Biological Resources Assessment Report

FLOATHOUSE AND SMALL CRAFT RENTAL CENTER
PETALUMA, SONOMA COUNTY, CALIFORNIA

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List of Abbreviated Terms

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<tr>
<td>ACOE</td>
<td>Army Corps of Engineers</td>
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<td>BRA</td>
<td>Biological Resources Assessment</td>
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<td>BMP</td>
<td>Best Management Practices</td>
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<td>CRLF</td>
<td>California Red-legged Frog</td>
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<td>DPS</td>
<td>Distinct Population Segment</td>
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<td>ESA</td>
<td>Endangered Species Act</td>
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<tr>
<td>ESU</td>
<td>Evolutionary Significant Unit</td>
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<tr>
<td>FAC</td>
<td>Facultative plant (equally likely to occur in wetlands and non-wetlands)</td>
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<tr>
<td>FACU</td>
<td>Facultative upland plant (67-99% probability in non-wetlands)</td>
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<td>FACW</td>
<td>Facultative wetland plant (Estimated 67-99% probability of occurrence in wetlands)</td>
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<td>National Environmental Policy Act</td>
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<td>NGVD</td>
<td>National Geodetic Vertical Datum</td>
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<tr>
<td>NLAA</td>
<td>Not Likely to Adversely Affect</td>
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1.0 INTRODUCTION

On August 2, 2013, WRA, Inc. performed an assessment of biological resources for the Floathouse Small Craft Rental Center project located on the Petaluma River in downtown Petaluma, Sonoma County, California (Project Site; Figure 1). The proposed project is to construct a small floating dock and rental center (floathouse) to provide public access to the river via non-motorized watercraft (e.g. kayak, rowboat, paddleboat, etc). The project is sponsored by the Petaluma Small Craft Center (PSCC), a non-profit organization. The Project Site is located in the City’s Turning Basin adjacent to the existing City dock in downtown Petaluma.

The purpose of the assessment was to gather information necessary to complete a review of biological resources under the California Environmental Quality Act (CEQA) and regulatory permitting. The Project Site, for assessment purposes, is comprised of an area of open water outside the main channel and adjacent to the western bank of the Petaluma River; the proposed project would serve as a southern extension to the existing City dock. Areas surrounding the Project Site are also the focus of this assessment in order to evaluate potential indirect impacts that may result from the proposed project. The Project Site and surrounding habitats are collectively referred to as the Study Area and include downstream habitats up to 5 miles based on the maximum distance expected for most boaters to travel. Surrounding the Study Area are the River Plaza Shopping Center and associated restaurants and parking area, and the former River House and Cavanagh Landing Park located on Weller Street. This report assesses the Study Area for: (1) presence of sensitive biological communities; (2) potential to support special-status plant and wildlife species; and (3) presence of other sensitive biological resources protected by local, state, and federal laws and regulations.

1.1 Project Description

The proposed project will include the following elements:

- A one-story floathouse office (22’ X 20’) will rest on a 46’ long X 30’ deep floating dock, constructed with aluminum framing, Permafloat encapsulated floatation and Global Grid decking, attached at one end to the existing city dock.
- A synthetic, low-profile 120’ X 20’ Connect-A-Dock floating dock extending from the floathouse office dock southward towards the main channel. Approximately 6-8 piers will be pile driven to accommodate both the low dock and floathouse office dock.
- A 142 square foot handicap accessible restroom will be constructed in an unpaved area located within Cavanagh Landing Park.

The Floathouse will be accessed via existing City owned docks and two existing gangways with ramps located off Weller Street and at the River Plaza. The main access point at Weller Street is also closest to the proposed restroom site on City owned property at Cavanagh Landing Park. The restroom will be an ADA compliant, unisex, single stall restroom, with a separate shower room.
Figure 1. Study Area Location Map

Petaluma Small Craft Dock & Boathouse
Sonoma County, California
The River Plaza ramp and gangway are closer to the rental center, but are not currently ADA compliant due to five stairs leading to a landing above the ramp and gangway to the existing docks. A ramp would need to be constructed to bypass the stairs and connect to the landing, and a new, wider gangway bought and installed to bring this access point up to current standards. Furthermore, the City of Petaluma does not have a legal right-of-way control over this access point.

The intent of the Floathouse project is to improve access to the Petaluma River for the entire community and to provide greater opportunities for summer camps and families to enjoy and learn about the river. Summer, obviously, would be the busiest time of the year, and weekends are the busiest time of the week. Projections for use are approximately an average of (5) renters per hour during the summer through fall weekends; an average of (3) renters per hour during the spring weekends; and only (2) renters per hour during the winter weekends. For fall and spring weekdays, with kids back in school but still fine weather, an average of only (2) renters per hour is anticipated. It is not anticipated the Floathouse will be open during winter weekdays at this time, although it could be open for school holidays such as Thanksgiving, Christmas and Spring Break.

Educational materials will be provided to all boaters at the time of the rental. These materials will clearly explain required buffer distances for nesting or roosting birds and the importance of maintaining such buffers. The materials shall also contain information regarding the value of sensitive coastal brackish marsh habitat to discourage landings and a map showing areas to be avoided. If any sensitive species is documented nesting within 5 miles of the Floathouse the location of any active buffers will be provided as well. All new boaters will receive both verbal and written instructions regarding environmental considerations and requirements for avoiding unnecessary impacts to sensitive habitats and species.

2.0 REGULATORY BACKGROUND

The following sections explain the regulatory context of the biological assessment, including applicable laws and regulations that were applied to the field investigations and analysis of potential project impacts.

2.1 Sensitive Biological Communities

Sensitive biological communities include habitats that fulfill special functions or have special values, such as wetlands, streams, and riparian habitat. These habitats are regulated under federal regulations (such as the Clean Water Act), state regulations (such as the Porter-Cologne Act and the California State Fish and Wildlife Code), or local ordinances or policies (City or County Tree Ordinances, Special Habitat Management Areas, and General Plan Elements).

