details regarding shoreline conditions and improvements can be found in the Draft SEIS Appendix H. The proposed improvements would repair the existing shoreline edge in place or modify the location of the shoreline in one of the following ways: 1) Removal of the upper portion of a seawall or bulkhead structure (e.g., 10 - 15 feet) and creation of a sloped surface (with an approximate slope of 2:1) in the intertidal and above tidal zones; 2) Creation of the sloped surface at the top of selected locations, which would generally result in the shoreline being relocated between 3 feet and 20 feet landward at HPS. In addition, because of advanced corrosion and deterioration at the Re-Gunning Pier (Berths 16 to 20), a natural shoreline edge would be created, which would result in the landward relocation of the shoreline edge by approximately 60 feet. The net effect of the proposed shoreline improvements would be to reduce the land surface area by 8.51 acres at HPS.

For more detailed information on the redevelopment components of Alternative 1 see the Draft SEIS, Section 2.3.2.1 Alternative 1: Stadium Plan Alternative, pages 2-7 through 2-61.

2.) NMFS requested a listing of the proposed in-water work mitigation identified in the Draft SEIS.

A list of proposed mitigation related to in-water work is included in **Attachment 4.**

3.) NMFS inquired about how to coordinate with ongoing site Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) activities.
NMFS may participate in the HPS CERCLA process for Parcels B - F by requesting to be on the distribution list for upcoming CERCLA documents and factsheets. Further, NMFS can submit comments on any upcoming CERCLA document by contacting the Base Environmental Coordinator at:

Mr. Keith Forman
Base Environmental Coordinator
Department of the Navy
BRAC Program Management Office West
1455 Frazee Road, Suite 900
San Diego, CA 92108-4310
Keith.s.forman@navy.mil
(619) 532-0913 Office
(415) 308-1458 Mobile
(619) 532-0995 Fax

As identified in our previous letter dated January 26, 2011, the proposed action **may affect, but is not likely to adversely affect listed species or adversely modify critical habitat.** We request your concurrence with our 'not likely to adversely affect' determination, which would conclude our informal consultation under Section 7 of the ESA. You may continue to direct any questions or concerns that you may have to Mr. Ronald Bochenek, at (619) 532-0906 or via email at ronald.bochenek.ctr@navy.mil.

Thank you for your attention and prompt response.

Sincerely,

JOHN HILL
Base Closure Manager
By direction of the Director

Attachments: As stated

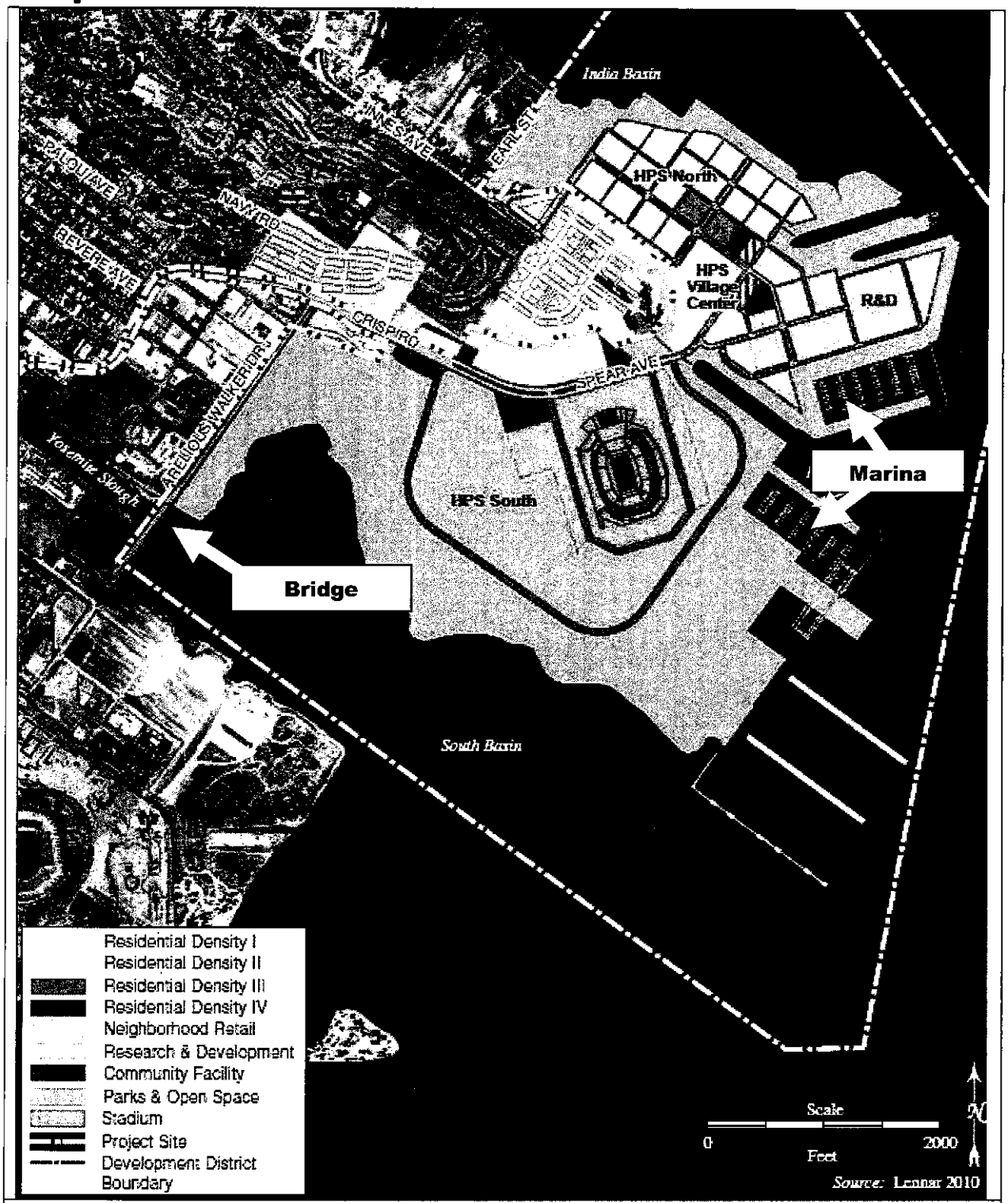
Ser BPMOW.rjb/0556
MAY 13 2011

Blind copy to:
J. Hill
K. Forman
R. Bochenek
X Drive file
Serial file

Writer: R. Bochenek, 2-0906
Typist: N. Lilley, 05/13/11

NMFS Response Letter May 2011 (2).doc

Attachment 1 - Alternative 1 (Stadium Plan Alternative) Proposed Land Use Plan



Alternative 1 (Stadium Plan Alternative) Proposed Land Use Plan

Attachment 2 – Proposed Shoreline Improvements

Location	Proposed Use	Repairs			Modifications					Estimated Change in Shoreline Location (feet)[a]
		Deck	Piles	Walls	Remove	Remove Portion	Slope Top of Wall	New Buttress	Tidal Habitat	
Drydocks 5 & 7	North-side Park/ Waterfront Promenade			X		X		X		0
Wharf – Berths 55 to 61	Waterfront Promenade	X	X							0
Drydock 3	Heritage Park			X				X		0
Wharf – Drydocks 2 & 3	Heritage Park				X					0
Drydock 2	Heritage Park			X				X		0
Wharf – Berths 1 & 2	Waterfront Promenade	X	X							0
Berths 3 to 5	Waterfront Promenade			X			X			-18.3
Berths 6 to 9	Waterfront Promenade			X			X			-18.3
Drydock 4	Waterfront Promenade			X				X		0
Berths 10 to 13	Waterfront Promenade			X			X			-18.3
Berth 14	Waterfront Promenade			X			X			-18.3
Berths 16 to 20	Wildlife Habitat					X	X		X	-60.4
Berths 15, 21, 22 & 29	Waterfront Promenade						X	X		-18.5
Berths 23 to 28	Wildlife Habitat					X				0
Berths 30 to 35	Wildlife Habitat					X				0
Berth 36	Grasslands Ecology Park						X	X		-18.5
Berths 37 to 42	Wildlife Habitat					X				0
Natural Edge/Riprap	Grasslands Ecology Park								X	+3.0
Natural Edge/Riprap	Grasslands Ecology Park								X	+3.0

For more information see Draft SEIS Page 2-42.

