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Appendix C1
Terrestrial Biological Resources Report

Terrestrial Biological Resources Report

Samoa Peninsula Land-based Aquaculture Project

Prepared for Nordic Aquafarms California

February 2021

Rev 1

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List of Acronyms

AFS_TH	American Fisheries Society Threatened
AFS_VU	American Fisheries Society Vulnerable
BGEPA	Bald and Golden Eagle Protection Act
BMP	Best Management Practice
CCC	California Coastal Commission
CDFW	California Department of Fish and Wildlife
CDFW_FP	CDFW Fully Protected Animal
CDFW_SSC	CDFW Species of Special Concern
CDFW_WL	California Department of Fish and Wildlife Watch List
CEQA	California Environmental Quality Act
CESA	California Endangered Species Act
CFGC	California Fish and Game Commission
CNDDB	CDFW California Natural Diversity Database
CNPS	California Native Plant Society
CWA	Clean Water Act
DOI	Department of the Interior
DPS	Distinct Population Segment
EFH	Essential Fish Habitat
ESA	Federal Endangered Species Act
ESHA	environmentally sensitive habitat area
ESU	Evolutionarily Significant Unit
FD	Federally Delisted
FE	Federal Endangered
FE	Federal Endangered
FGC	California Fish and Game Code
FMP	Fisheries Management Plan

FMP	Fisheries Management Plans
FT	Federal Threatened
HAPC	Habitat Areas of Particular Concern
HBHRCD	Humboldt Bay Harbor, Recreation and Conservation District
IPaC	Information for Planning and Conservation
IS/MND	Initial Study/Mitigated Negative Declaration
IUCN_EN	International Union for Conservation of Nature Endangered
IUCN_NT	International Union for Conservation of Nature Near Threatened
IUCN_VU	International Union for Conservation of Nature Vulnerable
LSAA	Lake and Streambed Alteration Agreement
MBPA	Migratory Bird Protection Act
MBTA	Migratory Bird Treaty Act
MMPA	Marine Mammal Protection Act
NABCI_RWL	North American Bird Conservation Initiative Red Watch List
NCRA	North Coast Railroad Authority
NCUAQMD	North Coast Unified Air Quality Management District
NEPA	National Environmental Policy Act
NMFS	National Marine Fisheries Service
NMFS_SC	National Marine Fisheries Service Species of Concern
NOAA	United States National Oceanic and Atmospheric Administration
NOAA	National Oceanic and Atmospheric Administration
NOAA Fisheries	United States National Oceanic and Atmospheric Administration's National Marine Fisheries Service (formerly NMFS)
NPDES	National Pollutant Discharge Elimination System
NPPA	Native Plant Protection Act
NWI	National Wetlands Inventory
P	Proposed for Federal Listing
PSB	Project Study Boundary
RWQCB	Regional Water Quality Control Board
SC	State candidate for listing
SE	State endangered
SR	State rare
ST	State threatened
SWPP	Stormwater Pollution Prevention Plan
SWRCB	California State Water Resources Control Board
TBRR	Terrestrial Biological Resources Report
USACE	United States Army Corps of Engineers
USDA	United States Department of Agriculture
USEPA	United States Environmental Protection Agency
USFS	United States Forest Service
USFWS	United States Department of Fish and Wildlife Service
USFWS	U.S. Fish and Wildlife Service
USFWS_BCC	U.S. Fish and Wildlife Service Birds of Conservation Concern
USGS	United States Geological Survey
WBWG_H	Western Bat Working Group High Priority
WBWG_M	Western Bat Working Group Medium Priority
XERCES_IM	Xerces Society Imperiled

1. Introduction

The purpose of this Biological Resources Report (BRR) is to investigate and determine which sensitive biological resources (if any), including wildlife species and their habitat, may occur in the footprint or vicinity of the Samoa Peninsula Land-based Aquaculture Project (hereafter "Project," described below) and assess potential Project impacts to these resources. Special status species and resources (i.e., species listed as endangered or threatened under the federal or state Endangered Species Act [ESA and CESA respectively] or their designated critical habitat, species [specifically nearshore marine mammals] protected by the Marine Mammal Protection Act [MMPA], as well as California state special status species and habitats) are the primary focus of this BRR. Common species without special protections are not considered in this BRR. The purpose of the BRR is to inform CEQA analysis and Project permit applications.

Special status plants and sensitive natural communities have been evaluated separately; see Special Status Plant Survey and Vegetation Community Mapping/ESHA/Wetlands Evaluation Memo, Rev. 1 (GHD 2021a). Potential Project construction noise and associated impacts on sensitive wildlife species are analyzed in a separate Construction Noise, Vibration, and Hydroacoustic Assessment (Illingworth and Rodkin 2020). The results of this analysis are summarized herein in **Section 6** by taxonomic group. Impacts to marine biological resources specifically related to the proposed ocean outfall (i.e., effluent discharge) associated with the Project are analyzed separately in the Marine Resources Biological Evaluation, Rev. 4 (GHD 2021b). Terrestrial activities that could impact marine resources (e.g., fish and nearshore marine mammals) in Humboldt Bay are analyzed in this BRR.

2. Project Description

2.1 Proposed Project

The Project proposes to redevelop the site of the decommissioned Freshwater Tissue Samoa Pulp Mill facility (pulp mill) in order to construct a land-based finfish recirculating aquaculture system (RAS) facility (aquaculture facility). For additional Project details, please see the full Project description for the Samoa Peninsula Land-based Aquaculture Project (GHD 2020c). The Project is to be undertaken by Nordic Aquafarms California, LLC (NAFC), working in collaboration with the Humboldt County Planning Department, the Humboldt Bay Harbor, Recreation and Conservation District (HBHRCD), and applicable regulatory agencies. The Project is proposed to be located on the Samoa Peninsula in the unincorporated community of Samoa in Humboldt County, California (See **Appendix A**, **Figures 1 and 2**).

2.2 Definition of the Project Site

The Project Site consists of portions of one parcel of which approximately 36 acres would be used for the land-based finfish aquaculture facility and associated infrastructure. The cumulative area where Project construction activities are planned to occur shall herein be defined as the Project Site, located on APN 401-112-021 (**Appendix A, Figure 2).**

2.3 Other Public Agencies Whose Approval is Required

Required permits and approvals include:

- Humboldt County Coastal Development Permit;
- North Coast Unified Air Quality Management District (NCUAQMD) permit;
- Regional Water Quality Control Board (RWQCB) National Pollutant Discharge Elimination System (NPDES) & Stormwater Pollution Prevention Plan (SWPPP) (Construction and Industrial);
- California Coastal Commission Coastal Development Permit with California Department of Fish & Wildlife (CDFW) and National Oceanic and Atmospheric Administration's National Marine Fisheries Service (NOAA Fisheries, formerly NMFS) review; and a
- Regional Board NPDES for discharge to the Pacific Ocean via the existing outfall pipe.

2.4 Known Ongoing and Previous Projects in the Area

The Project Site is located within the footprint of the decommissioned Freshwater Tissue Samoa Pulp Mill facility. The pulp mill was constructed by Georgia Pacific in 1963 and was in operation until 2008. The HBHRCD purchased the property in 2013. The federal Environmental Protection Agency (EPA) funded a clean-up of hazardous materials on the site in 2014 (EPA 2016).

Current or ongoing other projects in the Project vicinity (Samoa peninsula) include new residential and commercial developments, public open space, and trails (approximately 170 acres slated for development, detailed in the Samoa Town Master Plan; Humboldt County Planning and Building Department 2019). A general list of proposed projects is provided below (reprinted from Master Plan; Humboldt County Planning and Building Department 2019):

- A commercial area at Vance Avenue and Cutten Street;
- A business park along the south portion of Vance Avenue;
- A revitalized Samoa Cookhouse area which includes the existing Samoa Cookhouse with visitor accommodations on upper floor, an expanded Maritime Museum, the existing gymnasium, baseball field and elementary school, and a new tent and cabin camping area with bathhouse;
- 198 new residential units, including a residential district west of Vance Avenue;
- Live/work studios along Cadman Court;
- 80 new workforce housing units east of Vance Avenue and north of Soule Street;
- Coastal dependent industrial land east of the North Coast Railroad Authority (NCRA) railroad tracks;
- Open space and natural areas east of New Navy Base Road and at other locations;
- Roads, trails and pathways;
- A central park and town square; and

- Public facilities, including a wastewater treatment plant, water tanks, corporation yard and utility substation.

3. Regulatory Background

The following is an overview of agencies that have potential oversight of the proposed Project related to biological resources. The regulatory setting is divided into sections on federal, state, and local jurisdiction.

3.1 Federal Jurisdiction

3.1.1 Endangered Species Act (ESA)

The ESA of 1973 (16 USC 1531 et seq.) establishes a national policy that all federal departments and agencies provide for the conservation of threatened and endangered species and their ecosystems. The Secretary of the Interior and the Secretary of Commerce are designated in the ESA as responsible for: (1) maintaining a list of species likely to become endangered within the foreseeable future throughout all or a significant portion of its range (threatened) and that are currently in danger of extinction throughout all or a significant portion of its range (endangered); (2) carrying out programs for the conservation of these species; and (3) rendering opinions regarding the impact of proposed federal actions on listed species. The ESA also outlines what constitutes unlawful taking, importation, sale, and possession of listed species and specifies civil and criminal penalties for unlawful activities.

Pursuant to the requirements of the ESA, an agency reviewing a proposed project within its jurisdiction must determine whether any federally listed or proposed species may be present in the project region, and whether the proposed project would result in a “take” of such species. The ESA prohibits “take” of a single threatened and endangered species except under certain circumstances and only with authorization from the USFWS or the National Oceanic and Atmospheric Administration (NOAA) Fisheries through a permit under Section 7 (for federal entities or federal actions) or 10(a) (for non-federal entities) of the Act. “Take” under the ESA includes activities such as “harass, harm, pursue, hunt shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct.” USFWS regulations define harm to include “significant habitat modification or degradation.” On June 29, 1995, a U.S. Supreme Court ruling further defined harm to include habitat modification “…where it actually kills or injures wildlife by significantly impairing essential behavioral patterns, including breeding, feeding, or sheltering.”

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 the ESA, or result in the destruction or adverse modification of critical habitat for such species (16 USC 1536[3][4]). If it is determined that a project may result in the "take" of a federally-listed species, consultation would be required under Section 7 or Section 10 of the ESA.

Critical habitat is defined by the ESA as a specific geographic area containing features essential for the conservation of an endangered or threatened species. Under Section 7 of the ESA, critical

habitat should be evaluated if designated for federally listed species that may be present in the project Action Area (federally designated term for a “Project Study Boundary”).

3.1.2 Marine Mammal Protection Act (MMPA)

The MMPA (16 U.S.C. 1362) of 1972 prohibits the “taking” of marine mammals and restricts the import, export, or sale of marine mammals. Take is defined as “the act of hunting, killing, capture, and/or harassment of any marine mammal; or, the attempt at such.” Harassment includes disruption of behavioral patterns. Implementation of the MMPA is divided between USFWS (sea otters, walruses, polar bears, manatees, and dugongs) and NOAA Fisheries (pinnipeds including seals and sea lions and cetaceans including dolphins and whales). Incidental Harassment Authorizations (IHA) or Letters of Authorization (LOA) may be issued for certain activities which can result in small amounts of take associated with another activity.

3.1.3 Clean Water Act (CWA)

The CWA (1977, as amended) establishes the basic structure for regulating discharges of pollutants into waters of the U.S. It gives the U.S. Environmental Protection Agency (EPA) the authority to implement pollution control programs, including setting wastewater standards for industry and water quality standards for contaminants in surface waters. The CWA makes it unlawful for any person to discharge any pollutant from a point source into navigable waters, without a permit under its provisions.