Waters of the United States

The U.S. Army Corps of Engineers (Corps) regulates “Waters of the United States” under Section 404 of the Clean Water Act. “Waters of the U.S.” are defined broadly as waters susceptible to use in commerce, including interstate waters and wetlands, all other waters (intrastate waterbodies, including wetlands), and their tributaries (33 CFR 328.3). Potential wetland areas, according to the three criteria used to delineate wetlands stated in the Corps of Engineers Wetlands Delineation Manual (1987), are identified by the presence of (1)
hydrophytic vegetation, (2) hydric soils, and (3) wetland hydrology. Areas that are inundated for sufficient duration and depth to exclude growth of hydrophytic vegetation are subject to Section 404 jurisdiction as “other waters” and are often characterized by an ordinary high water line (OHW). Other waters, for example, generally include lakes, rivers, and streams. The placement of fill material into “Waters of the U.S.” (including wetlands) generally requires an individual or nationwide permit from the Corps under Section 404 of the Clean Water Act.

**Waters of the State**

The term “Waters of the State” is defined by the Porter-Cologne Act as “any surface water or groundwater, including saline waters, within the boundaries of the state.” The Regional Water Quality Control Board (RWQCB) protects all waters in its regulatory scope, but has special responsibility for wetlands, riparian areas, and headwaters. These waterbodies have high resource value, are vulnerable to filling, and are not systematically protected by other programs. RWQCB jurisdiction includes “isolated” wetlands and waters that may not be regulated by the Corps under Section 404. “Waters of the State” are regulated by the RWQCB under the State Water Quality Certification Program which regulates discharges of fill and dredged material under Section 401 of the Clean Water Act and the Porter-Cologne Water Quality Control Act. Projects that require a Corps permit, or fall under other federal jurisdiction, and have the potential to impact “Waters of the State,” are required to comply with the terms of the Water Quality Certification determination. If a proposed project does not require a federal permit, but does involve dredge or fill activities that may result in a discharge to “Waters of the State,” the RWQCB has the option to regulate the dredge and fill activities under its state authority in the form of Waste Discharge Requirements or Certification of Waste Discharge Requirements.

**Streams, Lakes, and Riparian Habitat**

Streams and lakes, as habitat for fish and wildlife species, are subject to jurisdiction by CDFW under Sections 1600-1616 of the State Fish and Wildlife Code. Alterations to or work within or adjacent to streambeds or lakes generally require a 1602 Lake and Streambed Alteration Agreement. The term stream, which includes creeks and rivers, is defined in the California Code of Regulations (CCR) as follows: “a body of water that flows at least periodically or intermittently through a bed or channel having banks and supports fish or other aquatic life. This includes watercourses having a surface or subsurface flow that supports or has supported riparian vegetation” (14 CCR 1.72). In addition, the term stream can include ephemeral streams, dry washes, watercourses with subsurface flows, canals, aqueducts, irrigation ditches, and other means of water conveyance if they support aquatic life, riparian vegetation, or stream-dependent terrestrial wildlife (CDFW ESD 1994). Riparian is defined as, “on, or pertaining to, the banks of a stream;” therefore, riparian vegetation is defined as, “vegetation which occurs in and/or adjacent to a stream and is dependent on, and occurs because of, the stream itself” (CDFW ESD 1994). Removal of riparian vegetation also requires a Section 1602 Lake and Streambed Alteration Agreement from CDFW.

**Other Sensitive Biological Communities**

Other sensitive biological communities not discussed above include habitats that fulfill special functions or have special values. Natural communities considered sensitive are those identified in local or regional plans, policies, regulations, or by the California Department of Fish and Wildlife (CDFW). CDFW ranks sensitive communities as “threatened” or “very threatened” and keeps records of their occurrences in its Natural Diversity Database. Sensitive plant
communities are also identified by CDFW on their *List of California Natural Communities Recognized by the CNDDB*. Impacts to sensitive natural communities identified in local or regional plans, policies, regulations or by the CDFW or USFWS must be considered and evaluated under CEQA (California Code of Regulations: Title 14, Div. 6, Chap. 3, Appendix G). Specific habitats may also be identified as sensitive in City or County General Plans or ordinances.

**Relevant Local Policies, Ordinances, Regulations**

Chapter 8.28 of the City of Petaluma’s Municipal Code defines Heritage and Landmark trees that may be protected. Heritage trees are defined as native species of historic, cultural or environmental significance to the community or commemorative plantings by a group of citizens or the city in recognition of a significant community member or event. Landmark Trees are defined as trees that are of exceptional size or age as relates to generally accepted horticultural standards for the species, trees with unusual or distinctive form, character, function or visual impact as related to the species and setting, or trees associated with a historically significant person, structure, or event. Trees do not automatically become Heritage or Landmark trees if they meet the criteria. Instead, trees must be nominated for designation as one of these types by the landowner if on private land, or by the director, if on public land.

The PSCC has also applied for grant money from the San Francisco Bay Area Water Trail Grant Program, which provides money to improve and develop facilities that provide recreational access to the San Francisco Bay Water Trail. In order to be approved for grant funding, the Project must meet certain qualifications including: facilities must be open to the public; no major management issues such as reduced water quality or wildlife disturbances occur; installation of a Water Trail sign with logo and website address at the site; and inclusion of Water Trail educational messaging on sign at the site. In addition, the Project must be consistent with the Enhanced Water Trail Plan goals and strategies, including: access; wildlife and habitat protection; safety; and education, outreach and stewardship. In the context of this report, additional measures have been provided to ensure consistency with Water Trail Plan goals.

**2.2 Special Status Species**

Special-status species include those plants and wildlife species that have been formally listed, are proposed as endangered or threatened, or are candidates for such listing under the federal Endangered Species Act (ESA) or California Endangered Species Act (CESA). These Acts afford protection to both listed and proposed species. In addition, California Department of Fish and Wildlife (CDFW) Species of Special Concern, U.S. Fish and Wildlife Service (USFWS) Birds of Conservation Concern, sensitive species included in USFWS Recovery Plans, and CDFW special status invertebrates are all considered special-status species.