Notes:

At some locations, the poor condition of existing shoreline features may require an alternate improvement.

a. These numbers represent an average estimated change in the shoreline at the specified location. A positive number indicates an increase in the shoreline; and a negative number indicates a decrease in the shoreline (creation of bay).

Repair Descriptions:

Deck - Remove and replace deteriorated deck materials.

Piles - Limit corrosion by wrapping or encasing piles in concrete and/or improve structural integrity by welding additional steel plates to the piles.

Walls - Patch spalls, exposed and corroded reinforcing bars, or broken concrete. Add weep holes (to equalize pressure). As needed, install new sheet piles behind existing wall to form new wall (and remove existing wall).

Modification Descriptions:

Remove - Remove deteriorated piers, pilings, and deck.

Remove Portion - Remove a portion of pier near shoreline (to preclude public access).

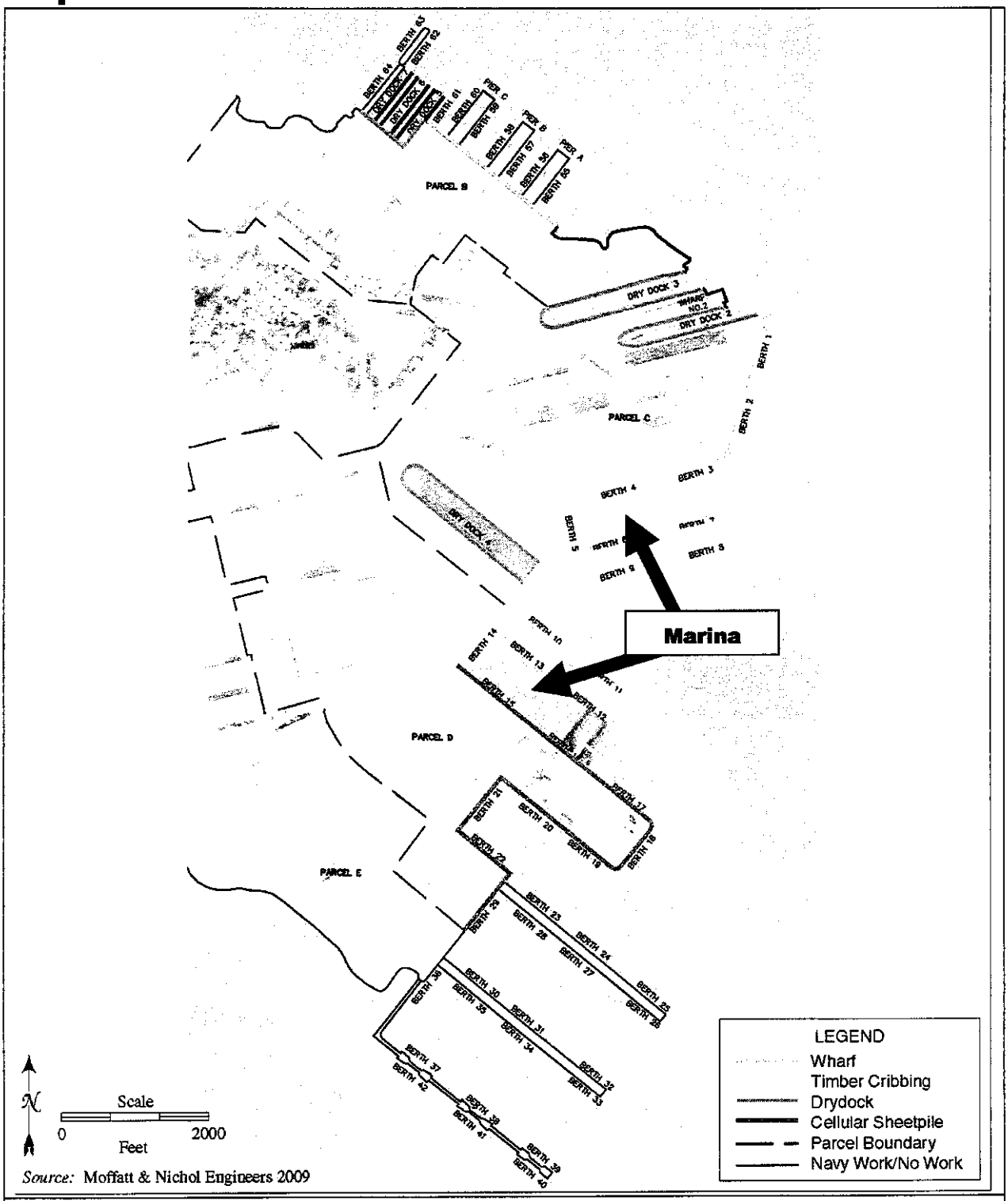
Slope Top of Wall - Remove the top portion of a wall (e.g., 10-15 ft) and slope back top of wall at approximate slope of 2H:1V.

New Buttress - Install new underwater rock and/or sand buttress at base of wall to improve structural stability of adjacent wall. Additional analysis would be required to determine the need for a buttress at some locations.

Tidal Habitat - Take advantage of sloped surface (or reduce slope where needed) to install aquatic plants and create new tidally-exposed habitat.

Change in Shoreline Location: approximate change (in ft) in the location of shoreline (compared to existing conditions) which would result from proposed shoreline improvements.

Attachment 3 - Alternative 1 Proposed Shoreline Improvements



Alternative 1 Proposed Shoreline Improvements

Attachment 4 – Proposed In-Water Work Mitigation

- **Marina Operations - Water Quality Effects.** The marina operator would be required to obtain a certification by the Clean Marinas California Program to reduce potential water quality effects associated with marina operations. The marina operator would be required to implement best management practices (BMPs) that address the following sources of pollution: petroleum containment, topside boat maintenance and cleaning, underwater boat hull cleaning, marina operations, marina debris, boat sewage discharge, solid waste, liquid waste, fish waste, hazardous materials, and stormwater runoff. *(See Draft SEIS page 2-60 for more information).*

- **Marina Operations - General.** Standard marina activities, such as boat maintenance and operation, including leaching of biocides from boat hull anti-fouling paints, would have the potential to impact bay water and sediment quality. Although no fueling facilities are proposed as part of marina operations, spills or leaks of fuels from boats could affect water quality. Per the environmental controls for this alternative (See Draft SEIS Section 2.3.2.1.9, Environmental Controls), the marina operator would be required to obtain a certification by the Clean Marinas California Program to reduce potential water quality effects associated with marina operations.

