
4.2 BIOLOGICAL RESOURCES

Introduction

This section of the Draft EIR analyzes the potential impacts of the Preferred Project on biological resources in the project area. This section describes the existing biological setting, including, but not limited to, types of habitat and diversity of species in the project area, as well as applicable regulations focused on the protection of biological resources. Where potentially significant impacts are found, mitigation measures are identified to reduce impacts to the extent feasible. The evaluation of biological resource impacts is based on the Fisheries and Benthic Ecology Impact Assessment (2010) and Berkeley Aquatic Park Peer Review of Biological Resources (2012) technical studies prepared by ENVIRON International Corporation (ENVIRON), and a review of the California Natural Diversity Database (CNDDDB), California Native Plant Society (CNPS) electronic database, and the U.S. Fish and Wildlife Service (USFWS) website for Threatened and Endangered (T&E) species that may occur on or near the project site.

Environmental Setting

Aquatic Park Lagoons

The project site was created in the 1930s as part of the construction of the Eastshore Highway. The alignment of the highway cut off a portion of the Bay and the isolated section of the Bay became the three lagoons that comprise Aquatic Park today. The highway was later expanded to become the present I-80 freeway. The project is located adjacent to central San Francisco Bay, which has the most ocean-like conditions of any area of the Bay. The Golden Gate is directly west of Aquatic Park, making this area of the Bay the most consistently saline and cold from the direct ocean influence.

The primary type of habitat at the project site is the shallow subtidal aquatic habitat in the three lagoons. The three lagoons at the project site total approximately 68 acres of open water. The Main Lagoon covers 58.3 acres, the Model Yacht Basin covers 5 acres, and the Radio Tower Pond covers 4.7 acres. The lagoons are connected to the Bay by 24-inch culverts or tide tubes/storm drains passing beneath I-80. Many of the tide tubes are deteriorating. The five main tide tubes under I-80 are falling apart on the Bay side, and failing riprap and parts of the pipes are occluding flows into several of the tide tubes, thus reducing the amount of tidal inflow reaching the Main Lagoon. The Model Yacht Basin tide tube is buried in sand on the Bay side. The Radio Tower Pond tide tube has collapsed under the frontage road and appears to have separated on the Bay side.

Aquatic Park receives both stormwater from the City of Berkeley and tidal water from the San Francisco Bay. A large portion of the City of Berkeley drains towards Aquatic Park. The majority of this runoff drains into the Potter Street storm drain and the Strawberry storm drain. The Potter Street storm drain crosses the southern portion of Aquatic Park between the Model Yacht Basin and Radio Tower Pond. The Strawberry storm drain is located a short distance to the north of the north end of the Park. Each of these storm drains is connected to one of the lagoons in the Park via a small drain

culvert. During high runoff periods, generally during the winter months, stormwater enters the lagoons from these two drains. In addition to the regional stormwater inflow from these two main storm drains, most of the watershed area immediately east of the Park drains directly into the Main Lagoon through a set of seven local storm drains.

The lagoons are bordered on all sides by concrete and boulder riprap. The Main Lagoon is bordered on the west by a paved roadway used for pedestrian and bicycle traffic, with a vegetated margin between the roadway and the lagoon. A few lightly used old buildings border the northeast end of the Main Lagoon, but most of the eastern side is bordered by park lands. Scattered eucalyptus (*Eucalyptus globulus*) and Monterey cypress (*Cupressus macrocarpa*) border portions of the three lagoons, providing minimal canopy cover of the aquatic habitat and allochthonous material input (leaves, conifer needles, and twigs).

Salt/Brackish Wetland and Shoreline Habitats

The three lagoons currently support very small, scattered patches of low quality salt/brackish wetland habitat. These small patches are highly disturbed and isolated from off-site Bay shoreline habitat that exists in the local area. Plant species observed within the salt/brackish wetlands include cordgrass (*Spartina foliosa*), pickleweed (*Salicornia pacifica*), salt grass (*Distichlis spicata*), sea arrow grass (*Triglochin maritima*), salt marsh gumplant (*Grindelia stricta*), and Jaumea (*Jaumea carnosa*) in low densities. A relatively high number of non-native plant species also occur within the habitat. In general, the lagoons of Aquatic Park have steeply sloped margins and very small average tidal ranges (see Table 4.2-1), which limit the occurrence of salt/brackish wetland habitat within the project area. The largest area of salt/brackish marsh habitat within the Aquatic Park is located along the western shore of the Radio Tower Pond. In total, 0.76 acre of salt/brackish wetland habitat occurs within Aquatic Park. In addition to delineated salt/brackish wetland habitat areas, high marsh plants grow in scattered locations within the riprap of the lagoon shorelines, especially in the Main Lagoon. In general, the salt/brackish wetlands within the project area provide minimal value as wildlife habitat due to their small size, local and regional isolation, susceptibility to ongoing disturbance, and proximity to active recreation uses.

**Table 4.2-1
Summary of Tidal Ranges in Aquatic Park Lagoons and San Francisco Bay**

	<u>Minimum Monitored</u>	<u>Maximum Monitored</u>	<u>Maximum Tidal Range</u>	<u>Average Tidal Range</u>	<u>Mean Tidal Level</u>
	(feet)				
Main Lagoon	-2.88	-1.86	1.02	0.21	-2.39
Model Yacht Basin	-3.12	-0.07	3.05	1.77	-2.16
Radio Tower Pond	-3.75	-2.01	1.74	0.36	-2.62
San Francisco Bay	-7.30	0.81	8.11	6.16	-2.73

Source: Aquatic Park Implementation Program (APIP) Technical Report, Table 3, 2008.

Notes:

All elevations are in terms of the Berkeley Datum.

Water levels in the lagoons were monitored for the APIP from January to March 2007.

Intertidal Mudflat Habitat

A non-vegetated intertidal mudflat is located within the Main Lagoon mudflat adjacent to the Rowing Club. Although this habitat lacks established vegetation, it likely supports a high density of burrowing invertebrates, and is, therefore, could provide important foraging habitat for wading birds common to the area.

Freshwater Wetland and Creek Habitat

Approximately 1.1 acres of small freshwater wetland and creeks occur on the eastern border of the project area adjacent to the railroad berm. Similar to the salt/brackish wetland habitat that occurs within the project site, the freshwater habitat is relatively low in quality. Native plant species observed in the freshwater wetland and creek habitat include rushes (*Juncus patens* and *J. effuses*), common cattail (*Typha latifolia*), water parsley (*Oenanthe sarmentosa*), bulrush (*Scirpus californicus*), common tule (*Scirpus acutus*), red willow (*Salix laevigata*), alder (*Alnus rhombifolia*), California rose (*Rosa californica*), meadow barley (*Hordeum branchyantherum*), and little quaking grass (*Briza minor*). Non-native plant species observed within the freshwater wetland and creek habitat include Himalayan blackberry (*Rubus armeniacus*), giant reed (*Arundo donax*), French broom (*Genista monspessulana*), English ivy (*Hedera helix*), and kikuyu grass (*Pennisetum clandestinum*). In general, the freshwater wetland and creek habitat within the project area provide minimal value as wildlife habitat due to their small size, preponderance of non-native plant species, and proximity to active recreation uses.

Upland Areas

Upland areas within Aquatic Park consist of both used and abandoned buildings, parking lots, lawn areas, and walking and biking trails. Vegetation within the upland areas is dominated by non-native trees and understory plants, including blue gum (*Eucalyptus globulus*), wattle (*Acacia sp.*), English ivy (*Hedera helix*), and Himalayan blackberry (*Rubus armeniacus*). Scattered native trees such as Monterey cypress (*Cupressus macrocarpa*), and Monterey pine (*Pinus radiata*) are also present in the upland areas. Human disturbance from various recreational activities, homeless encampments, and off-leash domestic dogs limit the value of the upland areas as wildlife habitat, although the taller trees and stands of dense vegetation could provide nesting habitat for a variety of common (non-sensitive) songbirds.

Benthic Community¹

The Main Lagoon ranges in depth from less than 1 foot to 4 feet along the east bank to approximately 8 feet near the west bank. In general, the substrate consists of mostly unconsolidated fine sediment (clay particles), interspersed with sand, gravel, and bivalve shell fragments. The submerged aquatic vegetation in the Main Lagoon consists of widgeon grass (*Ruppia maritima*) and broad-leafed green algae (*Ulva fenestrata*). Small patches of eelgrass (*Zostera marina*) are present on the east side of the center island. Benthic macroinvertebrates identified from the samples collected from Main Lagoon

¹ The benthic zone of the lagoons refers to the lagoon bottom. The benthic community refers to the habitat and species present in on the lagoon bottom.

included various polychaete and oligochaete worms, amphipods (including *Corophium* spp.), bubble snails (*Haminoeidae*), cumacea, mud mussels (*Musculista senhousia*), clams (*Macoma balthica*, *Mya arenaria*, and possibly *Gemma gemma*). Benthic samples taken on the west side of the Main Lagoon at a depth of approximately 8 feet did not contain any living organisms. The substrate on the lagoon bottom in this area is black and smells strongly of hydrogen sulfide, which are parameters typically indicative of highly anaerobic conditions.