Although CDFW Species of Special Concern generally have no special legal status, they are given special consideration under the California Environmental Quality Act (CEQA). In addition to regulations for special-status species, most birds in the United States, including non-status species, are protected by the Migratory Bird Treaty Act of 1918. Destroying active nests, eggs, and young is illegal under this legislation. Plant species on California Native Plant Society (CNPS) Lists 1 and 2 are also considered special status plant species, and impacts to these species are considered significant according to CEQA. CNPS List 3 plants are not required to be reviewed under CEQA, but are included in this analysis for completeness.
Critical Habitat

Critical habitat is a term defined and used in the Federal Endangered Species Act as a specific geographic area that contains features essential for the conservation of a threatened or endangered species and that may require special management and protection. The FESA requires federal agencies to consult with the USFWS to conserve listed species on their lands and to ensure that any activities or projects they fund, authorize, or carry out will not jeopardize the survival of a threatened or endangered species. In consultation for those species with critical habitat, federal agencies must also ensure that their activities or projects do not adversely modify critical habitat to the point that it will no longer aid in the species’ recovery. In many cases, this level of protection is similar to that already provided to species by the FESA “jeopardy standard.” However, areas that are currently unoccupied by the species but which are needed for the species’ recovery, are protected by the prohibition against adverse modification of critical habitat.

3.0 METHODS

On August 2, 2013 the Study Area was examined to determine: (1) plant communities present within the Project Site, (2) if existing conditions provided suitable habitat for any special-status plant or wildlife species, and (3) if sensitive habitats are present.

3.1 Biological Communities

Prior to the site visit, the Soil Survey of Sonoma County, California [U.S. Department of Agriculture (USDA) 1972], the USGS 7.5 minute Petaluma quadrangle, and available aerial photographs were examined to determine if any unique soil types that could support sensitive plant communities and/or aquatic features were present in the Study Area. Biological communities present in the Study Area were classified based on existing plant community descriptions described in the Preliminary Descriptions of the Terrestrial Natural Communities of California (Holland 1986). However, in some cases it is necessary to identify variants of community types or to describe non-vegetated areas that are not described in the literature. Biological communities were classified as sensitive or non-sensitive as defined by CEQA and other applicable laws and regulations.

3.1.1 Non-sensitive Biological Communities

Non-sensitive biological communities are those communities that are not afforded special protection under CEQA, and other state, federal, and local laws, regulations and ordinances. These communities may, however, provide suitable habitat for some special status plant or wildlife species and are identified or described below.

3.1.2 Sensitive Biological Communities

Sensitive biological communities are defined as those communities that are given special protection under CEQA and other applicable federal, state, and local laws, regulations and ordinances. Applicable laws and ordinances are discussed above in Section 2.0. Special methods used to identify sensitive biological communities are discussed below.
Wetlands and Waters

The Study Area was surveyed to determine if any wetlands and waters potentially subject to jurisdiction by the Corps, RWQCB, or CDFW were present. The assessment was based primarily on the presence of wetland plant indicators, but also includes any observed indicators of wetland hydrology or wetland soils. Any potential wetland areas were identified as areas dominated by plant species with a wetland indicator status\(^1\) of OBL, FACW, or FAC as given on the U.S. Fish and Wildlife Service List of Plant Species that Occur in Wetlands (Reed 1988). Evidence of wetland hydrology can include direct evidence (primary indicators), such as visible inundation or saturation, surface sediment deposits, algal mats and drift lines, or indirect indicators (secondary indicators), such as oxidized root channels. Some indicators of wetland soils include dark colored soils, soils with a sulfidic odor, and soils that contain redoximorphic features as defined by the Corps Manual (Environmental Laboratory, 1987) and Field Indicators of Hydric Soils in the United States (NRCS, 2002).

The preliminary waters assessment was based primarily on the presence of unvegetated, ponded areas or flowing water, or evidence indicating their presence such as a high water mark or a defined drainage course.

Other Sensitive Biological Communities

The Study Area was evaluated for the presence of other sensitive biological communities, including riparian areas, sensitive plant communities recognized by CDFW, and protected trees as defined by Chapter 8.28 of the City of Petaluma’s Municipal Code. These sensitive biological communities were mapped and are described in the Section 4.1.2 below.

3.2 Special Status Species

3.2.1 Literature Review

Potential occurrence of special status species in the Study Area was evaluated by first determining which special status species occur in the vicinity of the Project Site through a literature and database search. Database searches for known occurrences of special status species focused on Sonoma County, as well as the Petaluma 7.5 minute USGS quadrangle and the eight surrounding USGS quadrangles. The following sources were reviewed to determine which special status plant and wildlife species have been documented to occur in the vicinity of the Project Site:

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\(^1\) OBL = Obligate, always found in wetlands (> 99% frequency of occurrence); FACW = Facultative wetland, usually found in wetlands (67-99% frequency of occurrence); FAC = Facultative, equal occurrence in wetland or non-wetlands (34-66% frequency of occurrence).
3.2.2 Site Assessment

A site visit was made to the Study Area to search for suitable habitats for species identified in the literature review as occurring in the vicinity. The potential for each special status species to occur in the Study Area was then evaluated according to the following criteria:

1) **No Potential.** Habitat on and adjacent to the site is clearly unsuitable for the species requirements (foraging, breeding, cover, substrate, elevation, hydrology, plant community, site history, disturbance regime).

2) **Unlikely.** Few of the habitat components meeting the species requirements are present, and/or the majority of habitat on or adjacent to the site is unsuitable or of very poor quality. The species is not likely to be found on the site.

3) **Moderate Potential.** Some of the habitat components meeting the species requirements are present, and/or only some of the habitat on or adjacent to the site is unsuitable. The species has a moderate probability of being found on the site.

4) **High Potential.** All of the habitat components meeting the species requirements are present and/or most of the habitat on or adjacent to the site is suitable. The species has a high probability of being found on the site.

5) **Present.** Species was observed on the site or has been recorded (i.e. CNDDB, other reports) on the site recently.

The site assessment is intended to identify the presence or absence of suitable habitat for each special status species known to occur in the vicinity in order to determine its potential to occur in the Study Area. The site visit does not constitute a protocol-level survey and is not intended to determine the actual presence or absence of a species; however, if a special status species is observed during the site visit, its presence is recorded and discussed.
4.0 RESULTS

The Study Area is located in downtown Petaluma adjacent to the western bank of the Petaluma River within an area known as the turning basin (Figure 2); the proposed restroom is located in Cavanagh Landing Park above the top of bank on the east side of the basin. A fringe of coastal salt/brackish marsh vegetation is present in the Study Area along the bank but will be avoided by the project; the upper areas of the bank are landscaped with ornamental redwoods and mulch. Inland from the Study Area is dense urban development, parking areas, and roads. Elevations of the Study Area range from approximately 0-10 feet above sea level.