Discharge of fill material into “waters of the U.S.,” including wetlands, is regulated by the U.S. Army Corps of Engineers (USACE) under Section 404 of the CWA (33 USC 1251-1376). USACE regulations implementing Section 404 define “waters of the U.S.” to include intrastate waters (such as, lakes, rivers, streams, wetlands, and natural ponds) that the use, degradation, or destruction of could affect interstate or foreign commerce. Wetlands are defined for regulatory purposes as “areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions” (33 CFR 328.3; 40 CFR 230.3). The placement of structures in “navigable waters of the U.S.” is also regulated by the USACE under Section 10 of the Federal Rivers and Harbors Act (33 USC 401 et seq.). Projects are approved by USACE under standard (i.e., individual) or general (i.e., nationwide, programmatic, or regional) permits. The type of permit is determined by the USACE and based on project parameters.

The Fish and Wildlife Coordination Act requires consultation with the USFWS, NOAA Fisheries, and responsible state wildlife agency for any federally authorized action to control or modify surface waters. Therefore, any project proposed or permitted by the USACE under the CWA Section 404 must also be reviewed by the federal wildlife agencies and California Department of Fish and Wildlife (CDFW).

Section 401 of the CWA requires any applicant for a federal license or permit, which involves an activity that may result in a discharge of a pollutant into waters of the U.S., obtain a certification that the discharge will comply with applicable effluent limitations and water quality standards. CWA 401 certifications are issued by Regional Water Quality Control Boards (RWQCBs) under the California Environmental Protection Agency.

3.1.4 Executive Order 13112, Invasive Species

Executive Order 13112 was issued in 1999 to enhance federal coordination and response to the complex and accelerating problem of invasive species. It provides policy direction to promote coordinated efforts of federal, state, and local agencies in monitoring, detecting, preventing, evaluating, managing, and controlling the spread of invasive species and increasing the effectiveness of scientific research and public outreach affecting the spread and impacts of invasive species.

3.1.5 Migratory Bird Treaty Act (MBTA)

The MBTA of 1918 (16 USC 703-712) as amended established federal responsibilities for the protection of nearly all species of birds, their eggs, and nests. A migratory bird is defined as any species or family of birds that live, reproduce, or migrate within or across international borders at some point during their annual life cycle. The MBTA prohibits the take, possession, buying, selling, purchasing, or bartering of any migratory bird listed in 50 CFR Part 10, including feathers or other parts, nests, eggs, or products, except as allowed by implementing regulations (50 CFR 21). Only exotic species such as Rock Pigeons (*Columba livia*), House Sparrows (*Passer domesticus*), and European Starlings (*Sturnus vulgaris*) are exempt from protection.

In 2001, President Clinton defined "take" in Executive Order 13186 to include both "intentional" and "unintentional." This was also the interpretation of the Act put forth in an earlier Solicitor's Opinion (M-37041). However, in December of 2017, the Department of the Interior's (DOI) Office of Solicitor argued via Opinion M-37050 that incidental take was not prohibited under the Migratory Bird Treaty Act (this interpretation of the Act was also upheld in 2015 by the 5th Circuit in *United States v. CITGO Petroleum Corp*.). Opinion M-37050 was the subject of a lawsuit between eight U.S. states and the U.S. DOI.

In January of 2020, representative Alan Lowenthal and 18 bipartisan sponsors introduced the federal Migratory Bird Protection Act (H.R. 5552). The purpose of this bill was to "[a]mend the Migratory Bird Treaty Act to affirm that the Migratory Bird Treaty Act's prohibition on the unauthorized take or killing of migratory birds includes incidental take by commercial activities, and to direct the United States Fish and Wildlife Service to regulate such incidental take, and for other purposes" (H.R. 5552). As of March 2020, this bill has yet to pass the House (Congress.gov 2020).

In February of 2020, the USFWS proposed a new rule to define the scope of the MBTA (85 FR 5915). The rule specifies that "the Service proposes to adopt a regulation defining the scope of the MBTA's prohibitions to reach only actions directed at migratory birds, their nests, or their eggs" and essentially codifies M-37050 (85 FR 5915). Public comment on this new proposed rule closed on March 19, 2020. As of March 2020, the interpretation of "take" in the rule by the DOI did not include "incidental take." This interpretation is currently the subject of litigation (Audubon 2020).

3.1.6 Bald and Golden Eagle Protection Act (BGEPA)

The Bald Eagle Protection Act was originally enacted in 1940 in order to protect the national emblem of the United States, the Bald Eagle (*Haliaeetus leucocephalus*). At this time, the Bald Eagle was experiencing significant population pressures from hunting, egg collection, and habitat loss (Buehler 2000). This act was expanded upon in 1962 to include protections for the Golden

Eagle (*Aquila chrysaetos*). Similarly, the Golden Eagle was also experiencing precipitous population declines due to habitat loss, hunting, and electrocution from power lines (Kochert et al. 2002).

The current federal statute as amended (16 U.S.C. 668-668d) includes criminal penalties for anyone, including individuals, associations, partnerships, and corporations who “take, possess, sell, purchase, barter, offer to sell, purchase or barter, transport, export or import, at any time or in any manner any bald eagle commonly known as the American eagle or any golden eagle, alive or dead, or any part, nest, or egg thereof” without a permit (16 U.S.C. § 668a). “Take” is defined as “pursue, shoot, shoot at, poison, wound, kill, capture, trap, collect, molest or disturb” (16 U.S.C. § 668c). “Disturb” is defined as “to agitate or bother a bald or golden eagle to a degree that causes, or is likely to cause, based on the best scientific information available, 1) injury to an eagle, 2) a decrease in its productivity, by substantially interfering with normal breeding, feeding, or sheltering behavior, or 3) nest abandonment, by substantially interfering with normal breeding, feeding, or sheltering behavior” (50 CFR 22.3). Broadly construed, “take” may be applied to the protection of habitat around nest sites (Wisch 2002). Civil and criminal penalties may include monetary fines, imprisonment, a cancellation of grazing agreements on federal land, and a loss of property that was used in violating the act (e.g., boat, gun, or car). According to the USFWS, “a violation of the Act can result in a fine of up to $100,000 ($200,000 for organizations), imprisonment for one year, or both, for a first offense. Penalties increase substantially for additional offenses, and a second violation of this Act is a felony” (USFWS 2016). However, the act allows for Bureau of Indian Affairs certified tribal members to use eagles and eagle parts for religious ceremonies, as well as exceptions for scientific or educational purposes, falconry, and in cases of livestock depredation (16 U.S.C. § 668a). Any employee of the Department of the Interior (DOI) may enforce the provisions of the statute and may arrest individuals for violations (16 U.S.C. § 668b).

In the case of development projects, a permit may be required if the project activity is near an active or inactive eagle nest, roosting site, or foraging site. This is particularly true if the project is near breeding habitat (as opposed to wintering habitat or migratory stop-over sites). The act applies to all activities that may impact eagles, including projects without a federal nexus. If there is a possibility that the project could “non-purposefully take” eagles (unavoidable take associated with, but not the purpose of an activity) the USFWS may issue a programmatic take permit. In this case, the permit is subject to conditions or mitigation measures to minimize impacts. Post-construction monitoring and annual reports may also be required (50 CFR 22.26).

3.1.7 Magnuson-Stevens Fishery Conservation and Management Act of 1976 (as amended)

The Magnuson-Stevens Fishery Conservation and Management Act (MSFCMA) (16 U.S.C. 1801 et seq.) provides the federal government with the authority to manage fisheries in the U.S. Exclusive Economic Zone (EEZ) (from state waters which end three nautical miles offshore to a distance of 200 nautical miles). In addition, the Act mandates inter-agency cooperation in achieving protection, conservation, and enhancement of Essential Fish Habitat (EFH). The Act defines EFH as "Those waters and substrate necessary to fish for spawning, breeding, feeding, or growth to maturity. For the purpose of interpreting the definition of EFH: 'waters' include aquatic areas and their associated physical, chemical, and biological properties that are used by fish and may include aquatic areas historically used by fish where appropriate; 'substrate' includes sediment, hard bottom, structures

underlying the waters, and associated biological communities; 'necessary' means the habitat required to support a sustainable fishery and the managed species' contribution to a healthy ecosystem; and “spawning, breeding, feeding, or growth to maturity” covers a species' full life cycle" (50 CFR 600.10).

EFH guidelines also address Habitat Areas of Particular Concern (HAPCs) that should be evaluated within EFH. HAPCs may include both designated areas and designated habitat types. HAPCs are designated by the Fishery Management Council based on:

- “The importance of the ecological function provided by the habitat;
- The extent to which the habitat is sensitive to human-induced environmental degradation;
- Whether, and to what extent, development activities are or will be stressing the habitat type; and
- The rarity of the habitat type” (Pacific Fishery Management Council 2016).

EFH designations serve to highlight the importance of habitat conservation for sustainable fisheries and sustaining valuable fish populations. EFH relates directly to the physical fish habitat and indirectly to factors that contribute to degradation of this habitat. Important features of EFH that deserve attention are adequate water quality, temperature, food source, water depth, and cover/vegetation. Adverse effects to EFH are considered to be “any impact that reduces quality and/or quantity of EFH. Adverse effects may include direct or indirect physical, chemical, or biological alterations of the waters or substrate and loss of, or injury to, benthic organisms, prey species and their habitat, and other ecosystem components, if such modifications reduce the quality and/or quantity of EFH. Adverse effects to EFH may result from actions occurring within EFH or outside of EFH and may include site-specific or habitat-wide impacts, including individual, cumulative, or synergistic consequences of actions” (50 CFR 600.10). Federal agencies are required to consult with National Marine Fisheries Service (NMFS) regarding any actions (may include funding, permitting, or activities) that may adversely impact EFH.

3.1.8 Sustainable Fisheries Act of 1996

The Sustainable Fisheries Act (SFA) (Public Law 104-107) serves as an amendment to the MSFCMA to “authorize appropriations, to provide for sustainable fisheries, and for other purposes.” The SFA includes requirements for describing EFH in Fishery Management Plans (FMP) and also mandates the protection EFH. According to the SFA, “[o]ne of the greatest long-term threats to the viability of commercial and recreational fisheries is the continuing loss of marine, estuarine, and other aquatic habitats. Habitat considerations should receive increased attention for the conservation and management of fishery resources of the United States.” This act also mandates the delineation of EFH for all managed species.

3.2 State Jurisdiction

3.2.1 California Environmental Quality Act (CEQA)

CEQA applies to certain activities of state and local public agencies. A public agency must comply with CEQA when it undertakes an activity defined by CEQA as a "project." A project is an activity

undertaken by a public agency or a private activity which must receive some discretionary approval. Under CEQA, a variety of technical studies or analyses as well as research and professional knowledge are considered to determine whether the project may have an “adverse effect” on the environment. Lead agencies are charged with evaluating the best available data when determining what specifically should be considered an “adverse effect” to the environment.

3.2.2 Porter-Cologne Water Quality Act

The Porter-Cologne Act provides for statewide coordination of water quality regulations by establishing the California State Water Resources Control Board. The State Board is the statewide authority that oversees nine separate RWQCBs that collectively oversee water quality at regional and local levels. California RWQCBs issue CWA Section 401 Water Quality Certifications for possible pollutant discharges into waters of the U.S. or state. On April 2, 2019 the California State Water Resources Control Board adopted new definitions and procedures for discharges of dredged or fill material to Waters of the State.

3.2.3 National Pollutant Discharge Elimination System

The National Pollutant Discharge Elimination System (NPDES) permit program was established in the CWA to regulate industrial and municipal discharges to surface waters of the United States. NPDES permit regulations have been established for broad categories of discharges including point source municipal waste discharges and nonpoint source stormwater runoff.

A NPDES permit is required when proposing to, or discharging of waste into any surface water of the state. NPDES storm water discharges in California are regulated through federal NPDES permits, administered by the RWQCB.