The Model Yacht Basin is a relatively shallow feature, with an average water depth of less than three feet. The substrate consists of unconsolidated fine sediment and decaying organic matter. A mat of filamentous algae covers the entire bottom. Benthic macroinvertebrates identified from the samples collected from the Model Yacht Basin included *Corophium* spp., bubble snails, tubificid oligochaete worms, and the polychaete worm, *Streblospio benedicti*.

The Radio Tower Pond is also a relatively shallow feature, with an average water depth of less than three feet. Similar to the Model Yacht Basin, a dense mat of algae covers the lagoon bottom. The substrate of the Radio Tower Pond consists of unconsolidated fine sediment covered with large quantities of decaying organic matter, mostly algae and leaves from trees. No living specimens were collected during the site visit. Bubble snail shells and the exoskeleton of *Corophium* spp., polychaete worms, (*Streblospio benedicti*, *Polydora* species, *Capitella* species) and tubificid oligochaetes were noted.

Fisheries

Because all three lagoons are connected via tidal tubes to the San Francisco Bay, the lagoons have the potential to support, at least seasonally, selected fish species commonly found within the Bay. However, water quality parameters, particularly periodically low dissolved oxygen concentrations, result in unfavorable conditions for the long-term survival or establishment of viable populations of most fish species commonly found in the Bay, including sensitive fishes.

There appears to be a paucity of historical fisheries data for the Aquatic Park lagoons. Literature searches of fisheries data for Aquatic Park were unsuccessful in obtaining historical fisheries data.² ENVIRON conducted fisheries surveys of all three lagoons within Aquatic Park in September 2009 using a variety of sampling techniques, including visual observations, beach seines, dip and trawl nets, minnow traps, and crab ring-nets. A list of fish species observed or captured during the September 2009 survey is presented in Table 4.2-2. Fish and invertebrate species observed or collected within the lagoons of Aquatic Park site are all species known to occur in San Francisco Bay. No listed species were observed or collected during the survey, although a small goby captured in a dip net from the Radio Tower Pond and released before positive identification appeared to have a morphological characteristic similar to the federally endangered tidewater goby (*Eucyclogobius newberryi*). However, no tidewater goby or gobies with morphological characteristics similar to tidewater goby were captured during a subsequent fisheries survey conducted by ENVIRON in December 2011.³ The USFWS

² ENVIRON, *Berkeley Aquatic Park Fisheries and Benthic Ecology Impact Assessment*, April 2010.

³ ENVIRON, *Berkeley Aquatic Park Peer Review of Biological Resources*, February 2012.

considers tidewater goby extirpated⁴ from the San Francisco Bay, including tributary streams and adjacent waters, and the species has not been observed in the San Francisco Bay since 1960s.⁵ The USFWS does not consider the lagoons within Aquatic Park as potential habitat for tidewater goby.⁶

**Table 4.2-2
Fish and Invertebrate Species Observed in the Aquatic Park Lagoons, September 2009**

Lagoon	Common Name	Scientific Name	# Observed/ Captured
Main Lagoon	Bat ray	<i>Myliobatis californica</i>	1
	Topsmelt	<i>Atherinops affinis</i>	1
	Bay pipefish	<i>Syngnathus leptorhynchus</i>	2
	Yellowfin goby	<i>Acanthogobius flavimanus</i>	
	Arrow goby	<i>Clevelandia ios</i>	15 ¹
	Chameleon goby	<i>Tridentiger trigonocephalus</i>	
	Shimofuri goby	<i>Tridentiger bifasciatus</i>	
Model Yacht Basin	Oriental shrimp	<i>Palaemon macrodactylus</i>	52
	Mosquitofish	<i>Gambusia affinis</i>	7
Radio Tower Pond	Yellowfin goby	<i>Acanthogobius flavimanus</i>	1
	Mosquitofish	<i>Gambusia affinis</i>	1
	Yellowfin goby	<i>Acanthogobius flavimanus</i>	1
	Unidentified goby		1

Source: ENVIRON, Berkeley Aquatic Park Fisheries and Benthic Ecology Impact Assessment, 2010.

¹ Gobies were not enumerated by species.

Birds and Wildlife

Aquatic Park supports a variety of avian species common to the area, including both migratory and resident waterfowl, wading birds, and song birds. The lagoons provide overwintering, resting, and foraging habitat for a considerable number of common waterfowl, including bufflehead, gadwall, and American coot. The tidal mudflats provide foraging habitat for common wading birds such as black necked stilt, least sandpiper, long-billed dowitcher, and great blue heron. Upland areas provide nesting and habitat for common songbirds such as Anna's hummingbird, white-crowned sparrow, dark-eyed junco, and chestnut-backed chickadee. Avian species observed during the November 1, 2011 survey are presented in Table 4.2-3.

Although no mammals, reptiles, or amphibians were observed during the site visits conducted by ENVIRON biologists, nocturnally active mammals such as the common raccoon (*Procyon lotor*), striped skunk (*Mephitis mephitis*), and black rat (*Rattus rattus*) are likely to occur within Aquatic Park. Common reptile species likely to inhabit Aquatic Park include garter snake (*Thamnopsis elegans*) and alligator lizard (*Elgaria coerulea*). Common amphibian species likely to occur at Aquatic Park include

⁴ Extirpation refers to a condition in which a species no longer exists in its former range (locally extinct).

⁵ U.S. Fish and Wildlife Service, Recovery Plan for the Tidewater Goby (*Eucyclogobius newberryi*), Portland, Oregon: U.S. Fish and Wildlife Service, 2005.

⁶ Ryan Olah, personal communication from USFWS to Marc Beccio, Atkins, September 25, 2012.

Sierran tree frog (*Pseudocharis sierra*). The most notable observation of wildlife, other than birds, was the large aggregation of overwintering Monarch butterflies (*Danaus plexippus*) in the stand of willow and eucalyptus trees on the east side of the park along the railroad berm.

Table 4.2-3
Avian Species Observed at Berkeley Aquatic Park, November 2011

Common Name	Scientific Name
Eared Grebe	<i>Podiceps nigricollis</i>
Pied-billed Grebe	<i>Podilymbus podiceps</i>
Western Grebe	<i>Aechmophorus occidentalis</i>
Brown Pelican	<i>Pelecanus occidentalis</i>
Double-crested Cormorant	<i>Phalacrocorax auritus</i>
Great Blue Heron	<i>Ardea Herodias</i>
Great Egret	<i>Ardea alba</i>
Snowy Egret	<i>Egretta thula</i>
Black-crowned Night Heron	<i>Nycticorax nycticorax</i>
Canada Goose	<i>Branta Canadensis</i>
Mallard	<i>Anas platyrhynchos</i>
Gadwall	<i>Anas strepera</i>
Northern Pintail	<i>Anas acuta</i>
Northern Shoveler	<i>Anas clypeata</i>
Bufflehead	<i>Bucephala albeola</i>
Red-shouldered Hawk	<i>Buteo lineatus</i>
Red-tailed Hawk	<i>Buteo jamaicensis</i>
Wild Turkey	<i>Meleagris gallopavo</i>
American Coot	<i>Fulica Americana</i>
American Avocet	<i>Recurvirostra Americana</i>
Black-necked Stilt	<i>Himantopus mexicanus</i>
Western Sandpiper	<i>Calidris mauri</i>
Least Sandpiper	<i>Calidris minutilla</i>
Long-billed Dowitcher	<i>Limnodromus scolopaceus</i>
Short-billed Dowitcher	<i>Limnodromus griseus</i>
Ring-billed Gull	<i>Larus delawarensis</i>
Western Gull	<i>Larus occidentalis</i>
California Gull	<i>Larus californicus</i>
Mourning Dove	<i>Zenaida macroura</i>
Rock Pigeon	<i>Columba livia</i>
Anna's Hummingbird	<i>Calypte anna</i>
Belted Kingfisher	<i>Megaceryle alcyon</i>
Nuttal's Woodpecker	<i>Picooides nuttallii</i>
Northern Flicker	<i>Colaptes auratus</i>
Black Phoebe	<i>Sayornis nigricans</i>

Table 4.2-3
Avian Species Observed at Berkeley Aquatic Park, November 2011

Common Name	Scientific Name
Steller's Jay	<i>Cyanocitta stelleri</i>
American Crow	<i>Corvus brachyrhynchos</i>
Chestnut-backed Chickadee	<i>Poecile rufescens</i>
California Towhee	<i>Melospiza crissalis</i>
White-crowned Sparrow	<i>Zonotrichia leucophrys</i>
Song Sparrow	<i>Melospiza melodia</i>
Dark-eyed Junco	<i>Junco hyemalis</i>
House Finch	<i>Carpodacus mexicanus</i>
Lesser Goldfinch	<i>Carduelis psaltria</i>
American Goldfinch	<i>Carduelis tristis</i>
House Sparrow	<i>Passer domesticus</i>

Source: ENVIRON, Berkeley Aquatic Park Peer Review of Biological Resources, 2012.