The Petaluma River is actually a tidal slough connected to San Pablo Bay 16 miles to the south. The main slough channel passes through the extensive Petaluma Marsh Wildlife Area to the south of the Study Area, the largest remaining natural tidal brackish marsh in California. The Petaluma River is dredged somewhat regularly to maintain shipping access. The following sections present the results and discussion of the biological resource assessment within the Study Area.

4.1 Biological Communities

Non-sensitive biological communities in the Study Area include ruderal and ornamental vegetation. Two sensitive biological communities were found in the Study Area: coastal brackish marsh and waters. Coastal brackish marsh is present adjacent to the Project Site but will be avoided. No other sensitive communities are present. Descriptions for each biological community are given below. Figure 3 shows the location and extent of biological community vegetated habitats and waters.

4.1.1 Non-sensitive biological communities

The margins of the Study Area above the high tide line support areas of landscaped ornamental vegetation and unmaintained areas of non-native plants typically considered to be ruderal habitat.

Ruderal Habitat

Although not described in the literature as a habitat type, ruderal habitat includes areas that have been partially developed and left fallow or otherwise have had past soil disturbance that has not been maintained. Less than one acre of this habitat is present in the Study Area primarily in Cavanagh Landing Park where the restroom will be constructed and on the upper banks adjacent to the Project Site.

Ornamental

A small amount of landscaped/ornamental trees, shrubs and grasses occupy portions of the Study Area. Ornamental vegetation is not a community described in the literature as a habitat type, but in the Study Area it includes planted native trees, such as coast redwood (*Sequoia sempervirons*) and deer grass (*Muhlenbergia rigens*). Whether native or non-native, ornamental trees, shrubs, or dense grass can provide nesting and foraging habitat for some wildlife.
Figure 2. Delineation Map

Petaluma Small Craft Dock & Boathouse
Sonoma County, California

Legend

- Study Area
- Top of Bank
- Ordinary High Water Mark

Proposed Restroom

Petaluma River

0 50 100 200
Feet
1 inch = 100 feet

W E N S

Date: January 2014
Map By: DC
Base Source: ESRI Streaming Imagery
Ordinance Trees

Existing trees in the Study Area are believed to have been planted at various times as landscaping and do not qualify for heritage or landmark status, including those considered to be California native trees (silk tassel and redwood). One tree is proposed for removal: a single ornamental Raywood Ash located in Cavanagh Landing Park. This tree is not an ordinance tree.

Invasive Species

Human activities, such as construction or recreation, can introduce new non-native species that are considered to be highly invasive into an area. Invasive species can displace native species and change community (both aquatic and terrestrial) structure and functioning. Introductions can be in the form of live organisms or propagules often carried in on vehicles, on construction equipment, in discharged ship ballast, or other means in sufficient numbers and timing such that they are capable of colonization and reproduction. California State Lands Commission (SLC 2012) pointed out a specific example that can be especially damaging to aquatic environments, the quagga mussel, which has been spreading across the United States after being introduced into the Great Lakes by ship ballast water from Europe.

Invasive species can also be introduced to a new area through natural distribution from distant occupied areas. An introduction of a non-native species documented in the Petaluma River includes an aquatic hydrozoan (*Maeotias marginata*), a jellyfish-like creature, thought to have been introduced into San Francisco Bay from Europe in ship ballast. This species probably gradually migrated up the Petaluma River from San Francisco Bay where conditions are suitable for its existence.

Introductions of new invasive species in the aquatic habitat may not be easily controlled. However, the most effective control of an invasive species is often by natural habitat conditions. In the case of the quagga mussel, for example, the high salinity of the Petaluma River during the low flow period in summer would not allow this invasive mussel to become established. The quagga mussel can tolerate water salinity no higher than 4-5 parts per thousand (Benson, Richerson, Maynard, Larson, and Fusaro 2012). In summer the entire tidally influenced reach of the Petaluma River reaches 10 ppt salinity and higher (City of Petaluma 2002) and Cohen et. al. (2005) measured water salinity in the Study Area (Petaluma River Turning Basin) in late May 2004 to already be 8 ppt. Therefore, even if introduced into the Petaluma River at the Study Area, quagga mussels would succumb to intolerable salinity.

In addition, the relatively small size of the Floathouse Rental Center project is likely to only attract local contractors (Sonoma County and around San Francisco Bay) that are not likely to be carrying new invasive species from distant locations that are not already established in the Petaluma River.

New introductions of invasive vascular plants into the Study Area are not likely because of the relatively small area of high intertidal and uplands capable of being occupied by plants. The plant community presently is a mixture of native and non-native plants with dense cover, and establishment by a new species is unlikely.
4.1.2 Sensitive Biological Communities

Two sensitive biological communities were observed within the Study Area: coastal brackish marsh and waters (the Petaluma River). Coastal brackish marsh occurs in sparse patches on the western riverbank adjacent to the Project Site. The turning basin contains open water; water depths within the Study Area range from approximately 9 feet at the lowest tide to approximately 19 feet at the highest tide, with few areas of mudflat exposed at various low tides (no mudflat is exposed within the Project Area). These habitats are described in more detail below.

Coastal Brackish Marsh

Coastal brackish marsh is found at the interior edges of coastal bays and estuaries and is often adjacent to salt marsh, another sensitive habitat type. This community has some plants in common with coastal brackish marsh, but soil and water in this habitat generally has lower salt concentration than salt marsh because of freshwater input, although salinity will typically vary considerably with tide or season. In the Study Area, marsh vegetation is sparse and consists mainly of saltmarsh bulrush (*Bolboschoenus maritimus*) and California tule (*Schoenoplectus californicus*). Other plant species include marsh gumplant (*Grindelia stricta*), pickleweed (*Sarcocornia virginica*), and salt grass (*Distichlis spicata*).

Waters

The Petaluma River flows through the Study Area and is considered an “Other Waters” under the jurisdiction of the U.S. Army Corps of Engineers (Section 404 Clean Water Act up to high tide line and Section 10 Rivers and Harbors Act up to mean high water). Mean high water (or Ordinary High Water Line) is depicted in Figure 2.

The Petaluma River has been documented to support special-status wildlife species (CDFW 2013). It is considered Critical Habitat for Steelhead - Central California Coast ESU (*Oncorhynchus mykiss irideus*), a federal threatened species. The Petaluma River also has the potential to support Chinook Salmon (*Oncorhynchus tshawytscha*) in the Study Area. These wildlife species are discussed in more detail in Section 4.2.2.