  The marina operator would be required to implement BMPs that address the following sources of pollution: petroleum containment, topside boat maintenance and cleaning, underwater boat hull cleaning, marina operations, marina debris, boat sewage discharge, solid waste, liquid waste, fish waste, hazardous materials, and stormwater runoff. Stormwater runoff into the marina would also be regulated under the Municipal Stormwater General Permit. Compliance with the requirements of the Permit would reduce pollutant loadings to the marina basin and the potential for water quality impacts. *(See Draft SEIS page 4.9-9 for more information).*

- **Marina Operations – Breakwater and Dredging.** The presence of the breakwater would be expected to restrict water movement within the marina, as well as the exchange between the marina and adjacent portions of the bay. Consequently, rates of sediment deposition and accumulation within the marina could be comparatively higher than existing conditions and require periodic maintenance dredging to maintain navigable water depths. Maintenance dredging would require permits from the DMMO agencies. Dredging activities could result in the resuspension of previously undisturbed sediments, which could adversely affect water quality by generating suspended sediment plumes with high turbidity levels and reduced water clarity. Typically, dredging permits define limits for changes in water quality based on maximum turbidity levels at specified distances from the dredge. Permits also specify monitoring requirements to ensure compliance with water quality limits. Impacts to water quality from small-scale maintenance dredging operations typically are short-term and localized because suspended sediment plumes disperse rapidly (within hours) due to particle settling and mixing. Compliance with applicable regulatory requirements and permit conditions would ensure that maintenance dredging operations would not cause an exceedance of water quality standards or contribute to or cause a violation of applicable waste discharge requirements. Sediment testing, in accordance with DMMO guidance, would be required

to demonstrate that dredged sediments are suitable for in-water disposal (e.g., in-bay or ocean). *(See Draft SEIS page 4.9-10 for more information).*

- **Yosemite Slough Bridge – Pilings**. Construction of the Yosemite Slough bridge could require temporary placement of sheet piles to form coffer dams on either side of the bridge that would allow dewatering prior to placement of the pilings. Similar to the shoreline improvement and marina construction activities, placement of sheet piles would disturb bottom sediments in the slough and potentially remobilize sediment-associated contaminants into the water column. Also, in-water construction activities would have potentials for incidental releases of construction wastes (e.g., sawdust, metal fragments, and concrete) and accidental spills of construction materials (e.g., paints and solvents) or substances commonly associated with construction equipment (e.g., petroleum products) directly into the slough.

  The potential for water quality impacts caused by construction of the bridge would be addressed by a Storm Water Pollution Prevention Plan (SWPPP) that would specify mechanisms for reducing sediment or pollutant loadings in stormwater runoff to the bay. In addition, because the bridge would be constructed using piles driven in dry conditions (behind coffer dams), water quality impacts would be minimized. Additional measures to protect water quality and biological resources during construction of the bridge also would be specified in a Section 404/10 permit and 401 Water Quality Certification. *(See Draft SEIS page 4.9-7 for more information).*

- **Yosemite Slough Bridge – Stormwater Runoff**. Stormwater runoff from Yosemite Slough bridge could add pollutants such as fuels, PAHs, sediment, metals, and litter and debris to waters in the slough or the adjacent bay. Bridge maintenance activities such as welding and grinding, sandblasting, and painting could also adversely affect water quality if debris and wastes are allowed to discharge into the bay. It is anticipated that bridge operations would be under the jurisdiction of the city, and stormwater runoff would be regulated under the Municipal Stormwater General Permit, which requires a pollution prevention program for municipal operations. In particular, the bridge design would incorporate a greenway that would provide a stormwater treatment function. Impacts from bridge operations would be reduced via compliance with the existing stormwater runoff programs. Operation of Yosemite Slough bridge would not cause an exceedance of water quality standards or contribute to or cause a violation of waste discharge requirements. *(See Draft SEIS page 4.9-10 for more information).*

- **Yosemite Slough Bridge Design – Tidal Flushing.** The Yosemite Slough bridge was designed to avoid potential impedance of flood flows. The Yosemite Slough bridge would be designed such that the superstructure would be well above the current 100-year flood hazard elevation in Zone V, to account for future sea level rise. Therefore, bridge operations would not increase flooding risks. Further, the bridge structure would not restrict tidal flushing or circulation of bay waters in the slough. *(See Draft SEIS page 4.9-15 for more information).*

Attachment 4 – Proposed In-Water Work Mitigation

- **In-Water Work – Noise.** Noise levels generated by pile driving during construction activities have the potential to disturb, injure, or kill fish species, including sensitive species such as green sturgeon, steelhead, Pacific herring, and longfin smelt. Pressure waves from pile driving can affect fish in the water column through behavioral effects such as avoidance to physiological effects such as stress, temporary loss of hearing, rupture of swim bladders, formation of bubbles in the circulatory system, and corresponding rupturing of blood vessels, traumatic brain injuries, and death in extreme cases. Species with swim bladders are the most susceptible although ear structures of any species can be damaged. Sound levels of 180 dB generating 1 micropascal (μPa2-s) have been documented to injure or kill fish. Caltrans (2004) reported no hearing damage to steelhead and shiner surfperch when exposed to multiple pile driving strikes that ranged from 158 to 182 dB (re 1 μPa2-s) at distances of 75 to 1,030 ft (23-314 m) from the pile. This study showed no statistically significant mortality (i.e., pile driving different from control groups) for sound exposure levels as high as 181 dB (re 1 μPa2-s) for surfperch and 182 dB (re 1 μPa2-s) for steelhead.

  Marina construction would require pile driving of approximately 675 piles, which could result in significant noise impacts to some fishes in the area that may not be able to move away from this source, particularly small species that live on or in the bottom such as gobies. Other, more mobile fish species would likely avoid impacts by moving out of the area during pile driving activities. However, a number of best management practices (BMPs) would be implemented, including use of a vibratory hammer (as feasible based on final construction plans), restricting pile driving of steel piles to a specific in-water work window recommended by NMFS, and use of an air (bubble) curtain to moderate sound wave propagation. Besides the marina, approximately 20 columns supported by steel piles would be used to construct the Yosemite Slough bridge. Current bridge designs would require installation of coffer dams (temporary structures typically constructed with sheet piles that separate a worksite from the water and allow it to be dewatered). The bridge piles would be driven behind dewatered coffer dams which would result in the piles being out of water and, therefore, would avoid generation of in-water sound pressure waves that could injure fish species. Ground pressure waves produced by pile driving within a dewatered coffer dam are not expected to injure fish. Use of BMPs such as construction closure periods during seasonal migration of sensitive species and use of specific noise-reducing equipment, including piles that help minimize sound impacts, would avoid or minimize potential impacts to fishes and would further reduce the potential for impacts to other aquatic resources. *(See Draft SEIS 4.13-4 for more information).*

- **In-Water Work - Seasonal Restrictions.** In-water work would be avoided when EFH species such as juvenile salmonids are moving through the estuary on the way to the ocean or when groundfish and prey species could be directly impacted. Since some EFH species, including steelhead, may occur infrequently in the project site, the dredge window for this area of the San Francisco Bay is June 1 through November 30. All in-water construction should occur during this window. If completion of in-water work within this period is not feasible due to scheduling issues, new timing guidelines would

be established and submitted to the proper agencies (i.e., NMFS and CDFG) for review and approval.