Special-Status Species

Special-status species are defined as plants and animals that are legally protected or that are otherwise considered sensitive by federal, State, or local resource conservation agencies and organizations. For the purposes of this EIR, special-status species are those that fall into one or more of the following categories:

- Species listed or proposed for listing as threatened or endangered under the federal Endangered Species Act (ESA) or California Endangered Species Act (CESA);
- Species considered as candidates for listing as threatened or endangered under ESA or CESA;
- Species identified by California Department of Fish and Game (CDFG) as Species of Special Concern;
- Animals fully protected in California under the California Fish and Game Code; and
- Plants on CNPS List 1B (plants considered by CNPS to be rare, threatened, or endangered in California and elsewhere) or List 2 (plants considered rare, threatened, or endangered in California but more common elsewhere).

Queries of the USFWS List Generator and CDFG CNDDDB were completed for the “Oakland West, California” U. S. Geological Survey 7.5-minute topographic map to develop a list of potentially occurring special-status species within or near the project site. Table 4.2-4 provides a summary of special status species occurring within or near area depicted by the “Oakland West, California” 7.5-minute topographic map, their habitat requirements, potential to occur within the project area, and the location of nearest occurrence.

**Table 4.2-4
Special-Status Species Occurrences within the Area Depicted on the “Oakland West, CA” 7.5-Minute USGS Topographic Map,
Regulatory Status,¹ and Potential to Occur² within the Berkeley Aquatic Park Site**

Common Name	Scientific Name	Regulatory Status¹	Habitat	Potential to Occur on Site	Previous Occurrence in Oakland West Quad	Nearest Occurrence to Project Site
Mammals						
Salt-marsh harvest mouse	<i>Reithrodontomys raviventris</i>	FE/SE	Heavily vegetated salt marsh dominated by pickleweed (<i>Salicornia</i> sp.).	Low. Although very limited areas within the project site support isolated patches of salt/brackish wetland habitat, this species is not likely to occur due to the high levels of disturbance, small size and low quality of the habitat, and isolation from better quality salt marsh habitat in the local area. The project site does not support this species’ constituent habitat elements, including heavily vegetated salt marsh.	Yes; Emeryville Crescent Marsh adjacent to Bay Bridge approach	1.6 miles
Birds						
Alameda song sparrow	<i>Melospiza melodia pusillula</i>	SC	<i>Salicornia</i> marshes, nests in low <i>Grindelia</i> bushes and <i>Salicornia</i> .	Nesting: Not expected. The isolated patches of salt/brackish wetland habitat on-site are likely too small and disturbed to support a breeding territory for this species. The existing vegetation supporting <i>Salicornia</i> and <i>Grindelia</i> is sparse and limited. Foraging: Low. This species could temporarily forage and/or disperse over the project site when traveling to and from better quality habitat located off-site and in the local area.	Junction of I-80 and I-580	1.6 miles

Table 4.2-4
Special-Status Species Occurrences within the Area Depicted on the “Oakland West, CA” 7.5-Minute USGS Topographic Map,
Regulatory Status,¹ and Potential to Occur² within the Berkeley Aquatic Park Site

Common Name	Scientific Name	Regulatory Status¹	Habitat	Potential to Occur on Site	Previous Occurrence in Oakland West Quad	Nearest Occurrence to Project Site
Bald eagle	<i>Haliaeetus leucocephalus</i>	SE	Nests primarily in tall trees or tree snags near water. Forage areas widespread, including estuaries, lakes, rivers.	Nesting: Not expected. The project site does not support suitable nesting habitat for this species. Foraging: Low. Although unlikely, this species could range over the general area and temporarily forage at the project site.	NA ³	NA
Brown pelican	<i>Pelecanus occidentalis californicus</i>	FE	Nesting: Usually on islands, on ground or in low trees. Foraging: ocean, bays, and lagoons.	Nesting: Not expected. The project site does not support suitable nesting habitat for this species. Foraging: Low. This species was observed foraging over the project site during November 2011 surveys. This species could temporarily loaf at the project site and/or forage, disperse, and/or migrate over the site when traveling to and from better quality habitat located off-site and in the local area.	NA	NA

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Special-Status Species Occurrences within the Area Depicted on the “Oakland West, CA” 7.5-Minute USGS Topographic Map,
Regulatory Status,¹ and Potential to Occur² within the Berkeley Aquatic Park Site**

Common Name	Scientific Name	Regulatory Status¹	Habitat	Potential to Occur on Site	Previous Occurrence in Oakland West Quad	Nearest Occurrence to Project Site
California black rail	<i>Laterallus jamaicensis coturniculus</i>	FT, ST	Require high marshes with little annual and-or daily fluctuations in water levels. Prefer marshes with unrestricted tidal influences, heavily grown with pickleweed (<i>Salicornia</i> sp.).	Nesting: Not expected. The isolated patches of salt/brackish wetland habitat on-site are likely too small and disturbed to support a breeding territory for this species. The existing vegetation supporting <i>Salicornia</i> is sparse and limited. The low quality of the habitat and high levels of anthropogenic-related disturbance strongly reduce the potential for this species to occur. Foraging: Low. Although unlikely, this species could temporarily forage and/or disperse over the project site when traveling to and from better quality habitat located off-site and in the local area.	Yes; Emeryville Crescent Marsh immediately North of Bay Bridge Toll Plaza	1.82 miles

**Table 4.2-4
Special-Status Species Occurrences within the Area Depicted on the “Oakland West, CA” 7.5-Minute USGS Topographic Map,
Regulatory Status,¹ and Potential to Occur² within the Berkeley Aquatic Park Site**

Common Name	Scientific Name	Regulatory Status¹	Habitat	Potential to Occur on Site	Previous Occurrence in Oakland West Quad	Nearest Occurrence to Project Site
California clapper rail	<i>Rallus longirostris obsoletus</i>	FE, SE	Heavily vegetated tidal salt and brackish marshes with sloughs and mudflats.	<p>Nesting: Not expected. The isolated patches of salt/brackish wetland habitat on-site are likely too small and disturbed to support a breeding territory for this species. The existing vegetation supporting <i>Salicornia</i> is sparse and limited. Slough and mudflat habitat is limited. The low quality of the habitat and high levels of anthropogenic-related disturbance strongly reduce the potential for this species to occur.</p> <p>Foraging: Low. Although unlikely, this species could temporarily forage and/or disperse over the project site when traveling to and from better quality habitat located off-site and in the local area.</p>	Yes; Emeryville Crescent Marsh immediately North of Bay Bridge Toll Plaza	1.82 miles

Table 4.2-4
Special-Status Species Occurrences within the Area Depicted on the “Oakland West, CA” 7.5-Minute USGS Topographic Map,
Regulatory Status,¹ and Potential to Occur² within the Berkeley Aquatic Park Site

Common Name	Scientific Name	Regulatory Status¹	Habitat	Potential to Occur on Site	Previous Occurrence in Oakland West Quad	Nearest Occurrence to Project Site
California least tern	<i>Sternula antillarum browni</i>	FE	Nesting: abandoned salty flats, sand dunes. Foraging: ocean, bays, and lagoons.	Nesting: Not expected. The project site does not support suitable nesting habitat for this species. Foraging: Possible. This species could temporarily forage and/or disperse over the project site when traveling to and from better quality habitat located off-site and in the local area.	Alameda Naval Air Station	4.3 miles
Common yellowthroat	<i>Geothlypis trichas sinuosa</i>	SC	Requires thick, continuous cover down to water’s surface for foraging, tall grasses, willows, tule patches for nesting.	Nesting: Not expected. The existing habitat is not characterized by tall grasses, willows, and tule patches that are typical of this species’ nesting requirements. Salinity levels, ornamental plantings, and disturbance limit the establishment of suitable nesting habitat for this species. Foraging: Low. This species could temporarily forage and/or disperse over the project site when traveling to and from better quality habitat located off-site and in the local area.	North side of Bay Bridge Toll Plaza	1.6 miles