4.2 Special-Status Species

4.2.1 Plants

Based upon a review of the resources and databases given in Section 2.3.1, 30 special-status plant species have been documented in the vicinity of the Study Area (CDFW 2014, USFWS 2014, CNPS 2014), however, none of these 30 species are likely to be present in the Study Area. The vegetated areas consist of three communities, two of which (ornamental and ruderal) that typically do not support special-status plant species because they are areas previously disturbed and are either extensively managed and maintained (landscape) or are dominated by non-native weeds that out compete native plants (ruderal). The third community, coastal brackish marsh, is a fringe along steep river banks dominated by tall tules, and this habitat is not suitable for the special-status tidal plants listed as having potential for presence. In addition, the Study Area communities are in a relatively isolated, urban location that is not conducive to allow introduction, colonization, or establishment of special-status plants. For all of these reasons, presence of special-status plants within the Study Area is highly unlikely. No special-status plants were observed during the site visits.
29 special status-species of wildlife have been recorded within 5 miles of the Study Area (CDFW 2014, USFWS 2014). No special-status wildlife species were observed in the Study Area during site visits, and most are considered unlikely to be present. However, two special-status fish species are known to be present in the Study Area, Steelhead and Chinook Salmon; the Petaluma River is also critical habitat for Steelhead. Additional species, although still considered as unlikely to be present in the Study Area, have been added to the discussion for completeness. These species include two fish, longfin smelt (*Spirinchus thaleichthys*) and green sturgeon (*Acipenser medirostris*); the Study Area is within designated critical habitat for green sturgeon. In addition, a number of sensitive avian species have potential to occur on the Petaluma River and thus may be indirectly impacted by the Project, though they are highly unlikely to occur within the Study Area. These species are also discussed below. A list of federal listed species documented in the Petaluma and Petaluma River quadrangles is provided in Appendix A.

**Steelhead - Central California Coast ESU (Oncorhynchus mykiss irideus), Federal Threatened Species.** The Central California Coast Evolutionarily Significant Unit (ESU) includes all naturally spawned populations of steelhead (and their progeny) in California streams from the Russian River to Aptos Creek, and the drainages of San Francisco and San Pablo Bays eastward to the Napa River (inclusive), excluding the Sacramento-San Joaquin River Basin. Steelhead typically migrate to marine waters after spending two years in freshwater, though they may stay up to seven years. They then reside in marine waters for 2 or 3 years prior to returning to their natal stream to spawn as 4- or 5-year-olds. Steelhead adults spawn between December and June. In California, females typically spawn twice before they die. Preferred spawning habitat for steelhead is in perennial streams with cool to cold water temperatures, high dissolved oxygen levels and fast-flowing water. Abundant riffle areas (shallow areas with gravel or cobble substrate) for spawning and deeper pools with sufficient riparian cover for rearing are necessary for successful breeding.

Central California Coast Steelhead migrate up the Petaluma River in the fall and winter to spawn in the winter and spring. Though the Study Area does not provide suitable gravel substrate for spawning, adults of this ESU likely migrate through in search of spawning habitat, and juveniles may find suitable protective cover and foraging habitat in the Study Area. The Petaluma River is considered Critical Habitat for this ESU by NMFS (2007), and CNDDB records indicate that this ESU has been observed in the Petaluma River system within five miles of the Study Area (CDFW 2013). Therefore, the Study Area represents migration and potentially rearing habitat for this species.

**Chinook Salmon - Central Valley Fall/late fall-run ESU (Oncorhynchus tshawytscha), NMFS Species of Concern, CDFW Species of Special Concern.** The Central Valley Fall/late fall-run ESU includes all naturally spawned fall-run populations from the Sacramento - San Joaquin River mainstem and its tributaries. Late-fall run chinook salmon are morphologically similar to spring-run chinook. They are large salmonids, reaching 75-100 cm SL and weighing up to 9-10 kg or more. The great majority of late-fall chinook salmon appear to spawn in the mainstem of the Sacramento River, which they enter from October through February. Spawning occurs in January, February and March, although it may extend into April in some years. Fry have emerged by early June, and the juveniles hold in the river for nearly a year before moving out to sea the following December through March.
The specific habitat requirements of late-fall chinook have not been determined, but they are presumably similar to other chinook salmon runs and fall within the range of physical and chemical characteristics of the Sacramento River above Red Bluff. Following winter rains, this species may migrate through the Study Area in search of appropriate spawning habitat. In the Study Area, no gravelly substrate characteristic of Chinook spawning habitat is available; however, the aquatic habitat onsite may provide suitable rearing and foraging habitat for juveniles. Although the Petaluma River is outside the currently established range of this species, this ESU has been observed here (pers. comm., Amanda Morrison, NMFS).

**Longfin Smelt (Spirinchus thaleichthys), Federal Bay-Delta DPS Candidate, State Threatened.** USFWS has listed the Bay-Delta Distinct Population Segment (DPS) of longfin smelt as a candidate endangered or threatened species (other longfin smelt populations have not been listed) in a 12-month finding announced in March 2012. Longfin smelt are considered pelagic and andromous, spawning in freshwater and moving into estuarine and ocean waters as they mature with preferred salinity ranging between 14 to 28 parts per thousand (ppt). They do not tolerate water temperatures higher than 22 degrees Celsius and typically move seaward to San Francisco Bay and cooler water during the summer. Spawning typically occurs between January and April, but may begin as early as November and last as late as June, and occurs over sandy substrate.

This fish is documented to occur throughout San Francisco Bay and the delta region. Recent surveys cited by CDFW (CDFW 2012) indicate occurrence in the Petaluma River. While longfin smelt may be in the Petaluma River and within the Study Area during portions of the year, it is unlikely they are in the upper Petaluma River and the Study Area during the summer when water temperatures reach intolerable levels. Water temperatures at the Study Area (Petaluma River Turning Basin) were measured to already be 22.9 degrees Celsius (73.2 degrees F) in late May of 2004 (Cohen et. al. 2005). CDFW has determined an acceptable work window for the Study Area to be between July 1 and September 30.

**Green Sturgeon (Acipenser medirostris), Federal Threatened Southern DPS, CDFW Species of Special Concern.** Green sturgeon is a large (to 7 feet) anadromous fish present in coastal waters along the west coast. Adults spawn every two to five years returning to upper reaches of freshwater streams with deep turbulent waters in late February with peak activity from April to June.