3.2.4 California Endangered Species Act (CESA)

The CESA includes provisions for the protection and management of species listed by the State of California as endangered, threatened, or designated as candidates for such listing (California Fish and Game Code (CFGC) Sections 2050 through 2085). The CESA generally parallels the main provisions of the ESA and is administered by the CDFW, who maintains a list of state threatened and endangered species as well as candidate species. The CESA prohibits the “take” of any species listed as threatened or endangered unless authorized by the CDFW in the form of an Incidental Take Permit. Under CFGC, “take” is defined as to “hunt, pursue, catch, capture, or kill, or attempt to hunt, pursue, catch, capture, or kill.”

3.2.5 Other State Special Status Species and Communities

The CDFW maintains a list of species of special concern (CDFW 2020a). These are broadly defined as species that are of concern to the CDFW because of population declines and restricted distributions, and/or they are associated with habitats that are declining in California. The criteria used to define special status species are described by the CDFW. Impacts to special status plants, animals, and sensitive natural communities may be considered significant under CEQA.

State Species of Special Concern include those plants and wildlife species that have not been formally listed, yet are proposed or may qualify as endangered or threatened. In addition, USFWS

Birds of Conservation Concern, and CDFW special status invertebrates are considered special status species by CDFW.

The CDFW administers the Native Plant Protection Act (Sections 1900–1913 of the CFGC). These sections allow the California Fish and Game Commission to designate endangered and rare plant species and to notify landowners of the presence of such species. Plant species on California Native Plant Society's (CNPS) California Rare Plant Ranking (CRPR) Lists 1 and 2 are considered eligible for state listing as Endangered or Threatened pursuant to the California Fish and Game Code, and CDFW has oversite of these special status plant species as a trustee agency. As part of the CEQA process, such species should be considered as they meet the definition of Threatened or Endangered under Sections 2062 and 2067 of the California Fish and Game Code. CRPR List 3 and 4 plants may warrant protection under CEQA Guidelines 15380 only in special circumstances. CDFW publishes and periodically updates lists of special status species which include, for the most part, the above categories. Additionally, there are 64 plant species designated as "rare" which is a special designation created before plants were rolled into CESA in the 1980s. The CESA and the Native Plant Protection Act (NPPA) required a project to have a "Scientific, Educational, or Management Permit" from CDFW for activities that would result in "take," possession, import, or export of state-listed plant species including research, seed banking, reintroduction efforts, habitat restoration, and other activities relating to any plant designated SE (State endangered), ST (State threatened), SR (State rare), or SC (State candidate for listing).

Birds of Prey and Native Nesting Birds

Section 3503 of the CFGC prohibits the take, possession, or needless destruction of the nest or eggs of any bird. Subsection 3503.5 specifically prohibits the take, possession, or destruction of any birds in the orders Falconiformes (hawks and eagles) or Strigiformes (owls) and their eggs or nests. These provisions, along with the federal MBTA, essentially serve to protect nesting native birds. Non-native species, including the European Starling, Rock Dove, and House Sparrow, are not afforded protection under the MBTA or CFGC.

Fully Protected Species

The CDFW enforces the CFGC, which provides protection for "fully protected birds" (Section 3511), "fully protected mammals" (Section 4700), "fully protected reptiles and amphibians" (Section 5050), and "fully protected fish" (Section 5515). As fully protected species, the CDFW cannot authorize any project or action that would result in "take" of these species even with an incidental take permit

Migratory Bird Protection Act (MBPA)

The California Migratory Bird Protection Act (MBPA) was introduced in the California State Assembly 2019 by Assembly Member Ash Kalra and co-sponsored by the National Audubon Society. The text of the Act specifies that it is unlawful to take or possess any migratory nongame bird as designated in the federal Migratory Bird Treaty Act (16 USC 703-712) before January 1, 2017. This upholds the interpretation of the MBTA under Clinton's EO 13166, where "take" was defined as both "unintentional as well as intentional" (CFGC 5315). Governor Gavin Newson signed the Act into law on September 27, 2019. The MBPA effectively closes the federal MBTA loophole on incidental take of migratory birds in California.

3.2.6 Coastal Act

The California Coastal Act (California Public Resources Code sections 30000 et seq) was enacted by the State Legislature in 1976 to provide long-term protection of California's 1,100-mile coastline for the benefit of current and future generations. Coastal Act policies constitute the standards used by the California Coastal Commission (Commission) in its coastal development permit decisions and for the review of local coastal programs (LCPs) prepared by local governments and submitted to the Commission for approval. These policies are also used by the Commission to review federal activities that affect the coastal zone. Among other policies, the Coastal Act requires:

- Protection and expansion of public access to the shoreline;
- Protection, enhancement and restoration of environmentally sensitive habitats;
- Protection of productive agricultural lands, commercial fisheries and archaeological resources; and
- Protection of the scenic beauty of coastal landscapes and seascapes.

The project is located within the Coastal Zone, predominantly within the state's jurisdiction. All new development proposed on tide and submerged lands, and other public trust lands must receive a permit from the Commission (PRC 30519(b), and 30416(d)).

The Coastal Act defines an "environmentally sensitive habitat area" (ESHA) as an "area in which plant or animal life or their habitats are either rare or especially valuable because of their special nature or role in an ecosystem and which could be easily disturbed or degraded by human activities and developments" (Section 30107.5). Three important elements define an ESHA:

1. A geographic area can be designated ESHA because of the presence of individual species of plants or animals or because of the presence of a particular habitat;
2. In order for an area to be designated as ESHA, the species or habitat must be either rare or it must be especially valuable; and
3. The area must be easily disturbed or degraded by human activities.

Coastal Act Section 30240 states in part that:

a) ESHA shall be protected against significant disruption of habitat values, and only uses dependent on such resources shall be allowed within such areas.

b) Development in areas adjacent to ESHA and parks and recreation areas shall be sited and designed to prevent impacts which would significantly degrade those areas, and shall be compatible with the continuance of those habitat and recreation areas.

While there is not a specific list of habitats considered to be ESHA for the state or county, the Commission through the Coastal Act and counties or municipalities through the Local Coastal Program (LCP) are the jurisdictional agencies that exert authority in identifying and protecting ESHA in the course of project activities. In order for the Commission to determine if areas are to be classified as ESHA's, they often refer to CDFW's list of California Sensitive Natural Communities. CDFW does not use the term ESHA, but it has been inferred that CDFW terminology of "sensitive natural community" might be somewhat synonymous to Commission ESHA terminology (generally

communities with S1-S3 rankings). The Commission relies on this list to determine if habitats are considered sensitive natural communities and thus potentially ESHA. The global and state rarity ranking can be used to identify areas that may be considered ESHA and subject to protection by the Commission.

Article 4 Section 30231 of the Coastal Act provides that "(t)he biological productivity and the quality of coastal water, streams, wetlands, estuaries, and lakes appropriate to maintain optimum populations of marine organisms and for the protection of human health shall be maintained and where feasible restored..." Section 30233 discusses allowable uses of fill in coastal wetlands.

3.3 Local Jurisdiction

3.3.1 Local Coastal Program

The Project Site is within and regulated by the Humboldt Bay Area Plan (HBAP) of the Humboldt County LCP, of which Humboldt County has the primary permitting authority. LCPs can be adopted by local governments and serve as the regulatory equivalent of the Coastal Act. The HBAP extends from the Mad River in the north to Table Bluff/Hookton Road in the south, excluding the cities of Eureka and Arcata, and identifies land uses and standards by which development will be evaluated within the Coastal Zone as defined by the Coastal Act. The HBAP was certified by the California Coastal Commission in 1982.

The County of Humboldt under the LCP defines ESHA within the Humboldt Bay Planning Area to include "vegetated dunes" (County of Humboldt 2007) along with other areas, as follows:

- Wetlands and estuaries, including Humboldt Bay and the mouth of the Mad River.
- Vegetated dunes along the North Spit to the Mad River and along the South Spit.
- Rivers, creeks, gulches, sloughs and associated riparian habitats, including Mad River Slough, Ryan Slough, Eureka Slough, Freshwater Slough, Liscom Slough, Fay Slough, Elk River, Salmon Creek, and other streams.
- Critical habitats for rare and endangered species listed on state or federal lists.

4. Methods

4.1 Definition of Project Study Boundary (PSB)

For the purposes of this BRR, the Project Study Boundary (PSB) includes the Project Site (as defined in **Section 2.2**), as well as staging areas, haul roads, and a buffer of 0.25 miles (see **Appendix A, Figure 3 – Project Study Boundary**). State special status species (specifically wildlife, as plants and offshore marine species were analyzed in separate reports; GHD 2021a, 2021b) were evaluated at the level of the PSB. The buffer around the Project Site is designed to account for any auditory and visual disturbance to wildlife, as well as other potential impacts such as possible sedimentation/turbidity from construction and increased dust. The PSB does not include the Project's ocean effluent discharge, which is addressed in a separate Marine Resources Biological Evaluation (GHD 2021b).

4.2 Preliminary Investigation

4.2.1 Database Searches (CNDDB, IPaC, and NOAA Fisheries)

A database search of the CNDDB (CDFW 2020b), USFWS Information for Planning and Conservation (IPaC) (USFWS 2020), and NOAA Fisheries West Coast Region California Species List Tools (NMFS 2020a) was conducted by GHD on April 28, 2020. The search encompassed seven U.S. Geological Survey (USGS) quadrangles (quads) centered on the Project Site quad (Eureka) and the surrounding six quads (Tyee City, Arcata North, Arcata South, McWhinney Creek, Fields Landing, and Cannibal Island). In addition, citizen science databases such as the Bat Acoustic Monitoring Visualization Tool, Bumble Bee Watch, eBird, and iNaturalist were reviewed for additional local wildlife information (BAMVT 2020, Bumble Bee Watch 2020, eBird 2020, iNaturalist 2020).

Based on these database results, habitat assessments made during the site visit, literature review, and professional expertise regarding the habitat and conditions surrounding the Project Site, scoping tables were compiled for wildlife species (**Table 5.1; and Appendix B through D**). These tables and the species accounts below summarize special status wildlife species that may be present within the Project Site or immediately adjacent habitat in the PSB (as defined in **Section 4.1**). These tables also present information such as the likelihood of each species to occur in the Project Site and PSB. **Figure 4 in Appendix A** shows all special status species tracked by CNDDB that are known to occur within a 5-mile radius of the Project Site.

4.3 Field Surveys

4.3.1 Wetlands

A search of the National Wetland Inventory (NWI) was conducted on May 15, 2020 for the PSB. See **Figure 5 in Appendix A.**

4.3.2 Wildlife Survey and Wildlife Habitat Evaluation Methods

A reconnaissance-level field survey of the Project Site was conducted by Elizabeth Meisman, GHD Wildlife Biologist (hereafter surveyor), on April 30, 2020 from 0800 to 1200. Weather conditions were mild, about 62 degrees Fahrenheit, with a gentle breeze (Beaufort scale 3) and clear skies.

The survey methods were intended to detect terrestrial wildlife activity (no effort was made to survey for aquatic resources within the PSB (i.e., overlaps with the Humboldt Bay Samoa Channel), as there is considerable existing literature and documentation on aquatic species presence in the Bay. Where the habitat allowed the surveyor to walk without risk of damaging nests or dens and surrounding vegetation, the survey included a physical search of the area. This included inspecting the buildings, ground, shrubs, culverts, holes, etc. for the presence of any wildlife species. Additionally, the ground layer under vegetation was inspected for evidence of wildlife species, such as feathers, pellets, whitewash, scat, and tracks. Lists of wildlife species observed during survey are included in **Appendix F**. Only reconnaissance (versus protocol-level) surveys for special status wildlife were conducted at this time.

The surveyor entered the primary buildings on-site (boiler building, generator building, and long shop). The conditions in the accessible buildings were used to infer the state of other buildings on-site with regard to biological resources, as there were several smaller ones that the surveyor was not able to access. The surveyor dip-netted the large square flooded pool containing emergent vegetation, located to the south of the boiler building (following thorough Chytrid disinfection standards), in order to sample for presence of frog species.