Table 4.2-4

Special-Status Species Occurrences within the Area Depicted on the “Oakland West, CA” 7.5-Minute USGS Topographic Map, Regulatory Status,¹ and Potential to Occur² within the Berkeley Aquatic Park Site

Common Name	Scientific Name	Regulatory Status¹	Habitat	Potential to Occur on Site	Previous Occurrence in Oakland West Quad	Nearest Occurrence to Project Site
Double-crested cormorant	<i>Phalacrocorax auritus</i>	SC	Rookery sites – colonial nester on coastal cliffs, offshore islands, and along lake margins in interior part of California.	Nesting/Rookery site: Not expected. The project site does not support suitable nesting habitat for this species. Foraging: This species was observed foraging over the project site during November 2011 surveys. This species could temporarily loaf at the project site and/or forage, disperse, and/or migrate over the site.	NA	NA
Western snowy plover	<i>Charadrius alexandrinus nivosus</i>	FT	Common on sandy marine and estuarine shores. Nests primarily on sandy shores, sand dunes and salt pond levees with sandy, gravelly, or friable soil substrate.	Nesting: Not expected. The project site does not support suitable nesting habitat for this species. Foraging: Not expected. Although unlikely, this species could migrate and/or disperse over the project site, but would not be expected to forage due to lack of sandy habitat.	No	NA

Reptiles

Alameda whipsnake	<i>Masticophis lateralis</i>	FT, ST	Chaparral, shrub communities, occasionally oak-bay woodland.	Not expected. The project site does not support suitable habitat for this species.	No	NA
San Francisco garter snake	<i>Thamnophis sirtalis tetrataenia</i>	FE, SE	Densely vegetated ponds, lakes, marshes, or sloughs near open grasslands.	Not expected. The project site is highly disturbed and likely outside of the current range of this species.	No	NA

**Table 4.2-4
Special-Status Species Occurrences within the Area Depicted on the “Oakland West, CA” 7.5-Minute USGS Topographic Map,
Regulatory Status,¹ and Potential to Occur² within the Berkeley Aquatic Park Site**

Common Name	Scientific Name	Regulatory Status¹	Habitat	Potential to Occur on Site	Previous Occurrence in Oakland West Quad	Nearest Occurrence to Project Site
Amphibians						
California red-legged frog	<i>Rana draytonii</i>	FT	Perennial water bodies (ponds, marshes, slow moving streams) with vegetated shorelines, somewhat tolerant of brackish water.	Not expected. The project site is highly disturbed and likely outside of the current range of this species.	NA	NA
California tiger salamander	<i>Ambystoma californiense</i>	FT, ST	Grasslands and open oak woodlands, necessary components include ground squirrel or gopher burrows for adult and juvenile aestivation; breeding habitat consisting of seasonally inundated vernal pools, stock ponds, seasonal wetlands.	Not expected. The project site does not support suitable habitat for this species.	Yes (Historical-1896) population has been declared extirpated (Alameda)	NA
Central California Coastal steelhead	<i>Oncorhynchus mykiss</i>	FT	Spawning and rearing (1-2 years): Upper reaches of coastal streams and rivers from the Russian River to Aptos Creek, streams and rivers tributary to the San Francisco Bay downstream of Chippis Island. Rearing (smolts): San Francisco Bay and coastal estuaries. Adult foraging: Pacific Ocean and San Francisco Bay.	Low (smolts ⁴). Although unlikely, smolts could occur within portions of the project site during certain times of year and if water quality conditions are favorable. However, existing water quality stressors, lack of suitable cover and refuge, and prevalence of predator species strongly limit the potential for this and other native fish species to occur under current conditions. No salmonids were sampled or identified during previous survey efforts.	NA	NA

Table 4.2-4
Special-Status Species Occurrences within the Area Depicted on the “Oakland West, CA” 7.5-Minute USGS Topographic Map,
Regulatory Status,¹ and Potential to Occur² within the Berkeley Aquatic Park Site

Common Name	Scientific Name	Regulatory Status¹	Habitat	Potential to Occur on Site	Previous Occurrence in Oakland West Quad	Nearest Occurrence to Project Site
Central Valley steelhead	<i>Oncorhynchus mykiss</i>	FT	Spawning and rearing (1-2 years): Upper reaches of streams and rivers tributary and including to the Sacramento and San Joaquin rivers. Rearing (smolts): Sacramento-San Joaquin Delta, San Francisco Bay. Adult foraging: San Francisco Bay and Pacific Ocean.	Low (smolts). Although unlikely, smolts could occur within portions of the project site during certain times of year and if water quality conditions are favorable. However, existing water quality stressors, lack of suitable cover and refuge, and prevalence of predator species strongly limit the potential for this and other native fish species to occur under current conditions. No salmonids were sampled or identified during previous survey efforts.	NA	NA
Central Valley spring-run Chinook salmon	<i>Oncorhynchus tshawytscha</i>	FT	Spawning: Sacramento River and cold-water tributaries. Rearing (fry): Sacramento River tributaries. Rearing (smolts): Sacramento-San Joaquin Delta, San Francisco Bay. Adult foraging: Pacific Ocean.	Low (smolts). Although unlikely, smolts could occur within portions of the project site during certain times of year and if water quality conditions are favorable. However, existing water quality stressors, lack of suitable cover and refuge, and prevalence of predator species strongly limit the potential for this and other native fish species to occur under current conditions. No salmonids were sampled or identified during previous survey efforts.	NA	NA

**Table 4.2-4
Special-Status Species Occurrences within the Area Depicted on the “Oakland West, CA” 7.5-Minute USGS Topographic Map,
Regulatory Status,¹ and Potential to Occur² within the Berkeley Aquatic Park Site**

Common Name	Scientific Name	Regulatory Status¹	Habitat	Potential to Occur on Site	Previous Occurrence in Oakland West Quad	Nearest Occurrence to Project Site
Central Valley winter-run Chinook salmon	<i>Oncorhynchus tshawytscha</i>	FE	Spawning: Sacramento River and cold-water tributaries. Rearing (fry): Sacramento River tributaries. Rearing (smolts): Sacramento-San Joaquin Delta, San Francisco Bay. Adult foraging: Pacific Ocean.	Low (smolts). Although unlikely, smolts could occur within portions of the project site during certain times of year and if water quality conditions are favorable. However, existing water quality stressors, lack of suitable cover and refuge, and prevalence of predator species strongly limit the potential for this and other native fish species to occur under current conditions. No salmonids were sampled or identified during previous survey efforts.	NA	NA
Coho salmon	<i>Oncorhynchus kisutch</i>	FE	Spawning: Coastal streams and rivers; historically in streams tributary to San Francisco Bay.	Not expected. The project site does not provide suitable habitat or environmental conditions for this species.	NA	NA
Delta smelt	<i>Hypomesus transpacificus</i>	FT, SE	Spawning: Sacramento-San Joaquin Delta. Juvenile rearing: Sacramento-San Joaquin Delta. Adult foraging: Sacramento-San Joaquin Delta.	Not expected. The project site does not provide suitable habitat or environmental conditions for this species.	NA	NA

**Table 4.2-4
Special-Status Species Occurrences within the Area Depicted on the “Oakland West, CA” 7.5-Minute USGS Topographic Map,
Regulatory Status,¹ and Potential to Occur² within the Berkeley Aquatic Park Site**

Common Name	Scientific Name	Regulatory Status¹	Habitat	Potential to Occur on Site	Previous Occurrence in Oakland West Quad	Nearest Occurrence to Project Site
Longfin smelt	<i>Spirinchus thaleichthys</i>	ST	Spawning: Sacramento-San Joaquin Delta. Juvenile and adult foraging: Sacramento-San Joaquin Delta and San Francisco Bay.	Low. Although unlikely, this species could occur within the project site during certain times of year and if water quality conditions are favorable. However, existing water quality stressors, lack of suitable cover and refuge, and prevalence of predator species strongly limit the potential for this and other native fish species to occur under current conditions. The existing habitat and environmental conditions that characterize the site are not representative of this species' habitat. No longfin smelt were sampled or identified during previous survey efforts.	NA	NA

**Table 4.2-4
Special-Status Species Occurrences within the Area Depicted on the “Oakland West, CA” 7.5-Minute USGS Topographic Map,
Regulatory Status,¹ and Potential to Occur² within the Berkeley Aquatic Park Site**