Critical Habitat designation includes tidal areas of the Petaluma River and the area of the project. However, available data indicate that green sturgeon has not actually been observed upstream of the mouth of the Petaluma River at San Pablo Bay but juveniles may forage in the river. NMFS concluded in a Biological Opinion (NOAA 2009) for Caltrans bridge construction work at several locations along the Petaluma River that green sturgeon were unlikely to be present in the reach between the Highway 101 bridge crossing and Washington Street bridge, which is the reach of the Study Area.

**Sensitive Avian Species Potentially Present on the Petaluma River**

**Great Egret (Ardea alba), (rookery), USFWS Bird of Conservation Concern.** Feeds and rests in fresh, and saline emergent wetlands, along the margins of estuaries, lakes, and slow-moving streams, on mudflats and salt ponds, and in irrigated croplands and pastures. Eats mainly fishes, amphibians, snakes, snails, crustaceans, insects, and small mammals. Nests in large trees, and roosts in trees (Grinnell and Miller 1944, Cogswell 1977). In northern California, fairly common to common yearlong in coastal lowlands, inland valleys, and the Central Valley.
A great egret rookery is documented approximately 500 feet upstream of the Study Area, in an ornamental redwood tree immediately adjacent to Dempsey’s Brewery and restaurant, the associated parking area, and a footbridge. Based on the proximity to human activities, this rookery is adapted to frequent noise and visual disturbances associated with human activity. A second rookery is documented approximately one mile downstream; this rookery also supports nesting great blue heron.

**California Brown Pelican** (*Pelecanus occidentalis californicus*), CDFW Fully Protected Species. This pelican is found throughout the San Francisco Estuary and nests and roosts on rocky or low brushy slopes of undisturbed islands. The California Brown Pelican may forage throughout the San Francisco Bay. California brown pelican may forage regularly on the Petaluma River, though they are more typically present downstream of the Study Area away from human activities and development.

**California Clapper Rail** (*Rallus longirostris obsoletus*), Federal Endangered, State Endangered, CDFW Fully Protected Species. Nesting occurs predominantly in the low portions of coastal wetlands and tidal sloughs dominated by cordgrass (*Spartina spp.*), pickleweed (*Salicornia spp.*), and gumplant (*Grindelia cuneifolia*). Factors important for breeding are well-developed sloughs and secondary tidal channels; extensive (dense, tall, lush) cordgrass (*Spartina sp.*) stands; dense salt marsh vegetation (including coastal brackish marsh) for cover, nest sites, and brooding areas; intertidal mudflats, gradually sloping banks of tidal channels, and cordgrass beds for foraging; abundant invertebrate food resources; and transitional vegetation at the upland edge of the salt marsh as a refuge during high tides (Harvey 1988). Within the Study Area, the coastal brackish marsh is present within a narrow margin close to the bank and does not provide adequate refuge during high tides for nesting. Ornamental species and the adjacent parking lot further reduce available habitat for California clapper rail, thus the Study Area is unlikely to support this species. The nearest documented occurrence is located approximately 1.5 miles downstream of the Study Area and no occurrences or suitable habitat are recorded north of the Study Area; therefore the Study Area does not likely provide marginal dispersal or foraging habitat for this species.

**California Black Rail** (*Laterallus jamaicensis coturniculus*), State Threatened, CDFW Fully Protected, USFWS Bird of Conservation Concern. This species occurs most commonly in upper tidal zone of emergent wetlands or brackish marshes dominated by bulrush (*Scirpus spp.*), cordgrass (*Spartina spp.*), and pickleweed (*Salicornia spp.*), most commonly nesting in dense cover such as pickleweed (Eddelman et al., 1994). Like the clapper rail, no suitable habitat is present in the Study Area due to lack of vegetative cover and proximity of development. The nearest suitable habitat is located approximately one mile downstream.

5.0 SUMMARY AND EVALUATION OF POTENTIAL IMPACTS

Two sensitive biological communities were identified in the Study Area: coastal brackish marsh and waters. All special-status plant species and most wildlife species documented in the vicinity of the Study Area were determined to have either low potential or no potential to be present based on existing conditions, with the exception of listed fish species including Chinook Salmon and central California coast steelhead. Other special status species may be indirectly impacted by the proposed project and are thus further discussed here. The following sections evaluate potential impacts that may be caused by development of the Floathouse Rental Center (Project)
as well as make recommendations for measures to avoid or reduce potential impacts to these species and sensitive habitats.

5.1 Biological Communities

Coastal brackish marsh is a sensitive biological community regulated by the CDFW under Section 1602 of the State Fish and Wildlife Code, and is a wetland regulated by the Corps under Section 404 of the Clean Water Act and the RWQCB under the Porter Cologne Act and Section 401 of the Clean Water Act. Less than one acre of coastal brackish marsh is present within the Study Area; however this habitat will be completely avoided. Additionally, “other waters” (the Petaluma River) is present and within the jurisdiction of the Corps and RWQCB.

A preliminary jurisdictional wetland delineation was completed on August 3, 2013; a formal determination with Corps verification was made on March 9, 2012 for this same location in conjunction with the trestle project for the City of Petaluma.

One tree is required to be removed in conjunction with construction of the restroom facility in Cavanagh Landing Park. This tree is non-native and not considered a heritage or landmark tree under the City’s ordinance.

5.1.1 Potential Impacts

1. Waters. The proposed project will potentially impact waters during construction, which may include the following:

   a. Placement of fill that will remove habitat permanently resulting from pile driving. A maximum of 8 pilings will be placed. The amount of fill that will be placed in this area is less than approximately 0.001 acre.

   b. Temporary impacts caused by anchoring of the floating dock and floathouse. Construction of the floathouse and dock will occur off-site and will be transported to the turning basin via barge and/or truck.

   c. Indirect impacts to water quality from washing boats; including use of municipal water (which contains chloramine and other disinfectants) and soap may affect water quality.