Additionally, a bat habitat assessment of structures within the Project Site was completed by Greg Tatarian, Wildlife Research Associates (WRA) bat biologist, on January 19 and 20, 2021. See separate Bat Habitat Assessment report for details (WRA 2021).

4.3.3 Agency Coordination

Pre-Project meetings have been held with USACE, Regional Board, HBHRCD, CCC, Humboldt County Planning Department, NMFS, State Lands Commission, and CDFW.

5. Results

5.1 Summary of General Biological Resources

The Project Site is a developed industrial area, characterized by hardscape and limited wildlife habitat. The site lacks high-quality terrestrial vegetation, forest, riparian habitat, or marsh/wetland habitat. Nonetheless, the existing buildings on-site potentially provide suitable roosting and breeding/nesting habitat for special status bat and bird species. A large, man-made rectangular flooded pool located south of the boiler building on-site provides intermittent habitat for frogs. The Project Site contains some coastal dune habitat located in the southern portion of the site.

Several dead wildlife species, including common and special status species, were encountered during the reconnaissance survey. Specifically, a deceased non-special status North American Raccoon (*Procyon lotor*), Gray Fox *(Urocyon cinereorgenteus),* and a Rock Pigeon (*Columba livia)* were observed (one of each species). Additional decreased species included a single Barn Owl *(Tyto alba)* and a single Common Raven *(Corvus corax).* (**Appendix E - Site Visit Photographs**). Based on generally poor habitat conditions, limited habitat availability, and the general industrial landscape, few special status wildlife species are expected to occur at the Project Site.

The Project Site is bounded to the east by a primary channel of Humboldt Bay (i.e., Samoa Channel). Thus, the PSB (see **Appendix A, Figure 3**) overlaps tidal habitat which serves as suitable foraging habitat for many bird species. The Humboldt Bay Samoa Channel also provides habitat for special status marine mammal and fish species.

5.2 Wetlands

NWI results for the PSB showed no wetlands designated within the Project Site (**Appendix A, Figure 5**). Clarifier pools within the Project Site are not mapped as wetlands by the NWI, as these are part of the previously developed area of the pulp mill. Freshwater Emergent Wetland and Estuarine and Marine Wetland areas have been designated within the PSB and are further evaluated in the Project's Special Status Plant Survey and Vegetation Community Mapping/ESHA/Wetlands Evaluation Memo, Rev. 1 (GHD 2021a).

5.3 Wildlife Survey and Wildlife Habitat Evaluation Results

Evidence of past or current bat roosting activity was observed in structures at the Project Site during the January 19-20, 2020 bat habitat assessment survey. However, a lack of live or dead bats, and limited fecal pellets and urine indicate that these structures are not used for overwintering or maternity roosts (WRA 2021).

Presence of North American Porcupine *(Erethizon dorsatum)* at the Project Site and within the PSB is also possible. In addition, three nearshore marine mammal species protected under the MMPA have potential to occur within the PSB (specifically the area where terrestrial Project activities (noise/vibration generated from soil densification) may impact nearshore marine species, within the PSB). However, there is no potential for marine mammals to occur within the Project Site itself, as no suitable habitat is present (developed industrial area; no known haul-outs in the PSB). For a more detailed discussion of the potential for special status mammals to occur at the Project Site and within the PSB, see **Section 5.3.2 – Special Status Mammals.** Only marine mammal species within potential to occur in Humboldt Bay and be impacted by terrestrial Project activities (i.e., construction/demolition noise) are addressed herein. An analysis of potential marine mammal species present in the vicinity of the Project's offshore proposed effluent discharge is included in the Marine Resources Biological Evaluation (GHD 2021b).

The Project Site and PSB provide foraging and some nesting habitat for common, protected species of gulls, waterfowl, swallows, aerial piscivores, and wading birds. Evidence of nesting by swallow species, Osprey *(Pandion haliaetus),* and Common Ravens (native species all protected under the federal MBTA, California MBPA, and CFGC) was observed on buildings within the Project Site during the reconnaissance survey (See **Appendix F – On-site Species Lists**). Additionally, evidence of nesting by invasive species, Rock Pigeons and European Starlings *[Sturnus vulgaris],* was also observed. Seventeen special status bird species have a moderate to high potential of occurring (or are documented as present) at the Project Site or greater PSB. For a more detailed description of sensitive bird species likely to occur in the PSB, see **Section 5.3.2 – Special Status Birds**.

Numerous Pacific Chorus Frog (non-special status species*, Hyla/Pseudacris regilla*) tadpoles were found within the anthropogenic flooded pool and adjacent flooded trenches in the Project Site (See **USFWS IPaC** Database Search Results . Northern Red-legged Frogs (*Rana aurora*) are occasionally found in similar, anthropogenic ponds locally. Breeding and presence of dispersing Northern Red-legged Frogs at the Project Site and within the PSB is possible. For a more detailed discussion on the potential for Northern Red-legged Frogs to occur at the Project Site and within the PSB, see **Section 5.3.2 – Special Status Amphibians**.

There is no potential for special status fish species to occur within the Project Site, as no suitable aquatic habitat is present. However, presence of several special status fish within the waters of Humboldt Bay (specifically the Samoa Channel) in the PSB is possible. For a more detailed discussion on the potential for special status fish species to occur in the PSB, see **Section 5.3.2 – Special Status Fish.** Only fish species with potential to occur nearshore in the PSB (and potentially be impacted by terrestrial Project activities [i.e., noise]) are addressed herein; an analysis of potential fish species present in the vicinity of the Project's offshore proposed effluent discharge is included in the separate Marine Resources Biological Evaluation, Rev. 4 (GHD 2021b).

Presence of Obscure Bumble Bees *(Bombus caliginosus)* in the PSB is possible, although no suitable habitat is present within the Project Site itself. For a more detailed discussion on the potential for Obscure Bumble Bees to occur at the site, see **Section 5.3.2 – Special Status Insects**.

5.3.1 Special Status Wildlife

Special status wildlife species include species that are (1) listed as threatened or endangered under the ESA or the CESA; (2) proposed for federal listing as threatened or endangered; (3) state or federal candidates for listing as threatened or endangered; (4) protected by the MMPA; and/or (5) identified by the CDFW as Species of Special Concern (SSC), Watch List (WL) species, California Fully Protected (FP) species, or species on their Special Animals List (SAL) (CDFW 2020a).

The determinations in **Table 5.1** are based on database and literature review as well as information from the reconnaissance-level site visit, as no protocol-level wildlife surveys have been conducted on-site. Potential for species presence is assessed at both the level of the Project Site and within the greater PSB to account for any potential Project impacts, such as noise, that may not be confined to the delineated Project Site footprint.

Table 5.1 Potential for Special Status Wildlife Species to Occur in the Project Site and Project Study Boundary

Scientific Name	Common Name	FedList	CalList	GRank[2]	SRank[2]	Other Status	Habitat Requirements[1]	Potential to Occur in the Project Site and PSB
Mammals								
Aplodontia rufa humboldtiana	Humboldt Mountain Beaver	None	None	G5TNR	SNR	N/A	Coastal scrub | Redwood | Riparian forest. Coast Range in southwestern Del Norte County and northwestern Humboldt County. Variety of coastal habitats, including coastal scrub, riparian forests, typically with open canopy and thickly vegetated understory.	**No Potential.** Closest known record is from 1917 in Eureka, ~1.5 miles east of the Project Site, across the Humboldt Bay Samoa Channel (CDFW 2020b). Both the Project Site and greater PSB do not contain suitable habitat (e.g., riparian forest) for this species. This species has no potential to occur at the Project Site or within the PSB.
Arborimus albipes	White-footed Vole	None	None	G3G4	S2	CDFW_SSC-Species of Special Concern | IUCN_LC-Least Concern	North coast coniferous forest | Redwood | Riparian forest. Mature coastal forests in Humboldt and Del Norte counties. Prefers areas near small, clear streams with dense alder and shrubs. Occupies the habitat from the ground surface to the canopy. Feeds in all layers and nests on the ground under logs or rock.	**No Potential.** Closest known record is from 1983 on USFWS Humboldt Bay National Wildlife Refuge property near Mad River Slough, ~6.5 miles north of the Project Site (CDFW 2020b). Both the Project Site and greater PSB do not contain suitable habitat (e.g., forest) for this species. This species has no potential to occur at the Project Site or within the PSB.

Scientific Name	Common Name	FedList	CalList	GRank[2]	SRank[2]	Other Status	Habitat Requirements[1]	Potential to Occur in the Project Site and PSB
Arborimus pomo	Sonoma Tree Vole	None	None	G3	S3	CDFW_SSC-Species of Special Concern | IUCN_NT-Near Threatened	North coast coniferous forest | Oldgrowth | Redwood. North coast fog belt from Oregon border to Sonomaa County. In Douglas-fir, redwood & montane hardwood-conifer forests. Feeds almost exclusively on Douglas-fir needles. Will occasionally take needles of grand fir, hemlock or spruce.	**No Potential.** Closest known record is from 1981 in Arcata, ~7.5 miles northwest of the Project Site (CDFW 2020b). Both the Project Site and greater PSB do not contain suitable habitat (e.g., forest). This species has no potential to occur at the Project Site or within the greater PSB.
Corynorhinus townsendii	Townsend's Big-eared Bat	None	None	G3G4	S2	CDFW_SSC-Species of Special Concern | IUCN_LC-Least Concern | WBWG_H-High Priority	Broadleaved upland forest | Chaparral | Chenopod scrub | Great Basin grassland | Great Basin scrub | Joshua tree woodland | Lower montane coniferous forest | Meadow & seep | Mojavean desert scrub | Riparian forest | Riparian woodland | Sonoran desert scrub | Sonoran thorn woodland | Upper montane coniferous forest | Valley & foothill grassland. Throughout California in a wide variety of habitats. Most common in mesic sites. Roosts in the open, hanging from walls and ceilings. Roosting sites limiting. Extremely sensitive to human disturbance.	**Low Potential.** Closest known record is from 2019 in Manila, ~3.5 miles north of the Project Site (BAMVT 2020). The species will roost in anthropogenic structures as well as tree cavities (Erickson et al. 2002). Both the Project Site and greater PSB contain suitable foraging and roosting habitat for this species. Buildings within the Project Site may serve as hibernacula for this species. However, no evidence of this species was observed during the WRA January 19-20, 2021 bat habitat assessment survey (WRA 2021). Given the presence of requisite habitat, this species has a low potential to occur at the Project Site and within the greater PSB.

Scientific Name	Common Name	FedList	CalList	GRank[2]	SRank[2]	Other Status	Habitat Requirements[1]	Potential to Occur in the Project Site and PSB
Erethizon dorsatum	North American Porcupine	None	None	G5	S3	IUCN_LC-Least Concern	Broadleaved upland forest | Cismontane woodland | Closed-cone coniferous forest | Lower montane coniferous forest | North coast coniferous forest | Upper montane coniferous forest. Forested habitats in the Sierra Nevada, Cascade, and Coast ranges, with scattered observations from forested areas in the Transverse Ranges. Wide variety of coniferous and mixed woodland habitat.	**Moderate Potential.** Closest known record is from an unknown year in the 1990s along Highway 255 near Manila, ~3 miles north of the Project Site (CDFW 2020b). Porcupines along the North Coast are known to occupy the coastal dune systems (rather than more typical coniferous forest habitat elsewhere; species has been documented in similar coastal habitat throughout Humboldt County; CDFW 2020b). Both the Project Site and greater PSB contain requisite foraging habitat for this species. Given the presence of suitable habitat, this species has a moderate potential to occur at the Project Site and within the greater PSB.