Common Name	Scientific Name	Regulatory Status¹	Habitat	Potential to Occur on Site	Previous Occurrence in Oakland West Quad	Nearest Occurrence to Project Site
Tidewater goby	<i>Eucyclogobius newberryi</i>	FE	Estuaries, and lagoons with sand or mud bottoms, vegetative cover.	Not expected. This species has been extirpated from the area and is not expected to occur.	Yes. Collected at Berkeley Aquatic park (historical-1950). USFWS considers extirpated from San Francisco Bay, and the USFWS does not consider the lagoons within Aquatic Park as potential habitat for tidewater goby.	Onsite
Invertebrates						
Bay checkerspot	<i>Euphydryas editha bayensis</i>	FT	Shallow serpentine-derived soils in native grasslands supporting larval host plants: native plantain, (<i>Plantago erecta</i>), owl's clover (<i>Castilleja densiflorus</i>).	Not expected. The project site does not support suitable habitat for this species.	No	NA
Callippe silverspot butterfly	<i>Speyeria callippe</i>	FE	Native grassland and associated habitat.	Not expected. The project site does not support suitable habitat for this species.	Yes (historical-1997) Population in an Alameda city park has been declared extirpated	

Table 4.2-4
Special-Status Species Occurrences within the Area Depicted on the “Oakland West, CA” 7.5-Minute USGS Topographic Map,
Regulatory Status,¹ and Potential to Occur² within the Berkeley Aquatic Park Site

Common Name	Scientific Name	Regulatory Status¹	Habitat	Potential to Occur on Site	Previous Occurrence in Oakland West Quad	Nearest Occurrence to Project Site
Mission blue butterfly	<i>Icaricia icarioides missionensis</i>	FE	Marin, San Francisco, and San Mateo counties; larval host plants are three lupine species (<i>Lupinus albifrons</i> , <i>Lupinus formosus</i> , and <i>Lupinus variicolor</i>).	Not expected. The project site does not support suitable habitat for this species.	No	NA
San Bruno elfin butterfly	<i>Callophrys mossii bayensis</i>	FE	Rocky slopes and ledges, especially east facing, larval host plant is stonecrop (<i>Sedum spathulifolium</i>).	Not expected. The project site does not support suitable habitat for this species.	No	NA
Plants						
Beach layia	<i>Layia carnosa</i>	FE, 1B	Sparsely vegetated semi-stabilized dunes; usually behind foredunes.	Not expected. The project site does not support suitable habitat for this species.	San Francisco Sand Dunes, San Francisco	12 miles
California sea blite	<i>Suaeda californica</i>	FE	Tidally influenced salt marshes, most commonly found in the narrow ecotone between salt marsh and stable dune scrub communities occurring at the edge of the salt marsh.	Not expected. The project site does not support suitable habitat for this species.	Extirpated from San Francisco Bay (1958); re-introduced at Crescent Marsh in 2009.	1.8 miles
Dune gilia	<i>Gilia capitata ssp. chamissonis</i>	1B	Coastal dune, coastal scrub	Not expected. The project site does not support suitable habitat for this species.	Yerba Buena Island	4.7 miles
Point Reyes bird's-beak	<i>Cordylanthus maritimus ssp. palustris</i>	1B	Usually in salt marsh with <i>Salicornia</i> , <i>Spartina</i> , <i>Dishchilis</i> , <i>Jaumea</i> , etc.	Low. Marginal salt/brackish wetland habitat occurs within limited portions of the site. This species was not observed during previous survey efforts.	Emeryville and Berkeley shoreline	1.5 miles

**Table 4.2-4
Special-Status Species Occurrences within the Area Depicted on the “Oakland West, CA” 7.5-Minute USGS Topographic Map,
Regulatory Status,¹ and Potential to Occur² within the Berkeley Aquatic Park Site**

Common Name	Scientific Name	Regulatory Status¹	Habitat	Potential to Occur on Site	Previous Occurrence in Oakland West Quad	Nearest Occurrence to Project Site
Saline clover	<i>Trifolium depauperatum</i> var. <i>hydrophilum</i>	1B	Marshes and swamps, valley foothill and grassland vernal pools, mesic alkaline sites	Not expected. The project site does not support suitable habitat for this species.	Oakland	3.5 miles
Santa Cruz tarplant	<i>Holocarpha macradenia</i>	FT, 1B	Coastal prairie, valley and foothill grassland; light sandy soil, often with non-natives	Not expected. The project site does not support suitable habitat for this species.	Adeline Station near Berkeley	1.6 miles

¹ Regulatory Status

FE = Federally endangered
FT = Federally threatened

SE = State endangered

ST = State threatened

SC = State species of concern

1B = California Native Plant Society List IB

² Potential to Occur Definitions

Not Expected to Occur - There are no present or historical records of the species occurring on or in the immediate vicinity (within 5 miles) of the project site.

The diagnostic habitats strongly associated with the species do not occur on or in the immediate vicinity of the project site. The project site is located well outside the species known range and/or elevation limits.

Low Potential to Occur - There is a historical record of the species and potentially suitable habitat on or in the vicinity of the project site, but existing conditions, such as density of cover, prevalence of non-native species, evidence of disturbance, limited habitat area, and isolation substantially reduce the possibility that the species would occur. The project site is located just outside the species known range and/or elevation limits.

Moderate Potential to Occur -The diagnostic habitat associated with the species occurs on or in the immediate vicinity of the project site, but there is not a recorded occurrence of the species within the immediate vicinity (within 5 miles). Some species that contain extremely limited distributions may be considered moderate, even if there is a recorded occurrence in the immediate vicinity. The project site is located within the species known range and/or elevation limits.

High Potential to Occur - There is both suitable habitat associated with the species and a historical record of the species on or in the immediate vicinity of the project site (within 5 miles). The project site is located within the species known range and/or elevation limits.

Species Present - The species was observed on within the project site at the time of the survey or during a previous biological survey.

³Information not available.

⁴Smolts are emigrating juvenile salmonids that have undergone physiological processes that allow them to adapt to brackish and saltwater conditions.

Regulatory Setting

There are a number of federal and State regulations that relate specifically to the protection and conservation of biological resources. The following laws, regulations, and ordinances are relevant to the project area.

Federal

Federal Endangered Species Act (FESA)

The federal Endangered Species Act was enacted in 1973. Under the FESA, the Secretary of the Interior and the Secretary of Commerce, jointly have the authority to list a species as threatened or endangered (16 United States Code [USC] 1533[c]). FESA is administered by both the National Marine Fisheries Service (NMFS) and the USFWS. NMFS is accountable for animals that spend most of their lives in marine waters, including marine fish, most marine mammals, and anadromous fish such as Pacific salmon. The USFWS is accountable for all other federally-listed plants and animals.

Pursuant to the requirements of FESA, an agency reviewing a Preferred Project within its jurisdiction must determine whether any federally listed threatened or endangered species may be present in the project area and determine whether the Preferred Project would have a potentially significant impact on such species. In addition, the agency is required to determine whether the project is likely to jeopardize the continued existence of any species proposed to be listed under FESA or result in the destruction or adverse modification of critical habitat proposed to be designated for such species (16 USC 1536[3], [4]). Therefore, project-related impacts to these species or their habitats would be considered significant and would require mitigation.

The Sacramento Fish and Wildlife Office maintain a list of “species of concern” that receive special attention from federal agencies during environmental review, although they are not otherwise protected under FESA. Project-related impacts to such species would also be considered significant under California Environmental Quality Act (CEQA) Guidelines Section 15380 and would require mitigation.

Projects that would result in “take” of any federally-listed threatened or endangered species are required to obtain authorization from NMFS and/or USFWS through either Section 7 (interagency consultation) or Section 10(a) (incidental take permit) of FESA, depending on whether the federal government is involved in permitting or funding the project. The Section 7 authorization process is used to determine if a project with a federal nexus would jeopardize the continued existence of a listed species and what mitigation measures would be required to avoid jeopardizing the species. The Section 10(a) process allows take of endangered species or their habitat in non-federal activities.

Migratory Bird Treaty Act of 1918

The federal Migratory Bird Treaty Act (MBTA) makes it unlawful to “take” (kill, harm, harass, etc.) any migratory bird listed in 50 CFR 10, including their nests, eggs, or products. Migratory birds include geese, ducks, shorebirds, raptors, songbirds, and many others. Most of the birds that

commonly occur within the project area, like Brewer's blackbird, western scrub-jay, house finch, and American crow, are protected under the MBTA.

Clean Water Act, Section 404

The objective of the Clean Water Act (CWA) is to restore and maintain the chemical, physical, and biological integrity of the nation's waters. Section 301 prohibits the discharge of any pollutant into the nation's waters without a permit, and Section 402 establishes the permit program. Under Section 404 of the CWA, the Corps has the authority to regulate activities that discharge fill or dredge material into wetlands or other waters of the U.S. The Corps implements the federal policy embodied in Executive Order 11990, which is intended to result in no-net-loss of wetland values or acres.