These impacts will require permit authorization from the regulatory agencies, and will likely include:

- Section 404 Nationwide Permit from the Corps of Engineers for Impacts to “other waters”
- Section 401 Water Quality Certification from the San Francisco Regional Water Quality Control Board related to the 404 permit
- Section 1602 Streambed Alteration Agreement from the CDFW

A mitigation and monitoring plan will also be needed for authorization of permits to ensure temporary impacts are mitigated by returning habitat conditions to pre-construction conditions. The Section 401 and Section 1602 permits will also require a certified CEQA document prior to being authorized.
5.1.2 Mitigation Measures

1. **Waters.** The impacts to waters identified above may be mitigated to a less than significant level by the following:

   a. Temporary impacts shall be limited to the smallest area possible required for pile driving and anchoring for the floating dock. Where it is practical to do so, protective materials shall be used to prevent materials from entering the waterway. This may include silt screens during pile driving and netting while work is performed on the dock (attaching/anchoring the float house).

   b. Any additional measures as prescribed by the Corps or RWQCB per permit conditions shall be adhered to.

   c. Water shall be treated using a high quality carbon filter fitted to PVC piping that will connect with any hose. Soap or other detergents shall not be employed.

5.2 Special-Status Plant Species

Because of the isolation of the Study Area and the small size of the naturally vegetated area, no rare plants are likely to occur in this area and thus no additional measures are required.

5.3 Special-Status Wildlife Species

Most of the species found in the review of background literature occur in habitats that are not present in the Study Area. In addition, the Study Area occurs on the Petaluma River in an urban setting in downtown Petaluma which creates continuous disturbance not tolerated by most special-status wildlife species; those species with potential to occur are adapted to these conditions. For these reasons, most special-status wildlife species are not expected to be present.

Of the 29 special status wildlife species known to occur within 5 miles of the Study Area, four fish species were determined to have the potential to occur in the Study Area; two of which have been previously documented in the Study Area. These two fish species are Central California Coast Steelhead and Central Valley Fall/late fall-run Chinook salmon ESU. CDFW is reporting that longfin smelt has been observed in the Petaluma River during recent studies (CDFW 2012). Green sturgeon has not been observed in the Petaluma River in upstream reaches, and NMFS has determined that it is unlikely to be present in the area of the project (NOAA 2009). Designated critical habitat for steelhead and green sturgeon are present in the Study Area. Sensitive avian species, including birds protected by the Migratory Bird Treaty Act are also present on the Petaluma River within 5 miles and thus, may be potentially impacted by the project.

5.3.1 Potential Impacts

1. **Special status fish species and critical habitat.** The waters and mudflat habitat in the river do not provide suitable spawning habitat for these special-status fish species. However, this aquatic habitat may provide suitable foraging or rearing habitat for juvenile special-status fish and/or for adult fish that may be passing through the work area.
between November and June each year. Indirect impacts to fish species and/or critical habitat downstream of the Study Area are not anticipated. Potential direct impacts that may be caused by the project could include the following:

a. Disturbance of mudflat substrate during pile driving could result in sediment entering the water column, which in turn may affect fish during foraging or dispersal.

b. Loss of critical habitat resulting from approximately 16 square feet (0.001 acre) of river bottom during pile driving, which is considered insignificant.

c. Noise generated during pile driving or other methods of installing new piles or repair of existing piles if required may produce sound/shock levels that are harmful to fish.

d. Toxic substances, including wood preservatives creosote or copper that may leach into the water during pile driving.

Potential indirect impacts to fish that may be caused by the project could include the following:

e. Discharge of municipal water (which contains chloramine and other disinfectants) and soap during boat washing may cause mortality to fish.

2. Special-status and Migratory Avian Species. Four special status avian species may be present downstream of the Study Area, though not within: great egret (rookery), California brown pelican, California clapper rail, and California black rail. A great egret rookery is documented 500 feet upstream of the Study Area. California brown pelican, California clapper rail, and California black rail are not likely to be present within one mile of the Study Area, but may be present downstream and subject to indirect impacts. Furthermore, all migratory bird species are protected during the nesting season (February 1 to August 31) under the Migratory Bird Protection Act.

Potential direct impacts to great egret (rookery) and other nesting avian species include:

a. Noise disturbances resulting from pile driving and/or construction activities during the nesting season (February 1 to August 31) may result in nest abandonment, which is considered a potentially significant impact.

Potential indirect impacts to great egret (rookery), California brown pelican, California clapper rail, California black rail, and other nesting avian species downstream include:

b. Recreational boaters may flush birds (cause birds to take flight away from area nesting, roosting, or foraging) or cause diving responses which may result in nest abandonment, decreased foraging time, and avoidance or abandonment of suitable areas. Flushing may also result in increased energy expenditures which can reduce birds’ fitness for migration.

c. Recreational boaters may disturb shoreline habitat for birds and other native wildlife if they stop or attempt to haul out in (trample on) sensitive coastal brackish marsh habitat.
5.3.2 Mitigation Measures

1. Special status fish species and critical habitat

a. In order to reduce sediment from entering the water column as much as possible, pile driving shall be conducted at low tide as much as possible. Because work will be conducted in-water, silt curtains shall be used when work will disturb substrate and result in suspension of sediments into the water column.

b. Impact hammer pile driving shall be allowed if calculated noise levels are below the thresholds considered harmless to fish. If calculated noise levels are above levels considered harmful to fish, alternative methods of installing piles shall be used, such as vibratory hammer and/or use of noise attenuating technology to reduce noise or a fish monitor shall be present to ensure not take. Pile driving shall be conducted within the shortest time as is practicable and, if possible, within the work window between July 1 and September 30, for listed fish species and longfin smelt. Pile driving methodology and scheduling shall be reviewed by NMFS (e.g., during ESA Section 7 consultation with other federal agency involvement) and CDFW concurrence under Section 2081 of California Fish and Game Code. If the July through September work window is not sufficient to start and complete pile driving, a longer work window may be allowed at the discretion of agency staff, provided noise attenuated technology is employed. Project work other than pile driving may continue before, during, or after the final approved work window that allows pile driving.

c. Toxic substances, particularly wood preservatives, shall be prevented from falling into the water. Drilling or sawing of wood treated with preservatives shall be conducted on land. New piles shall be wrapped with suitable material to reduce leaching of wood preservatives into the water. Copper treatments shall be avoided.

d. Project activities have the potential to temporarily and/or permanently affect salmonid and other fish habitat. Chinook Salmon, Central California Coast Steelhead, and Green Sturgeon are protected under FESA, and activities with the potential to affect these populations or their critical habitat require consultation, formal or informal, with NMFS and USFWS; it is anticipated a Not Likely to Adversely Affect determination will be obtainable due to the small size of habitat that will be disturbed due to pile driving.

e. Water shall be treated using a high quality carbon filter fitted to PVC piping that will connect with any hose. Soap or other detergents shall not be employed.