Seasonal restrictions would reduce the effects of construction-related activities to EFH by establishing a construction window that would minimize impacts to fish by avoiding migration and breeding periods. With implementation of these seasonal restrictions, the overall function of EFH habitat would not be altered by Alternative 1 (including construction of Yosemite Slough bridge) and residual impacts to EFH species and habitats would not be significant. *(See Draft SEIS 4.13-7 for more information).*

- **Storm Water Drainage.** The storm drainage system at HPS would handle stormwater by three methods: 1) treated storm flows; 2) five year piped system; and 3) overland flow. The particular method employed for any individual storm event would depend on the magnitude of the event. These methods would implement the requirements set by the city, as summarized below. *(See Draft SEIS 2-33 for more information).*

  Method 1 - Treated Storm Flows
  Onsite treatment would handle the majority of the stormwater generated by typical rainfall events (85- percentile storms). Examples of onsite treatment include vegetated swales, flow-through planter boxes, permeable pavement, green rooftops, and rainwater cisterns. Larger rainfall events up to a five-year storm would be handled within the rights-of-way of every street within HPS. Examples of these stormwater facilities include vegetated buffer strips, flow-through planter boxes, bioretention facilities, pervious surfaces, and subsurface detention vaults. Bioretention basins would also be constructed within parks and open spaces. Runoff would be treated before discharging into the five-year system and being delivered to the San Francisco Bay.

  Method 2 - Five-Year Piped System
  The five-year piped system would consist of gravity mains draining to the San Francisco Bay. Most stormwater runoff from up to an 85-percentile storm event would be treated before it enters the storm drains, thereby allowing the system to discharge directly to the San Francisco Bay without further management.

  Method 3 - Overland Flow
  For stormwater from an event greater than a five-year storm and up to a 100-year storm, excess stormwater would be routed to the San Francisco Bay by overland flow along a network of street gutters and roadways. The overland flow system would allow streets and sidewalks to fully contain a 100-year storm event without surcharging the adjacent development blocks.

DEPARTMENT OF THE NAVY
BASE REALIGNMENT AND CLOSURE
PROGRAM MANAGEMENT OFFICE WEST
1455 FRAZEE RD, SUITE 900
SAN DIEGO, CA 92108-4310

Ser BPMOW.rjb/0335
JAN 26 2011

Mr. Gary Stern
National Marine Fisheries Service
777 Sonoma Avenue, Room 325
Santa Rosa, California 95404

Dear Mr. Stern:

The U.S. Department of the Navy (Navy) is preparing a Supplemental Environmental Impact Statement (SEIS) for the disposal of surplus property at Hunters Point Shipyard (HPS), San Francisco, CA and its subsequent reuse by the City and County of San Francisco, CA. The Navy is required to dispose of HPS in accordance with Public Law 101-510, the Defense Base Closure and Realignment Act of 1990, as amended.

In support of the SEIS effort, the Navy seeks to initiate informal consultation under Section 7(a)(2) of the Endangered Species Act (ESA). This letter presents our conclusion and a description of the data/information used to make this decision. Attachment 1 includes a description of the in-water development proposed under the proposed action and Attachment 2 presents our ESA Section 7 (a)(2) assessment which includes a description of the federally listed aquatic species (and their habitat) and critical habitat in the vicinity of the proposed action.

The proposed action would result in a potential impact to critical fish habitat from in-water construction (i.e., a marina and a bridge over Yosemite Slough). Construction activities would disturb critical habitat of the federally threatened Green Sturgeon (*Acipenser medirostris*) and Central California Coast Steelhead (*Oncorhynchus mykiss*) and result in the loss of approximately 0.16 to 0.21 acres of critical habitat. The Draft SEIS states that "Even though the project site is located in designated critical habitat (San Francisco Bay) and could be visited infrequently by migrating salmon, steelhead, and green sturgeon, the project site is in an area considered to be highly urbanized and is unlikely to support appropriate critical habitat (e.g., substrate type) for any federally or state-listed threatened or endangered fish species." The impacts from the proposed action are insignificant.

As described in Attachment 2, the proposed action may affect, but is **not likely to adversely affect listed species or adversely modify critical habitat.** We request your concurrence with our 'not likely to adversely affect' determination, and hereby request informal consultation under Section 7 of the ESA. You may direct any questions or concerns that you may have to Mr. Ronald Bochenek, at (619) 532-0906 or via email at ronald.bochenek.ctr@navy.mil.

Thank you for your attention and prompt response.

Sincerely,

DOUGLAS GILKEY
Base Closure Manager
By direction of the Director

Attachments: As stated

ATTACHMENT 1

PROJECT AREA

HPS is located in the City and County of San Francisco. It encompasses approximately 864 acres, of which 421 acres are dry land and 443 acres are submerged. The HPS property is bounded on the north by India Basin; on the east and south by San Francisco Bay; on the southwest by South Basin; and on the northwest by the Bayview area of San Francisco (see **Figure 1**). This part of the city contains light and heavy industrial activities, commercial activities, residential areas, and parks and recreational areas. This informal consultation will focus on the in-water construction activities associated with the proposed action

PROPOSED IN-WATER DEVELOPMENT

The SEIS identifies and considers six reuse alternatives for HPS and a no action alternative. Depending on the redevelopment alternative selected, the proposed action would include in-water development components which could include a marina and a new bridge providing a direct connection between HPS and Candlestick Point. **Table 1** identifies the in-water components for each SEIS alternative and a detailed description follows.

Table 1 - Proposed In-water Development

SEIS Redevelopment Alternatives	Marina (slips)	Yosemite Slough Bridge[1] (Width)
Alternative 1 (Stadium Plan Alternative)	300	Automobile/ BRT/Pedestrian (81 feet)
Alternative 1A (Stadium Plan/No Bridge Alternative)	300	No
Alternative 2 (Non-Stadium Plan/Additional R&D Alternative)	300	BRT/Pedestrian (39 feet)
Alternative 2A (Non-Stadium Plan/Housing and R&D Alternative)	300	BRT/Pedestrian (39 feet)
Alternative 3 (Non-Stadium Plan/Additional Housing Alternative)	300	BRT/Pedestrian (39 feet)
Alternative 4 (Non-Stadium Plan/Reduced Development Alternative)	No	No

Note:
1 The design, dimension, and use of the proposed bridge vary depending on redevelopment alternative selected. The table identifies the proposed use of the bridge which could include a combination of automobile, bus rapid transit (BRT), and pedestrian uses.

a. Marina. A marina would be constructed along the east shoreline of HPS, north of the Re-Gunning Pier (refer to **Figure 2** for Marina location). The marina slips are proposed along the North and South Piers. The marina would include up to 300 slips accessed by a series of gangways and floating docks. Guide piles would horizontally restrain the floating docks. Each slip would include potable water, electric, cable television, and telephone connections. The marina would provide sewage pump-out stations at each slip or at a central pull-up station. Landside improvements adjacent to the marina could include parking, restroom facilities, a classroom to teach sailing, and a harbormaster's office.

The marina would require installation of two breakwaters approximately 1,300 to 1,650 feet (396 to 503 m) in total length, split into two or three sections (ranging between 300 and 650 feet [91.4 to 198 m] in

length). The breakwaters would create two 10.7 to 11.3-acres (4.33- to 4.57- ha) basins. The footprint of the breakwaters would cover 0.05 to 0.1 acres (0.04 to 0.02 ha) of bay bottom. The existing North and South piers would remain and provide protection to the marina basins by acting as breakwaters. Additional breakwaters would be constructed using concrete sheet pile supported by batter piles and installed using water-based equipment.

The current water depths of up to 16 feet (4.9 m) of the proposed marina basin would be adequate for recreation craft, and the basin would not require initial dredging. However, maintenance dredging would be required in the future to maintain adequate clearance. Maintenance dredging would be conducted in accordance with applicable federal and state regulations.

b. Yosemite Slough Bridge. A new Yosemite Slough bridge would extend Arelious Walker Dr and connect HPS and Candlestick Point (see **Figure 2**). The bridge would be located partially within the project site and partially offsite. The eastern bridge approach would be located at least partially within the project site while the western approach would be located offsite. The proposed bridge would cross the slough at its narrowest point and would primarily function for transit, bicycle, and pedestrian use. The span across Yosemite Slough would be approximately 902 feet (275 m) long with abutments on the north and south ends connecting the bridge to land. Eight piers, with two columns each, would support the bridge. The columns of the three southernmost piers would rest on bedrock. Ten sets of steel piles would be driven to support the columns of the five piers to the north.