Clean Water Act, Section 401

The State Water Resources Control Board (SWRCB) has authority over wetlands through Section 401 of the CWA, which requires that an applicant for a Section 404 permit (to discharge dredged or fill material into waters of the United States) first obtain certification from the appropriate state agency stating that the fill is consistent with the State's water quality standards and criteria. In California, the authority to either grant certification or waive the requirement for permits is delegated by the SWRCB to the nine regional boards. The San Francisco Bay Regional Water Quality Control Board (SFBRWQCB) is the appointed authority for Section 401 compliance in the project area. A request for certification or waiver is submitted to the regional board at the same time that an application is filed with the Corps. The regional board has 60 days to review the application and act on it. Because no Corps permit is valid under the CWA unless "certified" by the state, these boards may effectively veto or add conditions to any Corps permit.

State

California Endangered Species Act (CESA)

The California Endangered Species Act was enacted in 1984. Under the CESA, the California Fish and Game Commission (CFGC) has the responsibility for maintaining a list of threatened species and endangered species. CDFG also maintains lists of species of special concern which impacts would be considered significant under CEQA Guidelines Section 15380 and could require mitigation. Pursuant to the requirements of CESA, an agency reviewing a Preferred Project within its jurisdiction must determine whether any State-listed endangered or threatened species may be present in the project area and determine whether the Preferred Project would have a potentially significant impact on such species. In addition, CDFG encourages informal consultation on any project which may impact a candidate species. CESA prohibits the take of California listed animals and plants in most cases, but CDFG may issue incidental take permits under special conditions.

Sections 3503, 3503.5, 3800 of the Fish and Game Code

These sections of the Fish and Game Code prohibit the "take, possession, or destruction of birds, their nests or eggs." Disturbance that causes nest abandonment and/or loss of reproductive effort (killing or

abandonment of eggs or young) is considered a “take.” Removal of vegetation is the most common action that can lead to a violation of these code sections.

The McAteer-Petris Act (California Government Code 66600–66682)

The McAteer-Petris Act created the San Francisco Bay Conservation and Development Commission (BCDC) in 1965. The mission of BCDC was to preserve San Francisco Bay from indiscriminate filling. BCDC’s first task was compilation of a comprehensive study of the Bay and determining how future development of the Bay should occur. This effort resulted in the San Francisco Bay Plan in 1968. In 1969 the findings and policies of the Bay Plan were incorporated into the McAteer-Petris Act which was amended making BCDC a permanent state agency. The Bay Plan continues to evolve and remains the guiding document for BCDC’s actions. Section 66610 of the McAteer-Petris Act establishes the boundaries of San Francisco Bay in relation to BCDC’s jurisdiction. Essentially, all areas below the mean high tide line and an area within a shoreline band that extends landward for 100 feet from the mean high tide line are subject to their jurisdiction. Section 66632 of the McAteer-Petris Act establishes the permitting process for projects which would place fill in, on, or over any part of BCDC’s jurisdiction as defined in Section 66610.

Local

City of Berkeley General Plan

The following policy from the Environmental Management Element of the City’s General Plan pertains to the Preferred Project:

Policy EM-28 Natural Habitat: Restore and protect valuable, significant, or unique natural habitat areas.

Actions:

- A. Restore the natural habitat and improve water quality in the Aquatic Park lagoon
- B. Where appropriate, balance increased use of open space and public lands with enhancement of natural habitat
- C. Preserve and enhance coastal and riparian areas and water flows necessary to support natural habitat and wildlife

City of Berkeley Municipal Code

Chapter 11.56 of the Berkeley Municipal Code establishes policies and uses that provide special protection to San Francisco Bay shoreline ecology, including but not limited to wetlands, mudflats, marshes, and tidelands, among others. It also is intended to protect open space and enhance the recreational uses and low density character of the entire waterfront area.

Chapter 12.44 of the Berkeley Municipal Code establishes requirements for planting trees, shrubs, and plants in specific locations within the city. It also sets forth the process for cutting, trimming, or removing any tree, shrub, or plant in those locations, and prohibits use of materials such as salt, oil, or herbicide that could be deleterious to plant growth.

City of Berkeley Coast Live Oak Tree Ordinance

The Coast Live Oak Tree Ordinance (Ordinance No. 6,905-N.S., adopted March 9, 2006) establishes a moratorium on the removal of any single stem Coast Live Oak tree of a circumference of 18 inches or more and any multi-stemmed Coast Live Oak with an aggregate circumference of 26 inches or more at a distance of 4 feet up from the ground.

Impacts and Mitigation Measures

Standards of Significance

The Preferred Project would have a significant impact on biological resources if it would:

- Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the CDFG or USFWS;
- Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, and regulations or by the CDFG or USFWS;
- Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means;
- Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites;
- Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance; or
- Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or State habitat conservation plan.

Methodology

The analysis of potential biological impacts associated with the Preferred Project is based on the Fisheries and Benthic Ecology Impact Assessment and the Peer Review of Biological Resources prepared by ENVIRON, the Aquatic Park Improvement Program Technical Report prepared by Laurel Marcus and Associates, and the results of the CDFG CNDDDB and USFWS database queries for the

“Oakland West, California” 7.5-minute quadrangle.⁷ Special-status species listed in Table 4.2-4 that were judged to have no suitable habitat in or adjacent to the project site are not addressed further in this section. Project-related impacts to special-status bird species are addressed only if suitable nesting habitat occurs on or adjacent to the project site.

Impacts Not Evaluated In Detail

The project site is not within an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or State habitat conservation plan. As such, implementation of the Preferred Project would not conflict with such a plan, resulting in no impact.

Environmental Analysis

BR-1 Construction of the Preferred Project could have a substantial adverse effect, either directly, or indirectly, through habitat modifications, on species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the CDFG or USFWS. (PS)

As described in the 2010 Fisheries and Benthic Ecology Impact Analysis and the 2012 Peer Review of Biological Resources prepared by ENVIRON for this Draft EIR, the site visits, database queries, and literature review did not identify any special-status or listed plant or animal species within the project site. Further, no special-status species were determined to have a high potential to occur (see Table 4.2-4), and no special-status species would be expected to use the site as permanent habitat.

However, several special-status bird species known to the region were determined to have a low potential to forage, disperse, and/or migrate over the project site. In addition, although unlikely, several special-status fishes could temporarily be at the project site if environmental conditions are favorable.

Construction and restoration activities could result in temporary and minor short-term impacts as a result of removal and temporary disturbance of the low-quality terrestrial and aquatic habitat, in addition to developed upland areas within the project site. This would include potential foraging habitat for several special-status species that have a low potential to temporarily forage over the site. These species would be temporarily displaced from the construction areas and would have to forage over alternate habitat located on and in the immediate vicinity of the site during project construction. Temporary impacts on foraging habitat for special-status species would be considered *less than significant*, however, given the limited area of low quality habitat proposed to be disturbed and the prevalence of alternate foraging habitat in the local area. Further, project implementation would result in a net increase

⁷ California Department of Fish and Game (CDFG) Biogeographic Data Branch, California Natural Diversity Database (CNDDDB), RareFind Version 3.1.0, June 2012; CDFG State and Federally Listed Endangered, Threatened, and Rare Plants of California, California Department of Fish and Game, Natural Diversity Data Base, Sacramento, California, June 2012; U.S. Fish and Wildlife Service (USFWS), Species Reports, http://ecos.fws.gov/tess_public; USFWS, Critical Habitat Portal, <http://criticalhabitat.fws.gov>.

of the affected habitat types, thereby ensuring full compensation and no-net-loss at the site over the long-term, and there would be no adverse permanent effects.

Please see Impact BR-3 for the evaluation of potential impacts on aquatic and wetland habitat.

BR-2 Operation of the Preferred Project would not have a substantial adverse effect, either directly, or indirectly, through habitat modifications, on species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the CDFG or USFWS. (LTS)

Removal of non-native invasive plant species and replacement with native plant species would increase the overall value of the habitat by restoring the plant community and providing greater potential for use by special-status wildlife species (see also Impact BR-4). Successful completion of habitat restoration activities for the Preferred Project is expected to result in an overall increase in habitat quantity and quality, including improved water quality conditions in the lagoons, that supports special-status species. As a result, the Preferred Project would not result in any adverse direct or indirect impacts on special-status species or habitat over the long-term, and the impact would be *less than significant*.