Scientific Name	Common Name	FedList	CalList	GRank[2]	SRank[2]	Other Status	Habitat Requirements[1]	Potential to Occur in the Project Site and PSB
Martes caurina humboldtensis	Humboldt Marten	None	SE	G5T1	S1	CDFW_SSC-Species of Special Concern	North coast coniferous forest | Oldgrowth | Redwood. Occurs only in the coastal redwood zone from the Oregon border south to Sonoma County. Associated with late-successional coniferous forests, prefer forests with low, overhead cover.	**No Potential.** There are no recent records of this species south of the Klamath River. Current populations are only known from coastal redwood forests in Del Norte and northern Humboldt County (CDFW 2018). Only one historic record within the 7-quad search area from 1927 (near Carlotta) (CDFW 2020b). Given the lack of suitable habitat, this species has no potential to occur at the Project Site or within the greater PSB.

Scientific Name	Common Name	FedList	CalList	GRank[2]	SRank[2]	Other Status	Habitat Requirements[1]	Potential to Occur in the Project Site and PSB
Myotis evotis	Long-eared Myotis	None	None	G5	S3	IUCN_LC-Least Concern | WBWG_M-Medium Priority	Found in all brush, woodland and forest habitats from sea level to about 9000 ft. Prefers coniferous woodlands and forests. Nursery colonies in buildings, crevices, spaces under bark, and snags. Caves used primarily as night roosts.	**Low Potential.** Closest known record is from 2015 in the Arcata Bottoms, ~7 miles north of the Project Site (BAMVT 2020). This species roosts in low densities in trees, rocks, mines, buildings, bridges, and caves (Erickson et al. 2002). Both the Project Site and greater PSB contain requisite foraging and roosting habitat for this species. However, no evidence of this species was observed during the WRA January 19-20, 2021 bat habitat assessment survey (WRA 2021). Additionally, this species prefers brush, woodland and forest habitats (all of which are absent from the Project Site and PSB; WRA 2021). Given the lack of high quality habitat for this species at the Project Site or within the greater PSB, this species has a low potential to occur.

Scientific Name	Common Name	FedList	CalList	GRank[2]	SRank[2]	Other Status	Habitat Requirements[1]	Potential to Occur in the Project Site and PSB
Pekania pennanti	Fisher - West Coast DPS	None	ST	G5T2T3Q	S2S3	CDFW_SSC-Species of Special Concern	North coast coniferous forest | Oldgrowth | Riparian forest. Intermediate to large-tree stages of coniferous forests and deciduous-riparian areas with high percent canopy closure. Uses cavities, snags, logs and rocky areas for cover and denning. Needs large areas of mature, dense forest.	**No Potential.** Closest known record is from 2015 in the Sunny Brae Forest, ~8 miles northwest of the Project Site (CDFW 2020b). Both the Project Site and greater PSB do not contain suitable habitat (e.g., forest), and this species has no potential to occur.
Phoca vitulina richardii	Pacific Harbor Seal	MMPA	N/A	G5	SNR	N/A	Near-shore coastal waters and are often seen on rocky islands, sandy beaches, mudflats, bays and estuaries.	**Moderate Potential.** Subspecies is common in Humboldt Bay; has been documented in the Samoa Channel (iNaturalist 2020). Although no suitable habitat for this subspecies is present at the Project Site, the subspecies has a moderate potential to occur and forage within the greater PSB (specifically the Samoa Channel). Haul out sites are not located near the PSB (CDFW 2012).

Scientific Name	Common Name	FedList	CalList	GRank[2]	SRank[2]	Other Status	Habitat Requirements[1]	Potential to Occur in the Project Site and PSB
Phocoena phocoena	Harbor Porpoise	MMPA	N/A	G4	SNR	N/A	Marine and bay waters.	**Moderate Potential.** Subspecies is common in Humboldt Bay; has been documented in the Samoa Channel (iNaturalist 2020). Although no suitable habitat for this subspecies is present at the Project Site, the subspecies has a moderate potential to occur and forage within the greater PSB (specifically the Samoa Channel).
Zalophus californianus	California Sea Lion	MMPA	N/A	G5	SNR	N/A	Marine and bay waters.	**Moderate Potential.** Species is common in Humboldt Bay; has been documented in the Samoa Channel (iNaturalist 2020). Although no suitable habitat for this species is present at the Project Site, the species has a moderate potential to occur and forage within the greater PSB (specifically the Samoa Channel).

Scientific Name	Common Name	FedList	CalList	GRank[2]	SRank[2]	Other Status	Habitat Requirements[1]	Potential to Occur in the Project Site and PSB
Birds								
Accipiter striatus	Sharp-shinned Hawk	None	None	G5	S4	CDFW_WL-Watch List | IUCN_LC-Least Concern	Cismontane woodland | Lower montane coniferous forest | Riparian forest | Riparian woodland. Ponderosa pine, black oak, riparian deciduous, mixed conifer, and Jeffrey pine habitats. Prefers riparian areas. North-facing slopes with plucking perches are critical requirements. Nests usually within 275 ft of water.	**Present.** Multiple recent records from the immediate Project vicinity, ~5 miles (eBird 2020). This is a common species known to nest and forage in urban and rural areas. The Project Site contains requisite foraging habitat for this species. The greater PSB contains requisite nesting and foraging habitat for this species. A dead Sharp-shinned Hawk was observed on-site during reconnaissance survey. As this species has been detected on the Project Site, presence is assumed.

Scientific Name	Common Name	FedList	CalList	GRank[2]	SRank[2]	Other Status	Habitat Requirements[1]	Potential to Occur in the Project Site and PSB
Ardea alba	Great Egret	None	None	G5	S4	IUCN_LC-Least Concern	Brackish marsh | Estuary | Freshwater marsh | Marsh & swamp | Riparian forest | Wetland. Colonial nester in large trees. Rookery sites located near marshes, tide-flats, irrigated pastures, and margins of rivers and lakes.	**Moderate Potential.** Numerous recent records from the immediate Project vicinity, ~5 miles, including evidence of nesting (e.g., rookeries such as Indian Island) (CDFW 2020b, eBird 2020). There is a recent record from the Project Site (eBird 2020). The Project Site contains marginal foraging habitat for this species. The greater PSB contains requisite foraging habitat for this species along the Humboldt Bay shoreline. Given the presence of suitable habitat and recent records from the vicinity, this species has a moderate potential to occur at the Project Site and within the greater PSB.

Scientific Name	Common Name	FedList	CalList	GRank[2]	SRank[2]	Other Status	Habitat Requirements[1]	Potential to Occur in the Project Site and PSB
Ardea herodias	Great Blue Heron	None	None	G5	S4	IUCN_LC-Least Concern	Brackish marsh | Estuary | Freshwater marsh | Marsh & swamp | Riparian forest | Wetland. Colonial nester in tall trees, cliffsides, and sequestered spots on marshes. Rookery sites in close proximity to foraging areas: marshes, lake margins, tide-flats, rivers and streams, wet meadows.	**Moderate Potential.** Numerous recent records from the immediate Project vicinity, ~5 miles, including evidence of nesting (e.g., rookeries such as Indian Island) (CDFW 2020b, eBird 2020). There is a recent record from the Project Site (eBird 2020). Both the Project Site and greater PSB contain requisite foraging habitat for this species. Given the presence of suitable habitat and recent records from the vicinity, this species has a moderate potential to occur at the Project Site and within the greater PSB.
Asio flammeus	Short-eared Owl	None	None	G5	S3	CDFW_SSC-Species of Special Concern | IUCN_LC-Least Concern	Great Basin grassland | Marsh & swamp | Meadow & seep | Valley & foothill grassland | Wetland. Found in swamp lands, both fresh and salt; lowland meadows; irrigated alfalfa fields. Tule patches/tall grass needed for nesting/daytime seclusion. Nests on dry ground in depression concealed in vegetation.	**Low Potential.** Closest known record is from 1999 in Fairhaven, ~ 1.5 miles south of the Project Site. Both the Project Site and greater PSB contain marginal foraging habitat for this species. However, neither contain requisite nesting habitat (e.g., tall vegetation). Given the lack of high quality habitat for this species at the Project Site or within the greater PSB, this species has a low potential to occur.

Scientific Name	Common Name	FedList	CalList	GRank[2]	SRank[2]	Other Status	Habitat Requirements[1]	Potential to Occur in the Project Site and PSB
Athene cunicularia	Burrowing Owl	None	None	G4	S3	CDFW_SSC-Species of Special Concern | IUCN_LC-Least Concern | USFWS_BCC-Birds of Conservation Concern	Coastal prairie | Coastal scrub | Great Basin grassland | Great Basin scrub | Mojavean desert scrub | Sonoran desert scrub | Valley & foothill grassland. Open, dry annual or perennial grasslands, deserts, and scrublands characterized by low-growing vegetation. Subterranean nester, dependent upon burrowing mammals, most notably, the California ground squirrel.	**Low Potential.** Closest known record is from 2018 on the ocean-side beach near the Samoa Pump Station, ~1 mile north of the Project Site (eBird 2020). Both the Project Site and greater PSB contain overwintering habitat for this species. However, this species is not known to breed in Humboldt County. This species has a low potential to occur at the Project Site and within the greater PSB.
Brachyramphus marmoratus	Marbled Murrelet	FT	SE	G3G4	S1	IUCN_EN-Endangered	Lower montane coniferous forest | Oldgrowth | Redwood. Feeds near-shore; nests inland along coast from Eureka to Oregon border and from Half Moon Bay to Santa Cruz. Nests in old-growth redwood-dominated forests, up to six miles inland, often in Douglas-fir.	**Moderate Potential.** Numerous near-shore records along the Samoa Peninsula (both Pacific side and Bay side; CDFW 2020b, eBird 2020). Although there is no suitable foraging or nesting habitat within the Project Site or greater PSB, there is ample suitable foraging habitat east of the Project Site (Humboldt Bay Samoa Channel). The species has no potential to occur at the Project Site itself. However, this species has a moderate potential to occur and forage in the greater PSB (i.e., specifically Humboldt Bay Samoa Channel to the east).

Scientific Name	Common Name	FedList	CalList	GRank[2]	SRank[2]	Other Status	Habitat Requirements[1]	Potential to Occur in the Project Site and PSB
Branta bernicla	Brant	None	None	G5	S2?	CDFW_SSC-Species of Special Concern | IUCN_LC-Least Concern	Estuary | Marine bay | Mud shore/flats. Requires well-protected, shallow marine waters with intertidal eel-grass beds, primarily within bays and estuaries. At high tide they need sheltered open water or protected beaches for loafing. Primary food is eel-grass. Distribution is closely tied to abundance of eel-grass. Brant often feed close to mudflats, sandbars or spits used as gritting sites.	**Moderate Potential.** Multiple recent records from the immediate Project vicinity (migration/winter; this species does not breed in Humboldt County), ~5 miles (eBird 2020). Closest known record is from 2017 in Humboldt Bay within the PSB (eBird 2020). The Project Site does not contain suitable habitat for this species. The greater PSB contains requisite foraging and overwintering habitat within Humboldt Bay. The species has no potential to occur at the Project Site but a moderate potential to occur within the greater PSB.

Scientific Name	Common Name	FedList	CalList	GRank[2]	SRank[2]	Other Status	Habitat Requirements[1]	Potential to Occur in the Project Site and PSB
Chaetura vauxi	Vaux's Swift	None	None	G5	S2S3	CDFW_SSC-Species of Special Concern | IUCN_LC-Least Concern	Lower montane coniferous forest | North coast coniferous forest | Oldgrowth | Redwood. Redwood, Douglas-fir, & other coniferous forests. Nests in large hollow trees & snags. Often nests in flocks. Forages over most terrains and habitats but shows a preference for foraging over rivers and lakes.	**Moderate Potential.** Multiple recent records from the immediate Project vicinity, ~5 miles (eBird 2020). Closest known record is from 2019 in the town of Samoa, within 1 mile of the Project Site (eBird 2020). No nesting habitat is not present within the Project Site or greater PSB. However, the species is a generalist when it comes to foraging habitat, and presence is possible. This species has a moderate potential to forage at the Project Site or within the PSB.
Charadrius montanus	Mountain Plover	None	None	G3	S2S3	CDFW_SSC-Species of Special Concern | IUCN_NT-Near Threatened | USFWS_BCC-Birds of Conservation Concern	Chenopod scrub | Valley & foothill grassland. Short grasslands, freshly plowed fields, newly sprouting grain fields, & sometimes sod farms. Short vegetation, bare ground, and flat topography. Prefers grazed areas and areas with burrowing rodents.	**Low Potential.** A few recent records from immediate Project vicinity, ~5 miles (eBird 2020). Closest known record is from 1974 in Fairhaven, ~1 mile south (eBird 2020). The species is a rare migrant in Humboldt County. Both the Project Site and greater PSB do not contain suitable habitat (e.g., scrub, grassland) for this species. This species has a low potential to occur.