2. Special-status and Migratory Avian Species

a. All pile driving activities shall be completed between July 1 and September 30 in order to avoid fish impacts, unless authorized by NMFS, USFWS, and CDFW to occur outside this period (an extension may be possible under certain conditions). Should activities (pile driving or other construction-related activities) commence between July 1 and August 31, a pre-construction nesting survey shall be performed in suitable habitats for avian species within one quarter mile to determine if nests are present. If present, an appropriate buffer shall be established by a qualified biologist to ensure activities do not result in nest abandonment. The biologist shall monitor activities to ensure the buffer is
sufficient to prevent any impacts to these species. Work may continue in areas outside of the buffer zones and resume within the buffer zone once the young have left the nest.

b. Educational materials pertaining to buffer distances for nesting or roosting birds and the location of any active buffer areas shall be provided to all boaters at the time of the rental.

c. Educational materials shall also contain information regarding the value of sensitive coastal brackish marsh habitat to discourage landings and a map showing areas to be avoided.
REFERENCES


CDFG. 2009. A status review of the longfin smelt (Spirinchus thaleichytys) in California


Holland, R. F. 1986. Preliminary Descriptions of the Terrestrial Natural Communities of California. Prepared for the California Department of Fish and Wildlife, Sacramento, California


Natural Resources Conservation Service (NRCS). 2002. Field Indicators of Hydric Soils in the United States, version 5.0. G.W. Hurt, P.M. Whited, eds. USDA, NRCS in cooperation with the National Technical Committee for Hydric Soils, Fort Worth, TX.


U.S. Department of Agriculture, Soil Conservation Service. 1972. Soil Survey of Sonoma County, California. In cooperation with the University of California Agricultural Experiment Station.


Listed Species

Invertebrates

Speyeria zerene myrtleae
Myrtle's silverspot butterfly (E)

Syncaris pacifica
California freshwater shrimp (E)

Fish

Eucyclogobius newberryi
tidewater goby (E)

Hypomesus transpacificus
delta smelt (T)

Oncorhynchus kisutch
coho salmon - central CA coast (E) (NMFS)

Oncorhynchus mykiss
Central California Coastal steelhead (T) (NMFS)
Central Valley steelhead (T) (NMFS)
Critical habitat, Central California coastal steelhead (X) (NMFS)

Oncorhynchus tshawytscha
California coastal chinook salmon (T) (NMFS)

Amphibians

Rana draytonii
California red-legged frog (T)
Critical habitat, California red-legged frog (X)

Birds
Sternula antillarum (=Sterna, =albifrons) browni
California least tern (E)

Strix occidentalis caurina
northern spotted owl (T)

Mammals

Reithrodontomys raviventris
salt marsh harvest mouse (E)

Plants

Chorizanthe valida
Sonoma spineflower (E)

Delphinium bakeri
Critical habitat, Baker's larkspur (X)

Delphinium luteum
yellow larkspur (E)

Trifolium amoenum
showy Indian clover (E)

Key:

- (E) Endangered - Listed as being in danger of extinction.
- (T) Threatened - Listed as likely to become endangered within the foreseeable future.
- (P) Proposed - Officially proposed in the Federal Register for listing as endangered or threatened.
- (NMFS) Species under the Jurisdiction of the National Oceanic & Atmospheric Administration Fisheries Service. Consult with them directly about these species.
- Critical Habitat - Area essential to the conservation of a species.
- (PX) Proposed Critical Habitat - The species is already listed. Critical habitat is being proposed for it.
- (C) Candidate - Candidate to become a proposed species.
- (V) Vacated by a court order. Not currently in effect. Being reviewed by the Service.
- (X) Critical Habitat designated for this species
U.S. Fish & Wildlife Service
Sacramento Fish & Wildlife Office

Federal Endangered and Threatened Species that Occur in or may be Affected by Projects in the PETALUMA RIVER (484A) U.S.G.S. 7 1/2 Minute Quad

Report Date: May 16, 2014

Listed Species

Invertebrates

Syncaris pacifica
California freshwater shrimp (E)

Fish

Hypomesus transpacificus
delta smelt (T)

Oncorhynchus kisutch
coho salmon - central CA coast (E) (NMFS)

Oncorhynchus mykiss
Central California Coastal steelhead (T) (NMFS)
Central Valley steelhead (T) (NMFS)
Critical habitat, Central California coastal steelhead (X) (NMFS)

Oncorhynchus tshawytscha
Central Valley spring-run chinook salmon (T) (NMFS)
winter-run chinook salmon, Sacramento River (E) (NMFS)

Amphibians

Rana draytonii
California red-legged frog (T)

Birds

Charadrius alexandrinus nivosus
western snowy plover (T)

Rallus longirostris obsoletus
California clapper rail (E)
Sternula antillarum (=Sterna, =albifrons) browni
California least tern (E)

Strix occidentalis caurina
northern spotted owl (T)

Mammals

Reithrodontomys raviventris
salt marsh harvest mouse (E)

Plants

Chorizanthe valida
Sonoma spineflower (E)

Cordylanthus mollis ssp. mollis
soft bird's-beak (E)

Delphinium luteum
yellow larkspur (E)

Hesperolinon congestum
Marin dwarf-flax (=western flax) (T)

Lasthenia conjugens
Contra Costa goldfields (E)

Key:

- (E) Endangered - Listed as being in danger of extinction.
- (T) Threatened - Listed as likely to become endangered within the foreseeable future.
- (P) Proposed - Officially proposed in the Federal Register for listing as endangered or threatened.
- (NMFS) Species under the Jurisdiction of the National Oceanic & Atmospheric Administration Fisheries Service. Consult with them directly about these species.
- Critical Habitat - Area essential to the conservation of a species.
- (PX) Proposed Critical Habitat - The species is already listed. Critical habitat is being proposed for it.
- (C) Candidate - Candidate to become a proposed species.
- (V) Vacated by a court order. Not currently in effect. Being reviewed by the Service.
- (X) Critical Habitat designated for this species
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California Natural Diversity Database (CNDDB) Search for Petaluma Quadrangle and Eight Surrounding Quadrangles, CDFW 2014
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