BR-3 Construction of the Preferred Project could have a substantial adverse effect on wetland habitat. (PS)

Construction activities would result in temporary impacts on existing aquatic and benthic habitat and wetland habitat, including direct impacts from disturbance of soils adjacent to the lagoons, wetland construction, elevation of Bird Island, dredging and filling, and indirect impacts from sedimentation and increases in turbidity, which could adversely affect water and wetland resources and aquatic/benthic species. This would be a *potentially significant* impact. The reader is referred to Impact HYD-1 in Section 4.3, Hydrology and Water Quality, for additional information concerning potential water quality effects during construction.

MITIGATION MEASURE. Temporary and permanent impacts on wetland habitat types, including jurisdictional waters and wetlands, would be reduced to *less-than-significant* levels through the implementation of Mitigation Measures HYD-1.1 through HYD-1.4 and HYD-4.1 in Section 4.3, Hydrology and Water Quality. These measures require that if turbidity or other water quality parameters may be exceeded, turbidity containment measures, best management practices, soil stabilization, or equally effective controls would be used during construction at appropriate locations. The specific measures to be implemented would be determined in conjunction with the protocols and performance standards outlined in those mitigation measures. These measures would be fully protective of wetland and aquatic habitat. In addition, permits authorizing the proposed activities would be required in addition to the preparation of applications, plans, and other documentation during permit processing in accordance with local, State, and federal regulations, as set forth in those mitigation measures.

BR-3.1 Wetland Habitat Protection. Implement Mitigation Measures HYD-1.1, HYD-1.2, HYD-1.3, HYD-1.4, and HYD-4.1.

BR-4 Operation of the Preferred Project would not have a substantial adverse effect on wetland habitat. (LTS)

The following areas at the project site would undergo habitat restoration efforts to improve and increase overall wetland habitat within the project site.

- Creation of 1.48 acres of salt/brackish wetlands at the Rowing Club site.
- Restoration of shoreline habitat surrounding the lagoons by removal of non-native vegetation and replacement with native plant species.
- Restoration of freshwater wetland and creek habitats by removal of non-native vegetation and replacement with native plant species.

Salt/Brackish Wetlands. The Preferred Project would create 1.48 acres of salt/brackish wetland habitat at the Rowing Club site (see Figure 3-12, Plan View of Proposed Salt/Brackish Wetland at Rowing Club Site). The Rowing Club site was selected for wetland restoration due to its relatively large size, few shoreline trees, and adjacency to an existing intertidal flat of pickleweed marsh that would result in a large, valuable wildlife area. The Rowing Club site has little value as wetland or upland habitat. Creation of a salt/brackish wetland at the Rowing Club site would entail the excavation of the existing contour to a depth of -1.5 feet Berkeley Datum. Excavation would generate approximately 6,282 cubic yards of soil. Measures would be taken to avoid affecting the existing strip of pickleweed and the intertidal flat during construction that could provide habitat for special-status species. The outer edge of the excavation would extend to near the road edge but the Monterey cypress trees along the southern edge of the site would be retained. A 25-foot buffer would be retained between the Rowing Club building and the wetland site to reduce the potential for disturbance of the wetland area. In addition, a small vegetated berm would be constructed to buffer the wetland from the road along the western edge of the project site and to reduce disturbance from dogs and people. The berm would require approximately 560 cubic yards of material for construction.

Once excavation is complete, the salt/brackish wetland would be re-vegetated with native salt marsh plants, and it is expected that other vegetation would colonize naturally. Pickleweed would be retained along the site's eastern edge and would be expected to spread and colonize the new excavated area. The western edge of the site would be planted with high marsh plants including alkali heath (*Frankenia grandifolia*), fat hen (*Atriplex patula*), jaumea (*Jaumea carnosa*), salt grass (*Distichlis spicata*), gumplant (*Grindelia stricta* var. *stricta*), and salt marsh rosemary (*Limonium californicum*). Transition zone plants including California buckwheat (*Erigeron fasciculatum*), coyote brush (*Baccharis pilularis*), and bunchgrass would be planted along the berm. Restoration of the salt/brackish wetland at the Rowing Club site

through excavation (to create the wetland) and re-vegetation would improve the viability of this area to support plants and wildlife compared to existing conditions. The protective measures described above would ensure that construction activities required for the wetland restoration would not adversely impact the existing environment. Creation of 1.48 acres of salt/brackish wetland habitat from the existing upland area would result in high-quality wetland habitat that could potentially support sensitive animal species known to the region sometime in the future, including salt-marsh harvest mouse, Alameda song sparrow, California black rail, California clapper rail, and common yellowthroat. Because the Preferred Project would not have an adverse impact on salt/brackish wetland habitat, impacts would be *less than significant*. Further, over the long-term, operation of the Preferred Project is anticipated to have a beneficial effect on salt/brackish wetland habitat and associated plant and wildlife species.

Shoreline and Freshwater Wetland Areas. As part of the Preferred Project, replacement of invasive, non-native vegetation with native plant species would be completed in three stages. Stage 1 would include the removal of invasive plant species such as ice plant, tamarisk, cotoneaster, fennel, pepperweed, firethorn, and ivy from the shoreline of the Radio Tower Pond. Invasive plant removal in Stage 1 would also include removal of other non-native species in upland areas of the Park, such as Himalayan blackberry, pampas grass, broom, giant reed, and acacia and eucalyptus seedlings, followed by plantings of native species such as beach aster (*Erigeron glaucus*), Douglas iris (*Iris douglasiana*), monkey flower (*Mimulus* sp.), and other low-growing native plants. Stage 2 would include removal of invasive plant species from the freshwater wetland habitat. Stage 3 would include removal of large eucalyptus and acacia trees, which make up the majority of the acreage of invasive plants in the Park. Stage 3 invasive removal would occur concurrently with planting of native tree species such as Monterey cypress (*Cupressus macrocarpa*), California bay laurel (*Umbellularia californica*), and Monterey pine (*Pinus radiata*). Removal of non-native invasive plant species and replacement with native plant species would increase the overall value of the habitat by restoring the plant community and providing greater potential for use by special-status wildlife species. Because the Preferred Project would not have an adverse impact on shoreline areas, impacts would be *less than significant*. Further, over the long-term, operation of the Preferred Project is anticipated to have a beneficial effect on shoreline freshwater habitat and associated plant and wildlife species.

BR-5 The Preferred Project would not interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites. (LTS)

Construction Impacts

Construction and restoration activities would result in impacts to limited portions of the project site, including areas supporting wildlife habitat. The existing habitat does not support any wildlife nursery sites or contribute to any wildlife corridors. The existing habitat is low quality and fragmented by existing developments and physical impediments to wildlife movement. Some special-status animal species, including several fish, have a low potential to temporarily

use the project site when environmental conditions are favorable. Individuals could be deterred and/or displaced from construction areas during construction; however, these individuals would not be expected to use the habitat as a nursery site or corridor, and alternate habitat exists in the immediate vicinity of the site that would be available during construction. Therefore, construction of the Preferred Project would not be expected to adversely affect any wildlife nursery sites or corridors, and impacts would be *less than significant*.

Operational Impacts

Terrestrial Wildlife. The project site is surrounded by a highly urbanized and disturbed environment. As such, the site is not part of a larger natural wildlife corridor, and the movement of resident terrestrial species is currently inhibited by the urban, commercial, and industrial development and associated infrastructure surrounding the project site. No known wildlife corridors or nursery sites occur on or in the immediate vicinity of the project site. Further, no habitat within the site would contribute to the assembly of any corridors or would be expected to serve as a nursery site or facilitate the movement of wildlife to and from a nursery site.

Aquatic Species. In terms of aquatic species, as described under BR-1, above, the project site lagoons do not support populations of listed anadromous or other migratory fish species. However, the 2010 Fisheries and Benthic Ecology Impact Analysis and USWFS query identified a low potential for several special-status migratory fish species to occur within the project site lagoons via entry through the tidal tubes connecting the lagoons to the San Francisco Bay. Under the existing conditions, the tide tubes that connect the Aquatic Park lagoons and the Bay are compromised and tidal exchange is severely limited.

Implementation of the Preferred Project would restore portions of the project site to better support native wildlife communities and would not increase the amount of developed land in the project area. Further, implementation would improve the connection between the Aquatic Park lagoons and the Bay through restoration of the tide tubes and, therefore, would enhance the ability of aquatic species to move between the project site and the open waters of the Bay, and would improve water quality parameters by increasing tidal exchange. Because operation of the Preferred Project would not adversely affect wildlife corridors or nursery sites, the impact would be *less than significant*. On a long-term basis, the restoration elements of the Preferred Project are expected to have a beneficial effect on animal species that have the potential to occur within the local area, including aquatic species.