The width and use of the proposed bridge varies depending on the redevelopment alternative selected. These differences are described below.

Alternative 1 (Stadium Plan Alternative). The 81-feet (25-m) wide, seven-lane bridge would cross the slough at its narrowest point and would primarily function for transit, bicycle, and pedestrian use. The bridge and its approach streets would have two dedicated 11-feet (3.4-m) wide BRT lanes and a separate 12-feet (3.7-m) wide Class I bicycle and pedestrian facility, which would be open at all times. The bridge would also have a 40-feet (12-m) wide greenway, which would be converted to four peak-direction automobile lanes on football game days only. The roadway would be planted with grass and would serve as an open space amenity on all non-event days. Two-feet tall (0.6m) barriers would separate the BRT lanes from the bicycle/pedestrian lanes and the vehicle lanes. The greenway would also be designed to function as a stormwater treatment control facility for the automobile travel lanes. Runoff from the BRT lanes would also be routed to the greenway and/or to land based stormwater treatment facilities, in accordance with the city's requirements for stormwater treatment.

Alternative 1A (Stadium Plan/No Bridge Alternative). No bridge would be constructed under this alternative.

Alternative 2 (Non-Stadium Plan/Additional R&D Alternative). The bridge would be approximately 39-feet (11.9-m) wide and would cross the slough at the same location as Alternative 1. The bridge and its approach streets would have two dedicated BRT lanes, a Class I bicycle path, and a sidewalk that would be open at all times.

Alternative 2A (Non-Stadium Plan/Housing and R&D Alternative). The bridge would be approximately 39-feet (11.9-m) wide and would cross the slough at the same location as Alternative 1. The bridge and its approach streets would have two dedicated BRT lanes, a Class I bicycle path, and a sidewalk that would be open at all times.

Alternative 3 (Non-Stadium Plan/Additional Housing Alternative). The bridge would be approximately 39-feet (11.9-m) wide and would cross the slough at the same location as Alternative 1. The bridge and its

approach streets would have two dedicated BRT lanes, a Class I bicycle path, and a sidewalk that would be open at all times.

Alternative 4 (Non-Stadium Plan/Reduced Development Alternative). No bridge would be constructed under this alternative.