Scientific Name	Common Name	FedList	CalList	GRank[2]	SRank[2]	Other Status	Habitat Requirements[1]	Potential to Occur in the Project Site and PSB
Charadrius nivosus nivosus	Western Snowy Plover	FT	None	G3T3	S2S3	CDFW_SSC-Species of Special Concern | USFWS_BCC-Birds of Conservation Concern	Great Basin standing waters | Sand shore | Wetland. Sandy beaches, salt pond levees & shores of large alkali lakes. Needs sandy, gravelly or friable soils for nesting.	**Low Potential.** Multiple recent records from the North Spit in the immediate Project vicinity, ~5 miles (CDFW 2020b, eBird 2020). Closest known record is from 2018 on the ocean side beach of the North Spit across from Bay St., ~0.5 miles southwest of the Project Site (eBird 2020). The Project Site does not contain suitable habitat (e.g., coastal beaches, gravel bars, salt pans, etc.) for this species. In addition, the majority of the PSB does not contain suitable habitat for this species, with the exception of the ocean-fronting sliver of beach with the PSB on the west side of the North Spit (separated from the Project Site by several roads and areas of development; no work would occur in or near this area). This species has no potential to occur at the Project Site and only very low potential to occur within the greater PSB (specifically restricted to the sliver of ocean-front beach on the west side of North Spit). .

Scientific Name	Common Name	FedList	CalList	GRank[2]	SRank[2]	Other Status	Habitat Requirements[1]	Potential to Occur in the Project Site and PSB
Circus hudsonius	Northern Harrier	None	None	G5	S3	CDFW_SSC-Species of Special Concern | IUCN_LC-Least Concern	Coastal scrub | Great Basin grassland | Marsh & swamp | Riparian scrub | Valley & foothill grassland | Wetland. Coastal salt & freshwater marsh. Nest and forage in grasslands, from salt grass in desert sink to mountain cienagas. Nests on ground in shrubby vegetation, usually at marsh edge; nest built of a large mound of sticks in wet areas.	**High Potential.** Multiple recent records from the immediate Project vicinity, ~5 miles, including evidence of nesting (CDFW 2020b, eBird 2020). Closest known record is from 1991 within the Project Site (eBird 2020). Both the Project Site and greater PSB contain suitable nesting and foraging habitat for this species. This species has a high potential to occur within the Project Site and greater PSB.
Coccyzus americanus occidentalis	Western Yellow-billed Cuckoo	FT	SE	G5T2T3	S1	USFWS_BCC-Birds of Conservation Concern	Riparian forest. Riparian forest nester, along the broad, lower flood-bottoms of larger river systems. Nests in riparian jungles of willow, often mixed with cottonwoods, with lower story of blackberry, nettles, or wild grape.	**No Potential.** Closest known record is from 2015 in the Arcata Marsh, ~6 miles northeast of the Project Site (eBird 2020). The Project Site and greater PSB do not contain suitable nesting and foraging (e.g., riparian forest) habitat for this species, and this species has no potential to occur.

Scientific Name	Common Name	FedList	CalList	GRank[2]	SRank[2]	Other Status	Habitat Requirements[1]	Potential to Occur in the Project Site and PSB
Coturnicops noveboracensis	Yellow Rail	None	None	G4	S1S2	CDFW_SSC-Species of Special Concern | IUCN_LC-Least Concern | USFWS_BCC-Birds of Conservation Concern	Freshwater marsh | Meadow & seep. Summer resident in eastern Sierra Nevada in Mono County. Freshwater marshlands.	**No Potential.** Closest known record is from 1987 on the North Spit south of Samoa, within 1 mile of the Project Site (cat-caught incidental, outside of the species' current range; CDFW 2020b). Both the Project Site and greater PSB do not contain suitable habitat (e.g., freshwater marsh) for this species. In addition, Humboldt County is outside the species current range. This species has no potential to occur.

Scientific Name	Common Name	FedList	CalList	GRank[2]	SRank[2]	Other Status	Habitat Requirements[1]	Potential to Occur in the Project Site and PSB
Egretta thula	Snowy Egret	None	None	G5	S4	IUCN_LC-Least Concern	Marsh & swamp | Meadow & seep | Riparian forest | Riparian woodland | Wetland. Colonial nester, with nest sites situated in protected beds of dense tules. Rookery sites situated close to foraging areas: marshes, tidal-flats, streams, wet meadows, and borders of lakes.	**Moderate Potential.** Numerous recent records from the immediate Project vicinity, ~5 miles, including evidence of nesting (e.g., rookeries such as Indian Island) (CDFW 2020b, eBird 2020). There is a recent record from the Project Site (eBird 2020). The Project Site contains marginal foraging habitat for this species. The greater PSB contains requisite foraging habitat for this species along the Humboldt Bay shoreline. Given the presence of suitable habitat and recent records from the vicinity, this species has a moderate potential to occur at the Project Site and within the greater PSB.

Scientific Name	Common Name	FedList	CalList	GRank[2]	SRank[2]	Other Status	Habitat Requirements[1]	Potential to Occur in the Project Site and PSB
Elanus leucurus	White-tailed Kite	None	None	G5	S3S4	CDFW_FP-Fully Protected | IUCN_LC-Least Concern	Cismontane woodland | Marsh & swamp | Riparian woodland | Valley & foothill grassland | Wetland. Rolling foothills and valley margins with scattered oaks & river bottomlands or marshes next to deciduous woodland. Open grasslands, meadows, or marshes for foraging close to isolated, dense-topped trees for nesting and perching.	**Moderate Potential.** Multiple recent records from the immediate Project vicinity, ~5 miles, including evidence of nesting (CDFW 2020b, eBird 2020). Closest known record is from 1991 within the Project Site (eBird 2020). Both the Project Site and greater PSB contain requisite nesting and foraging habitat. This species has a moderate potential to occur at the Project Site and within the greater PSB.

Scientific Name	Common Name	FedList	CalList	GRank[2]	SRank[2]	Other Status	Habitat Requirements[1]	Potential to Occur in the Project Site and PSB
Falco mexicanus	Prairie Falcon	None	None	G5	S4	CDFW_WL-Watch List | IUCN_LC-Least Concern | USFWS_BCC-Birds of Conservation Concern	Great Basin grassland | Great Basin scrub | Mojavean desert scrub | Sonoran desert scrub | Valley & foothill grassland. Inhabits dry, open terrain, either level or hilly. Breeding sites located on cliffs. Forages far afield, even to marshlands and ocean shores.	**Low Potential.** A few overwintering records from the immediate Project vicinity, ~5 miles (the species does not breed in Humboldt County; eBird 2020). Closest known record is from 2013 on the North Spit, within 0.5 miles of the Project Site (eBird 2020). The Project Site does not contain suitable habitat for this species. The greater PSB may provide suitable wintering habitat. However, the species is an uncommon migrant and wintering bird in the vicinity. This species has no potential to occur at the Project Site and low potential to occur within the greater PSB.

Scientific Name	Common Name	FedList	CalList	GRank[2]	SRank[2]	Other Status	Habitat Requirements[1]	Potential to Occur in the Project Site and PSB
Falco peregrinus anatum	American Peregrine Falcon	FD	SD	G4T4	S3S4	CDF_S-Sensitive | CDFW_FP-Fully Protected | USFWS_BCC-Birds of Conservation Concern	Near wetlands, lakes, rivers, or other water; on cliffs, banks, dunes, mounds; also, human-made structures. Nest consists of a scrape or a depression or ledge in an open site.	**Moderate Potential.** There are multiple recent records from the immediate Project vicinity, ~5 miles (eBird 2020). Closest known record is from 2020 in Humboldt Bay within the PSB (eBird 2020). There is a known breeding pair at the Samoa Bridge, approximately 2 miles east (eBird 2020). Both the Project Site and greater PSB contain requisite nesting and foraging habitat. This species has a moderate potential to occur at the Project Site and within the greater PSB.

Scientific Name	Common Name	FedList	CalList	GRank[2]	SRank[2]	Other Status	Habitat Requirements[1]	Potential to Occur in the Project Site and PSB
Haliaeetus leucocephalus	Bald Eagle	FD	SE	G5	S3	CDFW_FP-Fully Protected | IUCN_LC-Least Concern | USFWS_BCC-Birds of Conservation Concern	Lower montane coniferous forest | Oldgrowth. Ocean shore, lake margins, and rivers for both nesting and wintering. Most nests within 1 mile of water. Nests in large, old-growth, or dominant live tree with open branches, especially ponderosa pine. Roosts communally in winter.	**Moderate Potential.** Multiple recent records from the immediate Project vicinity, ~5 miles (eBird 2020). Closest known record is from 2009 in the town of Samoa, within 1 mile of the Project Site (eBird 2020). The Project Site does not contain suitable habitat for this species. The greater PSB contains requisite foraging habitat within Humboldt Bay. Neither the Project Site nor the PSB contain requisite nesting habitat (e.g., large trees). The species has no potential to occur at the Project Site. However, this species has a moderate potential to occur and forage within the greater PSB (i.e., Humboldt Bay Samoa Channel).

Scientific Name	Common Name	FedList	CalList	GRank[2]	SRank[2]	Other Status	Habitat Requirements[1]	Potential to Occur in the Project Site and PSB
Histrionicus histrionicus	Harlequin Duck	None	None	G4	S1	CDFW_SSC-Species of Special Concern | IUCN_LC-Least Concern	Riparian scrub | Sacramento/San Joaquin flowing waters. Breeds on west slope of the Sierra Nevada, nesting along shores of swift, shallow rivers. Nest often built in a recess, sheltered overhead by stream bank, rocks, woody debris, usually within 7 ft of water.	**Low Potential.** Incidental seasonal records from the immediate Project vicinity, ~5 miles (eBird 2020). Closest known record is from 2016 in Humboldt Bay within the PSB (eBird 2020). The Project Site does not contain suitable habitat for this species. The greater PSB contains requisite foraging habitat within Humboldt Bay. This species has no potential to occur at the Project Site and a low potential to occur, seasonally, within the greater PSB.

Scientific Name	Common Name	FedList	CalList	GRank[2]	SRank[2]	Other Status	Habitat Requirements[1]	Potential to Occur in the Project Site and PSB
Hydroprogne caspia	Caspian Tern	None	None	G5	S4	IUCN_LC-Least Concern | USFWS_BCC-Birds of Conservation Concern	Nests on sandy or gravelly beaches and shell banks in small colonies inland and along the coast. Inland freshwater lakes and marshes; also, brackish or salt waters of estuaries and bays.	**Moderate Potential.** Multiple recent records from the immediate Project vicinity, ~5 miles (eBird 2020). Closest known record is from 2019 in Humboldt Bay within the PSB (eBird 2020). The Project Site does not contain suitable foraging habitat for this species. The greater PSB contains requisite foraging habitat within Humboldt Bay. However, neither contain requisite nesting habitat (e.g., sandy beaches). This species has no potential to occur at the Project Site, but a moderate potential to occur and forage within the greater PSB (in addition, may perch on the dock to the east of the Project Site).