BR-6 *The Preferred Project has the potential to impact nesting birds. (PS)*

Shoreline Areas. The project site contains a number of native and non-native trees, shrubs, and herbaceous plants that provide nesting habitat for a variety of bird species. Implementation of the Preferred Project, specifically, habitat restoration activities, would result in the removal of trees at the project site. As described for Impact BR-2, above, during Stage 3 of invasive species removal along the shoreline areas, large eucalyptus and acacia trees would be removed.

If nesting migratory birds are present (i.e., nests containing eggs or hatchlings), tree and shrub removal associated with the Preferred Project could result in the loss of those birds caused by the direct mortality of adult or young birds, nest destruction, or disturbance of nesting native migratory bird species, resulting in nest abandonment and/or the loss of reproductive effort. Native migratory bird species are protected by both State (CDFG Code Sections 3503 and 3513) and federal (MBTA of 1918) laws. Disruption of nesting birds, resulting in the abandonment of active nests, or the loss of active nests through removal of vegetation, would be a *potentially significant* impact.

Bird Island. Under the Preferred Project, Bird Island, located in the Main Lagoon, may undergo habitat improvements. The elevation of Bird Island would be raised up to 5 feet and the island would be re-vegetated to provide nesting and roosting habitat for various bird species. Boulder riprap would be added to the existing riprap around the periphery of Bird Island, and fill material dredged from Main Lagoon would be placed within the bounds of the rock riprap to increase the elevation of the island. Native trees such as Monterey cypress (*Cupressus macrocarpa*), California bay laurel (*Umbellularia californica*), Monterey pine (*Pinus radiata*), and potentially others would be planted on the island to provide nesting and roosting habitat. These species can withstand wind and often grow on coastal bluffs and hills. These trees would take several years to grow large enough to provide bird nesting and roosting habitat and increase soil stability. Understory vegetation including coyote brush, gumplant, bunchgrasses, rushes, and sedges would also be planted to provide additional nesting and refuge areas.

Restoration activities associated with raising the elevation of Bird Island, such as placement of soil on the island to raise the elevation, could result in the loss of ground-nesting birds caused by direct mortality of birds, nest destruction, or nest abandonment and loss of breeding effort. Disruption of ground-nesting birds, resulting in the abandonment of active nests, or the loss of active nests through placement of soil or removal of vegetation, would be considered a *potentially significant* impact on nesting bird species occurring in Main Lagoon.

MITIGATION MEASURE. The following mitigation measures would reduce the potentially significant impacts on nesting migratory birds at the project site to *less than significant*. (LTS)

BR-6.1 *Identify and Protect Nesting Migratory Birds at the Project Site.* The City shall implement the following measures to reduce impacts to nesting migratory birds:

- a. To facilitate compliance with State and federal law (Fish and Game Code and the MBTA) and prevent impacts to nesting birds, the City shall avoid the removal of trees, shrubs, or weedy vegetation February 1 through August 31 during the bird nesting period. If no vegetation or tree removal is proposed during the nesting period, no surveys are required. If it is not feasible to avoid the nesting period, a survey for nesting birds shall be conducted by a qualified wildlife biologist no earlier than seven days prior to the removal of trees, shrubs, weedy vegetation, buildings, or other construction activity.

- b. Survey results shall be valid for the tree removals for 21 days following the survey. If the trees are not removed within the 21-day period, then a new survey shall be conducted. The area surveyed shall include all construction areas as well as areas within 150 feet outside the boundaries of the areas to be cleared or as otherwise determined by the biologist.
- c. In the event that an active nest for a protected species of bird is discovered in the areas to be cleared, or in other habitats within 150 feet of construction boundaries, clearing and construction shall be postponed for at least two weeks or until the biologist has determined that the young have fledged (left the nest), the nest is vacated, and there is no evidence of second nesting attempts.

BR-6.2 Precautions during Restoration of Bird Island. The City shall adhere to the following requirements during the restoration of Bird Island.

- a. Ground-nesting bird species (various wading birds, gulls, and ducks) could potentially nest on Bird Island. All Bird Island restoration activities, including the placement of riprap and fill material, shall occur outside of the bird nesting season (February 1 through August 31).
- b. If Bird Island restoration activities, including the placement of riprap and fill material, cannot be avoided during the bird nesting season (February 1 through August 31), then nesting bird surveys (BR-6.1) shall be completed by a qualified biologist (See Mitigation Measure BR-4.1 for detailed mitigation measures for nesting birds).
- c. Implement Mitigation Measure BR-3.1.

BR-7 Construction of the Preferred Project has the potential to impact overwintering Monarch butterflies. (PS)

According to the Peer Review of Biological Resources (2012), a large number of overwintering Monarch butterflies (*Danaus plexippus*) were observed in the willow and eucalyptus trees along the railroad berm on the east side of the Park (refer to Figure 3-2, Aerial Photograph, for location of the railroad berm). Although Monarch butterflies are not a special-status species, they may be protected under regulations adopted by local jurisdictions that prohibit the removal of trees (native or non-native) known to support overwintering populations of Monarch butterflies. Removal of non-native eucalyptus trees supporting overwintering Monarch butterflies would be a *potentially significant* impact.

MITIGATION MEASURE. The following measure would reduce the potentially significant impacts on overwintering Monarch butterflies at the project site to *less than significant*.

BR-7.1 Identify and Protect Trees supporting overwintering Monarch butterflies at the project site. The City shall implement the following measures to reduce impacts to overwintering Monarch butterflies.

- a. Avoid removal of any trees (native or non-native) known to support overwintering Monarch butterflies.
- b. If eucalyptus trees known to support overwintering Monarch butterflies are to be removed, removal shall occur when Monarch butterflies are not present (typically late March through late August).
- c. If possible, any eucalyptus trees removed known to support overwintering Monarch butterflies shall be replaced with relatively large, evergreen native species such as California bay or Monterey pine.

BR-8 Conflicts with any Local Policies or Ordinances Protecting Biological Resources. The Preferred Project would not conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance. (LTS)

As identified in Applicable Plans and Regulations, above, Policy EM-28 of the City's General Plan Environmental Management Element calls for natural habitat restoration and water quality improvement in the Aquatic Park lagoons. The Preferred Project is subject to City of Berkeley Municipal Code Chapter 11.56, which establishes regulations for the protection of open space, views, wetlands, tidal mudflats, seasonal ponds, wetland-type environment creeks, meadows, beaches and the low-density character of the unique waterfront area of the City. The Preferred Project would also be subject to the City's Municipal Code Chapter 12.44 establishing protection of trees and shrubs and the Live Oak Tree Ordinance. As described above, implementation of the Preferred Project would enhance natural habitat at the project site through wetland restoration, invasive species removal, and water quality improvements. Refer to Section 4.3, Hydrology and Water Quality, of this Draft EIR for further information regarding the Preferred Project's effects on water quality in the Aquatic Park lagoons. Further, before removal of any trees or shrubs at the project site, whether as part of restoration efforts or storm drain and tidal circulation infrastructure modification, the procedures required by Section 12.44 of the Municipal Code and the Live Oak Tree Ordinance would be followed. Adherence to the requirements contained within these two ordinances would reduce the potential for adverse impacts to trees and shrubs. As such, the Preferred Project would be consistent with all applicable local policies and ordinances for the protection of biological resources, resulting in a *less-than-significant* impact.

Cumulative Evaluation

The geographic context for evaluation of cumulative biological resource impacts is the area immediately upgradient of the project site in West Berkeley. As such, the cumulative project considered in this Draft EIR is the full buildout of the West Berkeley Project, which encompasses the project vicinity, east of the project site. The Initial Study conducted for the West Berkeley Project

determined that adherence to all applicable requirements associated with the protection of water quality in stormwater runoff would reduce potential impacts to riparian habitat at Aquatic Park to a less-than-significant level. Refer to Section 4.3, Hydrology and Water Quality, for further information regarding cumulative water quality impacts and applicable requirements. However, the Supplemental EIR to the West Berkeley Project identified the potential for significant impacts related to bird collisions. Many of the tall buildings that could be developed under the West Berkeley Project are adjacent to the Aquatic Park shoreline and, therefore, could obstruct the flight patterns of birds utilizing Aquatic Park. The Preferred Project would not contribute to this impact because it does not include development of any structures. As described in the Environmental Analysis, above, the Preferred Project is expected to result in long-term benefits to terrestrial and aquatic habitat, wetlands, and sensitive natural communities, and would not adversely affect special-status or listed species. Both the Preferred Project and the West Berkeley Project would be required to adhere to all applicable ordinances established for the protection of trees and shrubs. Therefore, the Preferred Project would not make a considerable contribution to cumulative biological resource impacts, and cumulative impacts would be less than significant.

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