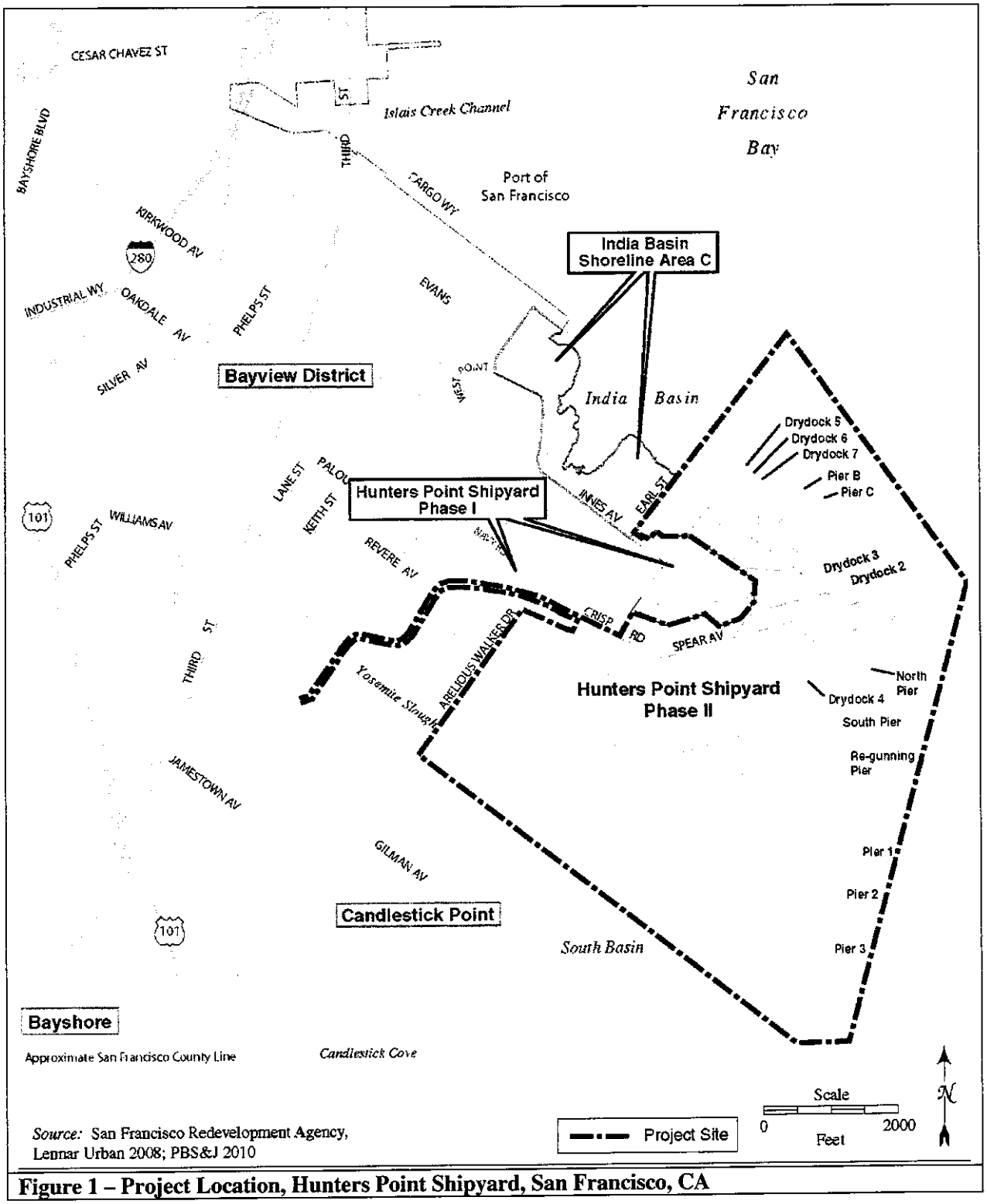


Figure 1 – Project Location, Hunters Point Shipyard, San Francisco, CA

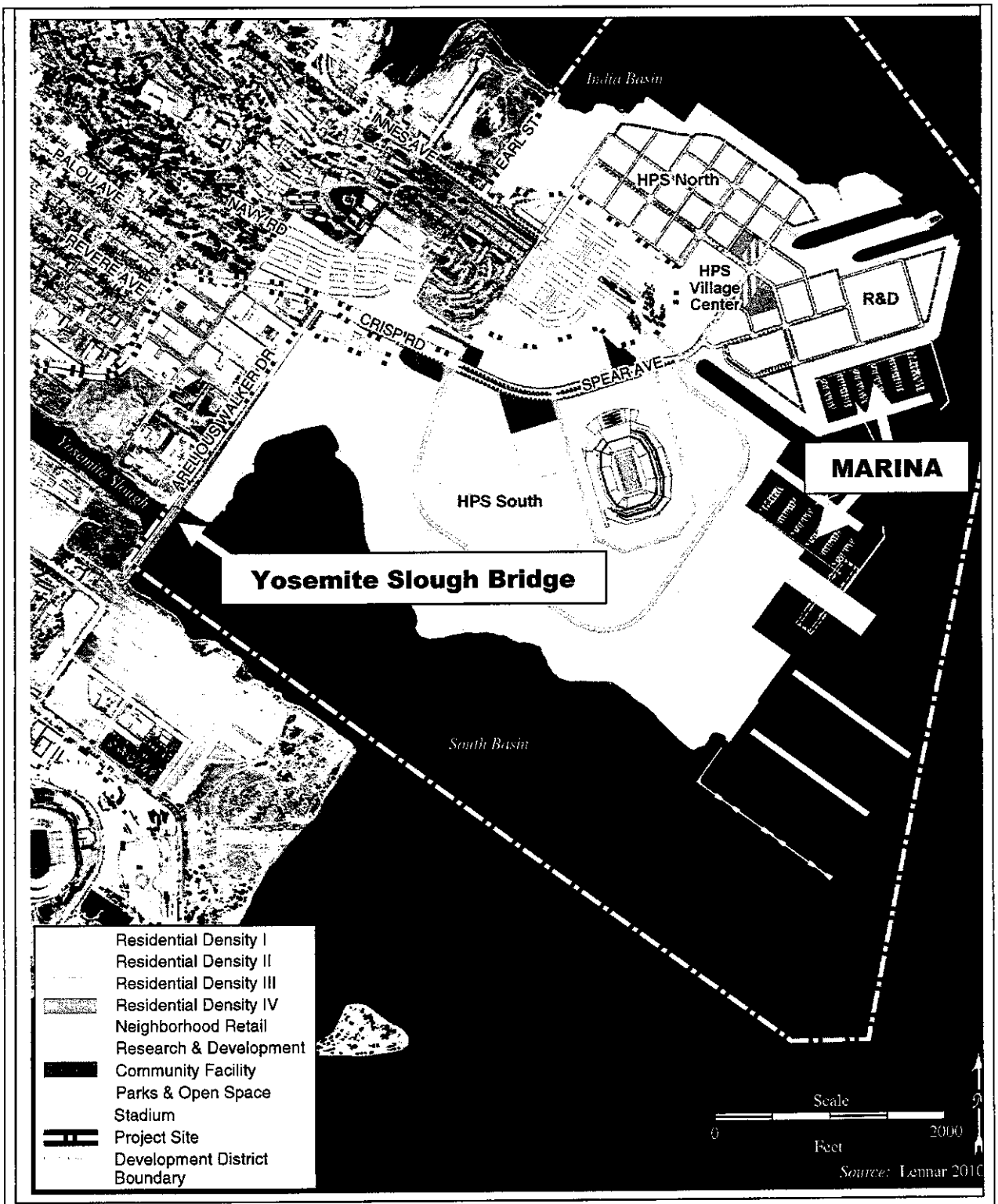


Figure 2 – Action Areas, Proposed Marina and Yosemite Slough Bridge Location, San Francisco, CA

ATTACHMENT 2

ESA SECTION 7(a)(2) ASSESSMENT

a.) Description of the Federally Listed Aquatic Species (and their habitat) and Critical Habitat in the Vicinity of the Proposed Action

The potential for federally listed threatened and endangered species to occur in the project vicinity was determined by assessing habitat suitability information collected during biological reconnaissance surveys in August 2007 and July 2008; a rare plant survey in May 2008; and reviews of the California Natural Diversity Database, California Native Plant Society (CNPS) inventories, and USFWS databases. For botanical species, a search of the Hunters Point and San Francisco South USGS quadrangles was conducted. For all other species, a search was conducted for all species within a five-mile radius of the project site. In addition, approximately 29 wildlife surveys were conducted in the vicinity of Yosemite Slough between January 2003 and April 2004, in association with the Yosemite Slough Watershed Wildlife Survey.

Several species known to occur within five miles of the project site including the pacific herring (*Clupea pallasi*) and the longfin smelt (*Spirinchus thaleichthys*) were determined not likely to occur or to be absent from the project site because 1) the site lacks suitable habitat or is outside of the species' range and 2) there were no observations of the species during any of the field surveys. Those species or habitats with a minimal likelihood of occurrence, or those that were not present during the period (usually breeding season) when they have special status, are not addressed further because they are not expected to occur or be affected by the proposed action. Fish species with the potential to occur are indentified in Table 3 and further described below.

Table 3 - Federally Listed Species Potentially Occurring at or near the Project Site

Name	Status	Habitat in California	Likelihood of Occurrence on or near the Project Site
Green Sturgeon (*Acipenser medirostris*)	FT/SSC	Migrates through the San Francisco Bay to spawning grounds in the upper Sacramento River. Juveniles move into the estuary and likely rear in San Francisco Bay.	**Moderate.** The species likely forages in the bay including the area near the project site. The project site is within proposed critical habitat for this species.
Chinook salmon – Spring-run Evolutionary Significant Unit (ESU) (*Oncorhynchus tshawytscha)*	FT/ST	Central Valley streams with stable water supply, clean gravel, and good quality riparian habitat. Spawning occurs only in tributaries to the Sacramento River.	**Low.** The project site is outside the migratory corridor for this species. Adults migrate from the Golden Gate into the Sacramento River.
Chinook salmon – Winter-run ESU (*Oncorhynchus Tshawytscha)*	FE/SE	Central Valley streams with stable water supply, clean gravel, and good quality riparian habitat. Spawning occurs upstream of the Red Bluff Diversion Dam.	**Low.** The project site is generally outside the migratory corridor for this species. Adults migrate from the Golden Gate into the Sacramento River. The project site is outside of designated critical habitat.
Steelhead—Central	FT/SSC	Spawns in cool, clear, well-	**Moderate.** Juveniles and adult

California Coast Distinct Population Segment (DPS) *(Oncorhynchus Mykiss)*		oxygenated streams. Juveniles remain in fresh water for one or more years before migrating to the ocean.	steelhead could be found in the open waters adjacent to the project site as they migrate to and from streams in the San Francisco Bay. Populations are known from relatively nearby creeks on the peninsula (i.e., San Francisquito Creek). The project site is within designated critical habitat for this DPS.
Steelhead—Central Valley DPS *(Oncorhynchus Mykiss)*	FT	Spawns in cool, clear, well-oxygenated streams. Juveniles remain in freshwater for one or more years before migrating to the ocean.	**Low.** Even though their primary migratory pathway is into the Sacramento River, juveniles and adult steelhead could potentially be found in the bay near the project site. The project site is outside of designated critical habitat for this DPS.

Notes:
Federal
FE - Federally listed as Endangered
FT - Federally listed as Threatened
State
SE - State listed as Endangered
ST - State listed as Threatened
FP - California Department of Fish and Game designated "Fully Protected"
SSC - California Department of Fish and Game designated "Species of Special Concern"
Likelihood of occurrence evaluations
A rating of "**Known**" indicates that the species/natural community type has been observed on the site.
A rating of "**Moderate**" indicates that it is not known if the species is present, but suitable habitat exists in the project site.
A rating of "**Low**" indicates that species was not found during biological surveys conducted to date on the project site and is not expected to occur given the species' known regional distribution or the quality of habitats located in the project site.
Sources: USFWS 2009.