Scientific Name	Common Name	FedList	CalList	GRank[2]	SRank[2]	Other Status	Habitat Requirements[1]	Potential to Occur in the Project Site and PSB
Numenius americanus	Long-billed Curlew	None	None	G5	S2	CDFW_WL-Watch List | IUCN_LC-Least Concern | USFWS_BCC-Birds of Conservation Concern	Great Basin grassland | Meadow & seep. Breeds in upland shortgrass prairies and wet meadows in northeastern California. Habitats on gravelly soils and gently rolling terrain are favored over others.	**Moderate Potential.** Multiple records from the immediate Project vicinity, ~5 miles (migration and winter; species does not breed in Humboldt County; eBird 2020). Closest known record is from 2019 within the Project Site (eBird 2020). The Project Site does not contain suitable habitat for this species. The greater PSB contains requisite foraging habitat for this species along the Humboldt Bay shoreline. This species has no potential to occur at the Project Site and a moderate potential to occur, seasonally, within the greater PSB.

Scientific Name	Common Name	FedList	CalList	GRank[2]	SRank[2]	Other Status	Habitat Requirements[1]	Potential to Occur in the Project Site and PSB
Nycticorax nycticorax	Black-crowned Night-heron	None	None	G5	S4	IUCN_LC-Least Concern	Marsh & swamp | Riparian forest | Riparian woodland | Wetland. Colonial nester, usually in trees, occasionally in tule patches. Rookery sites located adjacent to foraging areas: lake margins, mud-bordered bays, marshy spots.	**Moderate Potential.** Numerous recent records from the immediate Project vicinity, ~5 miles, including evidence of nesting (e.g., rookeries such as Indian Island) (CDFW 2020b, eBird 2020). There is a recent record from the Project Site (eBird 2020). The Project Site contains marginal foraging habitat for this species. The greater PSB contains requisite foraging habitat for this species along the Humboldt Bay shoreline. Given the presence of suitable habitat and recent records from the vicinity, this species has a moderate potential to occur at the Project Site and within the greater PSB.
Pandion haliaetus	Osprey	None	None	G5	S4	CDFW_WL-Watch List | IUCN_LC-Least Concern	Riparian forest. Ocean shore, bays, freshwater lakes, and larger streams. Large nests built in tree-tops within 15 miles of a good fish-producing body of water.	**Present.** Numerous documented nest sites within and adjacent to Project Site.

Scientific Name	Common Name	FedList	CalList	GRank[2]	SRank[2]	Other Status	Habitat Requirements[1]	Potential to Occur in the Project Site and PSB
Phalacrocorax auritus	Double-crested Cormorant	None	None	G5	S4	CDFW_WL-Watch List | IUCN_LC-Least Concern	Riparian forest | Riparian scrub | Riparian woodland. Colonial nester on coastal cliffs, offshore islands, and along lake margins in the interior of the state. Nests along coast on sequestered islets, usually on ground with sloping surface, or in tall trees along lake margins.	**Moderate Potential.** Numerous recent records from the immediate Project vicinity, ~5 miles, including two historic breeding colonies occupied as recently as 2017 (CDFW 2020b, eBird 2020, Capitolo et al. 2017). Closest known record is from 1991 within the Project Site (eBird 2020). The Project Site does not contain suitable habitat for this species. The greater PSB contains requisite foraging habitat within the Humboldt Bay. However, neither contain requisite nesting habitat (e.g., islands or tall trees). This species has no potential to occur at the Project Site and a moderate potential to occur within the greater PSB.

Scientific Name	Common Name	FedList	CalList	GRank[2]	SRank[2]	Other Status	Habitat Requirements[1]	Potential to Occur in the Project Site and PSB
Phoebastria albatrus	Short-tailed Albatross	FE	N	G1	S1	CDFW_SSC-Species of Special Concern | IUCN_VU-Vulnerable	Offshore Japanese Islands | Northern Pacific Ocean | Sea of Okhotsk. Islands with bare ground/grass surrounded by cliffs Nests consist of large scoops lined with grass in open, grassy areas. Forages at upwellings in the ocean.	**No Potential.** Species is extremely rare along the west coast of the U.S. (non-breeding season only). Only breeds on offshore islands in Japan and recently Midway atoll (BirdLife International 2020). The Project Site and greater PSB do not contain any suitable habitat (e.g., islands, coastal areas) for this species. This species has no potential to occur at the Project Site or within the greater PSB.
Pelecanus occidentalis californicus	California Brown Pelican	FD	SD	G4T3T4	S3	CDFW_FP-Fully Protected	Colonial nester on coastal islands just outside the surf line. Nests on coastal islands of small to moderate size which afford immunity from attack by ground-dwelling predators. Roosts communally.	**Moderate Potential.** Multiple recent records from the immediate Project vicinity, ~5 miles (eBird 2020). Closest known record is from 2019 within the PSB (eBird 2020). The Project Site does not contain suitable habitat for this species. The greater PSB contains requisite foraging and roosting habitat within Humboldt Bay (this species is not known to breed in Humboldt County). This species has no potential to occur at the Project Site and a moderate potential to occur within the greater PSB.

Scientific Name	Common Name	FedList	CalList	GRank[2]	SRank[2]	Other Status	Habitat Requirements[1]	Potential to Occur in the Project Site and PSB
Rallus obsoletus obsoletus	California Ridgway's Rail	FE	SE	G5T1	S1	CDFW_FP-Fully Protected	Brackish marsh | Marsh & swamp | Salt marsh | Wetland. Salt water and brackish marshes traversed by tidal sloughs in the vicinity of San Francisco Bay. Associated with abundant growths of pickleweed, but feeds away from cover on invertebrates from mud-bottomed sloughs.	**No Potential.** Two historical records from 7-quad search area (CDFW 2020b). Closest known record is from 1932 on Indian Island, within 1 mile northwest of the Project Site. The Project Site is located outside the current range of this species, which is believed to be extirpated in Humboldt County. The subspecies has no potential to occur at the Project Site or within the greater PSB.
Riparia riparia	Bank Swallow	None	ST	G5	S2	IUCN_LC-Least Concern	Riparian scrub | Riparian woodland. Colonial nester; nests primarily in riparian and other lowland habitats west of the desert. Requires vertical banks/cliffs with fine-textured/sandy soils near streams, rivers, lakes, ocean to dig nesting hole.	**Moderate Potential.** Numerous recent records from the immediate Project vicinity, ~5 miles, including evidence of historical nesting (eBird 2020). Closest known record is from 2017 on the North Spit, ~1 mile south of the Project Site (eBird 2020). The Project Site and greater PSB do not contain suitable nesting habitat for this species. However, suitable foraging habitat is present. This species has a moderate potential to occur and forage at the Project Site and within the greater PSB.

Scientific Name	Common Name	FedList	CalList	GRank[2]	SRank[2]	Other Status	Habitat Requirements[1]	Potential to Occur in the Project Site and PSB
Strix occidentalis caurina	Northern Spotted Owl	FT	ST	G3T3	S2S3	IUCN_NT-Near Threatened	North coast coniferous forest | Oldgrowth | Redwood. Old-growth forests or mixed stands of old-growth and mature trees. Occasionally in younger forests with patches of big trees. High, multistory canopy dominated by big trees, many trees with cavities or broken tops, woody debris, and space under canopy.	**No Potential.** Although there are numerous known records within ~5 miles, these are at the periphery of that distance and within forested habitat (CDFW 2020b). Closest positive observation is from 1995, ~4 miles southeast of the Project Site (CDFW 2020b). The Project Site and greater PSB do not contain suitable habitat (e.g., North Coast coniferous forest) for this species. This species has no potential to occur at the Project Site or within the greater PSB.

Scientific Name	Common Name	FedList	CalList	GRank[2]	SRank[2]	Other Status	Habitat Requirements[1]	Potential to Occur in the Project Site and PSB
Reptiles								
Emys marmorata	Western Pond Turtle	None	None	G3G4	S3	CDFW_SSC-Species of Special Concern | IUCN_VU-Vulnerable	Aquatic | Artificial flowing waters | Klamath/North coast flowing waters | Klamath/North coast standing waters | Marsh & swamp | Sacramento/San Joaquin flowing waters | Sacramento/San Joaquin standing waters | South coast flowing waters | South coast standing waters | Wetland. A thoroughly aquatic turtle of ponds, marshes, rivers, streams and irrigation ditches, usually with aquatic vegetation, below 6000 ft elevation. Needs basking sites and suitable (sandy banks or grassy open fields) upland habitat up to 0.5 km from water for egg-laying.	**Low Potential.** Closest known record is from 2013 in Martin Slough, ~3 miles southeast of the Project Site, across the Humboldt Bay channel (CDFW 2020b). Both the Project Site and greater PSB do not contain freshwater aquatic habitat or nearby upland habitats suitable for this species. A few anecdotal reports from the Samoa Peninsula are believed to be captive releases because the coastal climate is thought to be too cool to support breeding. This species has a low potential to occur at the Project Site and within the greater PSB.
Amphibians								
Ascaphus truei	Pacific Tailed Frog	None	None	G4	S3S4	CDFW_SSC-Species of Special Concern | IUCN_LC-Least Concern	Aquatic | Klamath/North coast flowing waters | Lower montane coniferous forest | North coast coniferous forest | Redwood | Riparian forest. Occurs in montane hardwood-conifer, redwood, Douglas-fir & ponderosa pine habitats. Restricted to perennial montane streams. Tadpoles require water below 15 degrees C.	**No Potential.** Closest known record is from 2008 near Indianola, ~6.5 miles northeast of the Project Site (CDFW 2020b). Both the Project Site and greater PSB do not contain suitable habitat (e.g., high-gradient rocky stream) for this species. This species has no potential to occur at the Project Site or within the greater PSB.

Scientific Name	Common Name	FedList	CalList	GRank[2]	SRank[2]	Other Status	Habitat Requirements[1]	Potential to Occur in the Project Site and PSB
Rana aurora	Northern Red-legged Frog	None	None	G4	S3	CDFW_SSC-Species of Special Concern | IUCN_LC-Least Concern	Klamath/North coast flowing waters | Riparian forest | Riparian woodland. Humid forests, woodlands, grasslands, and streamsides in northwestern California, usually near dense riparian cover. Generally near permanent water, but can be found far from water, in damp woods and meadows, during non-breeding season.	**Moderate Potential.** Numerous recent records from the immediate Project vicinity, ~5 miles (CDFW 2020b). The Project Site contains some habitat for this species(specifically anthropogenic pools on-site) where other frog species were observed. Suitable habitat is present within the Project Site (specifically in the man-made rectangular pool), as well as within the greater PSB. This species has a moderate potential to occur at the Project Site and within the greater PSB.
Rana boylii	Foothill Yellow-legged Frog	None	Northwest/ North clade not listed.	G3	S3	CDFW_SSC-Species of Special Concern | IUCN_NT-Near Threatened	Aquatic | Chaparral | Cismontane woodland | Coastal scrub | Klamath/North coast flowing waters | Lower montane coniferous forest | Meadow & seep | Riparian forest | Riparian woodland | Sacramento/San Joaquin flowing waters. Partly-shaded, shallow streams and riffles with a rocky substrate in a variety of habitats. Needs at least some cobble-sized substrate for egg-laying. Needs at least 15 weeks to attain metamorphosis.	**No Potential.** Closest known record is from 2008 near Indianola, ~6.5 miles northeast of the Project Site (CDFW 2020b). Both the Project Site and greater PSB do not contain suitable habitat (e.g., rocky stream/river) for this species. This species has no potential to occur at the Project Site or within the greater PSB.

Scientific Name	Common Name	FedList	CalList	GRank[2]	SRank[2]	Other Status	Habitat Requirements[1]	Potential to Occur in the Project Site and PSB
Rhyacotriton variegatus	Southern Torrent Salamander	None	None	G3G4	S2S3	CDFW_SSC-Species of Special Concern | IUCN_LC-Least Concern	Lower montane coniferous forest | Oldgrowth | Redwood | Riparian forest. Coastal redwood, Douglas-fir, mixed conifer, montane riparian, and montane hardwood-conifer habitats. Old growth forest. Cold, well-shaded, permanent streams and seepages, or within splash zone or on moss-covered rocks within trickling water.	**No Potential.** Closest known record is from 2013 on timberland property east of Eureka, ~7 miles east of the Project Site (CDFW 2020b). Both the Project Site and greater PSB do not contain suitable habitat (e.g., high-gradient rocky stream) for this species. This species has no potential to occur at the Project Site or within the greater PSB.