Green Sturgeon (Acipenser medirostris)
The southern Distinct Population Segment (DPS, as defined by the NMFS) of green sturgeon (including those that reside in the Sacramento River) was listed as threatened under the ESA by NMFS on April 7, 2006 (NMFS 2006a). Green sturgeon is a long-lived, anadromous, native fish that occurs in low numbers in the San Francisco Estuary and Sacramento River. Adults spawn in freshwater rivers from British Columbia south to the Sacramento River. In the Sacramento River, spawning occurs near Red Bluff and possibly in the Feather River. Larvae develop in these freshwater systems, migrate downstream, and remain in the estuaries for between one and four years before migrating to the ocean. Mature adults move into estuaries in the spring and spawning adults move up the rivers of their origins in late spring/early summer. Post spawning adults return to the estuary before migrating back to the ocean in late fall. Sub-adult fish also are thought to enter estuaries during summer and fall months. The bay area associated with the project site is saltwater habitat and, therefore, would not support the necessary freshwater spawning habitat for adult fish (Moyle 2002). Juvenile fish and sub-adults may rear in adjacent waters of the bay.

In October 2009 NMFS designated critical habitat for the green sturgeon in the following areas: coastal

U.S. marine waters within 60 fathoms depth (360 feet) from Monterey Bay, California, north to Cape Flattery, Washington, including the Strait of Juan de Fuca, Washington, to the United States-Canada boundary; the Sacramento River, lower Feather River, and lower Yuba River in California; the Sacramento-San Joaquin Delta and Suisun, San Pablo, and San Francisco bays in California; and certain coastal bays and estuaries in California, Oregon, and Washington (NMFS 2009a). The designated areas comprise 320 miles of freshwater river habitat, 897 square miles of estuarine habitat (including San Francisco Bay), 11,421 square miles of marine habitat, and 135 square miles of habitat in the Yolo and Sutter bypasses (NMFS 2009a). Under the ESA, critical habitat includes those areas necessary to support the continued existence and recovery of this species. Critical habitat for green sturgeon includes all of San Francisco Bay. Critical habitat designations include the specific habitat and habitat functions that are necessary for the survival and recovery of the species; these are called primary constituent elements (PCEs). In the estuarine category of critical habitat, the PCEs include food, flow, water quality, migratory pathways, depth, and sediment quality (NMFS 2009a). Food refers to an abundance of prey items, benthic invertebrates and shrimp, in the substrate upon which sturgeon can forage. Flow refers to ample movement of water in the estuary to allow adults to orient to the Sacramento River during their spawning migrations. Water quality refers to adequate levels of dissolved oxygen, salinity, and temperatures to allow for survival and growth. Water quality also includes low levels of contaminants that could affect survival or reproductive fitness. A migratory pathway refers to the fact that sturgeon migrate through the bay to and from upstream spawning areas. The PCE for migratory pathways allows for safe and timely passage of fish between the ocean and upstream spawning areas, but it also includes localized movement of rearing and holding sturgeon in the bay. The depth PCE refers to the variety of water depths required to provide suitable foraging, holding, and migratory areas. Sediment quality is important because sturgeons are benthic foragers (bottom feeders) and contaminant-free sediments support higher quality prey that do not affect the survival or reproductive fitness of the fish. The project site includes some elements of these PCEs. However, the sediment quality may be impaired by decades of industrial discharges, which has resulted in contamination. This in turn probably reduces the foraging quality.

Based on the likelihood of occurrence, this species has a "moderate" likelihood to occur near the project site.

Chinook Salmon (Oncorhynchus tshawytscha)

Populations of Chinook salmon potentially found adjacent to the project site fall into three Evolutionary Significant Units (ESUs): Winter-run, Spring-run, and Fall/late-Fall-run. The runs of Chinook are distinguished based on the timing of the adult return to freshwater on their spawning migration. At almost any time of year, there are Chinook at some life cycle stage or another in San Francisco Bay. The occurrence of Chinook adjacent to the project site could involve any of those life stages. Juvenile fish are more likely to be found adjacent to the project site than adults because they are moving downstream from their natal streams and do not have the same swimming ability as adults. Juvenile fish from the Sacramento River populations would be expected to occur in low numbers as they stray south of the Golden Gate. Small numbers of Chinook have also recently appeared in Coyote Creek and Guadalupe River, which are both tributaries to the South Bay near Alviso. These fish are derived from hatchery releases in the native range of the species, which did not include the South Bay (Santa Clara County 2008; NMFS 2009b). Adult or juvenile fish from either of these populations would be expected to migrate through or past the project site on their way to and from the Pacific Ocean because the project site is between the Pacific Ocean and spawning sites in the South Bay. However, the overall likelihood of finding a substantial number of Chinook salmon within or adjacent to the project site is relatively low because the open water near the project site is not considered suitable rearing habitat for either life stage. The residence time that either life stage may spend in or adjacent to the project site is unknown.

Winter-run Chinook are listed as endangered under the California and Federal ESA. They spawn in the Sacramento River upstream of Red Bluff Diversion Dam and are distinguishable from other Chinook runs

based on the timing of both upstream migration and the spawning season. Prior to the construction of Shasta and Keswick dams in 1943 and 1955, respectively, winter-run Chinook spawned in the upper reaches of the Sacramento, McCloud, and lower Pit rivers (Moyle 2002), and Battle Creek. Presently, the majority of winter-run Chinook spawning occurs on the main stem of the Sacramento River between Keswick Dam and the Red Bluff Diversion Dam (Moyle 2002). Designated critical habitat extends from Keswick Dam, Shasta County (River Mile 302) to Chipps Island (River Mile 0) at the westward margin of the Sacramento-San Joaquin Delta; all waters from Chipps Island westward to Carquinez Bridge, including Honker Bay, Grizzly Bay, Suisun Bay, and Carquinez Strait; all waters of San Pablo Bay westward of the Carquinez Bridge; and all waters of San Francisco Bay (north of the San Francisco/Oakland Bay Bridge) from San Pablo Bay to the Golden Gate Bridge. Critical habitat does not extend into the project site.

Spring-run Chinook salmon are listed as a threatened species under the California and federal ESAs. Spring-run Chinook enter the Sacramento River between March and September and move upstream into the headwaters, where they hold in pools until they spawn between August and October. Juveniles emigrate from the tributaries from mid-November through June. However, some juveniles spend a year in the streams and emigrate as yearlings the following October (Moyle 2002). Typically, spring-run Chinook salmon use mid- to high-elevation streams that provide appropriate low water temperatures and sufficient flow, cover, and pool depth to allow over summering. Spawning occurs between August and October and, depending on water temperature, emergence occurs between November and March. Although spring-run Chinook salmon emigration is highly variable, the emigration period extends from November to early May, with up to 69 percent of young-of-the-year out migrants passing through the lower Sacramento River between mid-November and early January (Snider and Titus 2000). Designated critical habitat extends from Keswick Dam, Shasta County (River Mile 302) to Chipps Island (River Mile 0) at the westward margin of the Sacramento-San Joaquin Delta; all waters from Chipps Island westward to Carquinez Bridge, including Honker Bay, Grizzly Bay, Suisun Bay, and Carquinez Strait; all waters of San Pablo Bay westward of the Carquinez Bridge; and all waters of San Francisco Bay (north of the San Francisco/Oakland Bay Bridge) from San Pablo Bay to the Golden Gate Bridge. Critical habitat does not extend into the project site.

Central Valley fall and late fall-run Chinook salmon are not listed under the state or federal endangered species act but are classified as a Species of Special Concern. Fall-run Chinook salmon is the most abundant ESU, documented to comprise about 80 percent of the Sacramento Basin stock in the early 1980s. The ESU includes all naturally spawned populations of fall-run Chinook salmon in the Sacramento and San Joaquin River basins and their tributaries, east of Carquinez Strait, California. Juvenile fall and late fall-run fish could stray into open waters in and adjacent to the project site if they miss the entrance to the Golden Gate and the Pacific Ocean.

A small population of Chinook salmon has become established in recent years in Coyote Creek and the Guadalupe River (Santa Clara County 2008). The regulatory status of this population is unclear because the fall/late fall-run ESU only includes naturally spawned fish from upstream of Carquinez Strait. There is not an ESU that includes fish spawning in the tributaries of San Francisco Bay. These fish exhibit a fall-run pattern similar to the fall-run ESU of the Central Valley, and are apparently derived from wandering individuals, likely hatchery-released fish, from that ESU (NMFS 1998). Regardless of their origin or what their regulatory status may be, these fish would pass the project site vicinity on their way to and from the ocean.

Based on the likelihood of occurrence definitions provided in **Table 3**, the spring-run, winter-run/ and fall/late fall-run of this species has a "low" likelihood to occur near the project site.

Central Valley Steelhead (Oncorhynchus mykiss)
Central Valley steelhead (rainbow trout) were federally listed as a threatened species in 1998 (NMFS 1998) and this status was reaffirmed in 2006 (NMFS 2006b). The Central Valley steelhead population is a Distinct Population Segment (DPS; aka ESU) that includes all naturally spawned populations of steelhead in the Sacramento and San Joaquin rivers and their tributaries. Final critical habitat, designated in September 2005 for this species, does not include the project site (NMFS 2005). Critical habitat is designated by hydrologic unit, the closest to the project site of which is the Sacramento Delta Hydrologic Unit, over 25 miles north of the project site (NMFS 2005). Central Valley steelhead, especially juveniles, may occasionally stray into the South Bay during their migration to the ocean, but the area adjacent to the project site is generally outside their migratory pathway.

Based on the likelihood of occurrence definitions provided in **Table 3**, this species has a "low" likelihood to occur near the project site.

Central California Coast Steelhead (Oncorhynchus mykiss)
The Central California Coast DPS of steelhead is a federally threatened species. This DPS includes all naturally spawned populations of steelhead from the Russian River south to, and including, Aptos Creek and the populations in San Francisco Bay (NMFS 1998). Steelhead begin their migration from the ocean when winter rains provide large amounts of cold water for migration and spawning. The peak migration period for adult fish is in mid-winter. They typically spawn in smaller streams and tributaries to mainstream rivers. Juvenile steelhead generally spend one to three years in freshwater before migrating to the ocean (Moyle 2002).

It is highly likely that both adults and juvenile steelhead from this DPS could be found adjacent to the project site. The closest potential steelhead spawning streams in South San Francisco Bay are San Mateo Creek (approximately 10 miles south of the project site), Alameda Creek (approximately 16 miles south of the project site), and San Francisquito Creek (approximately 22 miles south of the project site). Other South Bay watersheds that support populations of steelhead include the Coyote Creek and Guadalupe River watersheds. Because the project site is between their spawning and rearing streams and the Pacific Ocean, fish from any of these streams could be found in the bay adjacent to the project site during adult migrations from the Pacific Ocean to spawning sites or during juvenile migrations from their natal streams to the Pacific Ocean.

The final critical habitat designation for the Central California Coast steelhead DPS was issued on 2 September 2005 (NMFS 2005). The specific primary constituent elements considered in the designation were freshwater spawning sites, freshwater rearing sites, freshwater migration corridors, estuarine areas, near-shore marine areas, and offshore marine areas. The lateral extent of critical habitat in estuarine areas is the area inundated by extreme high tide. The project site is in the designated critical habitat for this species.

Based on the likelihood of occurrence, this species has a "moderate" likelihood to occur near the project site.

b.) Analysis of the Effects of the Proposed Action on Federally Listed Aquatic Species (and their habitat) and Critical Habitat
Noise levels generated by pile driving during construction activities have the potential to disturb, injure, or kill fish species, including sensitive species such as green sturgeon, steelhead, Pacific herring, and longfin smelt. Pressure waves from pile driving can affect fish in the water column through behavioral effects such as avoidance to physiological effects such as stress, temporary loss of hearing, rupture of swim bladders, formation of bubbles in the circulatory system, and corresponding rupturing of blood vessels. Species with swim bladders are the most susceptible although ear structures of any species can be

damaged. Sound levels of 180 dB generating 1 micropascal (μPa2-s) have been documented to injure or kill fish (Woodbury and Stadler 2009; Popper, et al. 2006). Caltrans (2004) reported no hearing damage to steelhead and shiner surfperch when exposed to multiple pile driving strikes that ranged from 158 to 182 dB (re 1 μPa2-s) at distances of 75 to 1,030 feet (23-314 m) from the pile. This study showed no statistically significant mortality (i.e., pile driving different from control groups) for sound exposure levels as high as 181 dB (re 1 μPa2-s) for surfperch and 182 dB (re 1 μPa2-s) for steelhead.

Marina construction would require pile driving of approximately 675 piles, which could result in noise impacts to some fishes in the area that may not be able to move away from this source, particularly small species that live on or in the bottom such as gobies. Other, more mobile fish species would likely avoid impacts by moving out of the area during pile driving activities. However, a number of best management practices (BMPs) would be implemented, including use of a vibratory hammer (as feasible based on final construction plans), restricting pile driving of steel piles to a specific in-water work window recommended by NMFS, and use of an air (bubble) curtain to moderate sound wave propagation. Besides the marina, approximately 20 columns supported by steel piles would be used to construct the Yosemite Slough bridge. Current bridge designs would require installation of coffer dams (temporary structures typically constructed with sheet piles that separate a worksite from the water and allow it to be dewatered). The bridge piles would be driven behind dewatered coffer dams which would result in the piles being out of water and, therefore, would avoid generation of in-water sound pressure waves that could injure fish species. Ground pressure waves produced by pile driving within a dewatered coffer dam are not expected to injure fish. Use of BMPs such as construction closure periods during seasonal migration of sensitive species and use of specific noise-reducing equipment, including piles that help minimize sound impacts, would avoid or minimize potential impacts to fishes and would further reduce the potential for impacts to other aquatic resources.

Construction activities would disturb designated critical habitat for green sturgeon and Central California Coast steelhead within the bay, and there is some possibility that individuals of these species, as well as other special-status fish such as Chinook salmon and longfin smelt, could be impacted as well. However, Chinook salmon are likely found in low abundance and their main migratory corridor is outside the project vicinity. Construction of the proposed marina (including breakwaters) would result in the loss of habitat for these special-status fish species. Construction of shoreline treatments and placement of fill in other locations around the perimeter of HPS would also affect a small amount of shallow, relatively low-quality foraging habitat for green sturgeon and steelhead.

Some sensitive fish species such as green sturgeon and Central California Coast steelhead may forage in the vicinity of the proposed Yosemite Slough bridge during high tides, although their occurrence in the project site is expected to be low. Construction of the bridge could result in temporary increases in turbidity and there would be some habitat modification associated with the permanent loss of 0.11 acres (0.04 ha) of mudflat and aquatic habitat within the bridge footprint. However, it is anticipated that the remaining habitat for these species would return to its native state in a short period of time (days to weeks) following construction activities. Even though the project site is located in designated critical habitat (San Francisco Bay) and could be visited infrequently by migrating salmon, steelhead, and green sturgeon, the project site is in an area considered to be highly urbanized and is unlikely to support appropriate critical habitat (e.g., substrate type) for any federally or state-listed threatened or endangered fish species.

Furthermore, the proposed action location does not support spawning habitat for salmonids. Therefore, based on the low probability of occurrence of sensitive fish species in the project site area and the small area of habitat loss compared to the entire bay, impacts would be insignificant and is not likely to adversely affect species or critical habitat.

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Ser BPMOW.rjb/0335
JAN 26 2011

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