Scientific Name	Common Name	FedList	CalList	GRank[2]	SRank[2]	Other Status	Habitat Requirements[1]	Potential to Occur in the Project Site and PSB
Fish								
Acipenser medirostris	Green Sturgeon, Southern DPS	FT	None	G3	S1S2	AFS_VU-Vulnerable | CDFW_SSC-Species of Special Concern | IUCN_NT-Near Threatened | NMFS_SC-Species of Concern	Aquatic | Klamath/North coast flowing waters | Sacramento/San Joaquin flowing waters. These are the most marine species of sturgeon. Abundance increases northward of Point Conception. Spawns in the Sacramento, Klamath, & Trinity Rivers. Spawns at temps between 8-14 C. Preferred spawning substrate is large cobble, but can range from clean sand to bedrock.	**Moderate Potential.** Green Sturgeon are known to occur in Humboldt Bay, and both the northern and southern DPS are present (Pinnix 2010). Although individual fish may be present throughout Humboldt Bay, density is highest in the northern part of the Bay. Green sturgeon generally enter the Bay in April or May and depart by September or October, with some fish spending only a day or two and others remaining for extended periods up to several months. Humboldt Bay is apparently an important summer feeding resource (Pinnix 2010). This species has no potential to occur at the Project Site, as no aquatic habitat is present. However, this species has a moderate potential to occur within the greater PSB (specifically the eastern edge of the PSB that overlaps the Humboldt Bay Samoa Channel).

Scientific Name	Common Name	FedList	CalList	GRank[2]	SRank[2]	Other Status	Habitat Requirements[1]	Potential to Occur in the Project Site and PSB
Entosphenus tridentatus	Pacific Lamprey	None	None	G4	S4	AFS_VU-Vulnerable | CDFW_SSC-Species of Special Concern	Aquatic | Klamath/North coast flowing waters | Sacramento/San Joaquin flowing waters | South coast flowing waters. Found in Pacific Coast streams north of San Luis Obispo County, however regular runs in Santa Clara River. Size of runs is declining. Swift-current gravel-bottomed areas for spawning with water temps between 12-18 C. Ammocoetes need soft sand or mud.	**Moderate Potential.** Pacific Lamprey move through Humboldt Bay during migration to and from freshwater spawning habitat (in-migration of adults, who die after breeding, and out-migration of juveniles). It is currently unknown how much time the species spends in Humboldt Bay before entering the Pacific Ocean (Stillwater Sciences 2016). This species has no potential to occur at the Project Site, as no aquatic habitat is present. However, seasonal presence of this species in the PSB cannot be excluded; the species has a moderate potential to seasonally occur in the greater PSB (specifically the Samoa Channel).

Eucyclogobius newberryi	Tidewater Goby	FE	None	G3	S3	AFS_EN-Endangered | CDFW_SSC-Species of Special Concern | IUCN_VU-Vulnerable	Aquatic | Klamath/North coast flowing waters | Sacramento/San Joaquin flowing waters | South coast flowing waters. Brackish water habitats along the California coast from Agua Hedionda Lagoon, San Diego County to the mouth of the Smith River. Found in shallow lagoons and lower stream reaches, they need fairly still but not stagnant water and high oxygen levels.	**Low Potential.** The Tidewater Goby occurs in "multiple but small dispersed habitats" around Humboldt Bay (Chamberlain 2006). Most currently known populations are in tributaries to the northern part of Humboldt Bay (Arcata Bay). Closest known record is from 2013 in the vicinity of Swain Slough and Elk River, ~3.25 south of the Project Site (CDFW 2020b). Aquatic habitat within the PSB (Humboldt Bay Samoa Channel) is characterized by turbid and saline water with minimal freshwater input (no creeks or estuaries in the immediate area) and limited vegetative cover. Since Tidewater Gobies prefer the stagnant, shallow brackish to freshwater conditions of lagoons, sloughs, and estuaries, and because there are no known records from the open fully tidal and saline waters of Humboldt Bay, the PSB does not contain suitable Tidewater Goby habitat. This species has no potential to occur at the Project Site, as no aquatic habitat is present. This species has only a very low potential to occur

Scientific Name	Common Name	FedList	CalList	GRank[2]	SRank[2]	Other Status	Habitat Requirements[1]	Potential to Occur in the Project Site and PSB
								within the greater PSB (specifically the Samoa Channel).
Lampetra richardsoni	Western Brook Lamprey	None	None	G4G5	S3S4	CDFW_SSC-Species of Special Concern	Aquatic | Freshwater rivers and streams.	**No Potential.** This species is a non-migratory lamprey that resides in freshwater. No suitable habitat is present at the Project Site or within the PSB, and this species has no potential to occur
Oncorhynchus clarkii clarkii	Coastal Cutthroat Trout	None	None	G4T4	S3	AFS_VU-Vulnerable | CDFW_SSC-Species of Special Concern	Aquatic | Klamath/North coast flowing waters. Small coastal streams from the Eel River to the Oregon border. Small, low gradient coastal streams and estuaries. Needs shaded streams with water temperatures <18C, and small gravel for spawning.	**Low Potential.** Closest known record is from 2014 in Freshwater Creek, ~2.5 miles east of the Project Site (CDFW 2020). The Project Site does not contain suitable habitat for this species. The PSB only contains marginal foraging habitat for this species (turbid, channelized area with no complex habitat structure) within Humboldt Bay. No spawning or rearing habitat is present within either. This species has no potential to occur at the Project Site, as no aquatic habitat is present. Thisspecies has only a low potential to occur, seasonally, within the greater PSB (specifically the Samoa Channel).

Oncorhynchus kisutch pop. 2	Coho Salmon - southern Oregon / northern California Coast (SONCC) ESU	FT	ST	G4T2Q	S2?	AFS_TH-Threatened	Aquatic | Klamath/North coast flowing waters | Sacramento/San Joaquin flowing waters. Federal listing refers to populations between Cape Blanco, Oregon and Punta Gorda, Humboldt County, California. State listing refers to populations between the Oregon border and Punta Gorda, California.	**Moderate Potential.** Coho Salmon have been reported in several Humboldt Bay tributaries including Freshwater Slough, the Salmon Creek Estuary, Martin Slough, and the Elk River Slough (Wallace 2006, Ojerholm and Wallace 2016,). Coho Salmon pass through Humboldt Bay as they enter and leave these and other local streams. Coho Salmon reside in Humboldt Bay beginning in late April through the beginning of July for an average of 15-22 days prior to leaving the bay for the open ocean. These smolts use deep channels and channel margins more often than floating eelgrass mats, pilings, and docks. In addition, tagged fish were more often detected in the central portions of Humboldt Bay characterized by deep channels with narrow intertidal margins (Pinnix et al. 2012). There were fewer detections in other portions of the bay characterized by shallow channels with large intertidal mudflats and eelgrass meadows (Pinnix et al. 2012). This species has no potential to occur at

Scientific Name	Common Name	FedList	CalList	GRank[2]	SRank[2]	Other Status	Habitat Requirements[1]	Potential to Occur in the Project Site and PSB
								the Project Site, as no aquatic habitat is present. However, seasonal presence of this species in the PSB cannot be excluded; the species has a moderate potential to seasonally occur within the greater PSB (specifically the Samoa Channel).
Oncorhynchus mykiss irideus pop. 16	Steelhead - northern California DPS	FT	None	G5T2T3 Q	S2S3	AFS_TH-Threatened	Aquatic | Sacramento/San Joaquin flowing waters. Coastal basins from Redwood Creek south to the Gualala River, inclusive. Does not include summer-run steelhead.	**Moderate Potential.** Steelhead move through Humboldt Bay during the fall and winter, as adults return from the open ocean and migrate toward spawning streams. Juveniles are found in Humboldt Bay in the spring as they disperse out of estuaries (Barnhart et al. 1992). This species has no potential to occur at the Project Site, as no aquatic habitat is present. However, seasonal presence of this species in the PSB cannot be excluded; this species has a moderate potential to seasonally occur within the greater PSB (specifically the Samoa Channel).

Scientific Name	Common Name	FedList	CalList	GRank[2]	SRank[2]	Other Status	Habitat Requirements[1]	Potential to Occur in the Project Site and PSB
Oncorhynchus tshawytscha	Chinook Salmon - California Coastal ESU	FT	None	G5	S1	AFS_TH-Threatened	Aquatic | Sacramento/San Joaquin flowing waters. Federal listing refers to wild spawned, coastal, spring & fall runs between Redwood Cr, Humboldt Co & Russian River, Sonoma Co	**Moderate Potential.** Chinook Salmon have been documented in Elk River Slough, Freshwater Slough, and Humboldt Bay (Pinnix et al. 2004, Pinnix et al. 2005, Wallace 2006). Chinook are assumed to move through Humboldt Bay on the way to and from spawning streams. This species has no potential to occur at the Project Site, as no aquatic habitat is present. However, seasonal presence of this species in the PSB cannot be excluded; this species has a moderate potential to seasonally occur within the greater PSB (specifically the Samoa Channel).

Scientific Name	Common Name	FedList	CalList	GRank[2]	SRank[2]	Other Status	Habitat Requirements[1]	Potential to Occur in the Project Site and PSB
Spirinchus thaleichthys	Longfin Smelt	FC	ST	G5	S1		Aquatic | Estuary. Euryhaline, nektonic & anadromous. Found in open waters of estuaries, mostly in middle or bottom of water column. Prefer salinities of 15-30 ppt, but can be found in completely freshwater to almost pure seawater.	**Moderate Potential.** Closest known record is from 2005 in Humboldt Bay (within the PSB) (CDFW 2020b). Populations are currently known in Humboldt County from the Eel River estuary and from Humboldt Bay, although relatively few individuals have been reported from recent samples (Schlosser and Eicher 2012). Pinnix et al. (2005) captured 12 adults during fish sampling efforts at eelgrass beds in North Humboldt Bay during the fall in 2003, 2004, and 2005. This species has no potential to occur at the Project Site, as no aquatic habitat is present. However, seasonal presence of this species in the PSB cannot be excluded; this species has a moderate potential to seasonally occur within the greater PSB (specifically the Samoa Channel).

Scientific Name	Common Name	FedList	CalList	GRank[2]	SRank[2]	Other Status	Habitat Requirements[1]	Potential to Occur in the Project Site and PSB
Thaleichthys pacificus	Eulachon, southern DPS	T	None	G5	S3		Aquatic | Klamath/North coast flowing waters. Found in Klamath River, Mad River, Redwood Creek, and in small numbers in Smith River and Humboldt Bay tributaries. Spawn in lower reaches of coastal rivers with moderate water velocities and bottom of pea-sized gravel, sand, and woody debris.	**No Potential.** There is very little information available on the distribution or abundance of the southern Eulachon DPS. Allen et al. (2006) reported that Eulachon do not currently spawn further south than the lower Klamath and Humboldt Bay tributaries. Eulachon are believed to be extirpated south of the Klamath River. The Eulachon Biological Research Team indicated that noticeable runs of Eulachon are not regularly spawning in most northern California rivers (Gustafson et al. 2010). However, they were detected in the Klamath River during the spring of 2011, 2012, 2013, and 2014 by Yurok Tribal biologists (Gustafson et al. 2016). Gotshall et al. (1980) described them as an occasional winter visitor to Humboldt Bay, forty years ago. This species has no potential to occur at the Project Site or within the greater PSB.

Scientific Name	Common Name	FedList	CalList	GRank[2]	SRank[2]	Other Status	Habitat Requirements[1]	Potential to Occur in the Project Site and PSB
Mollusks								
Anodonta californiensis	California Floater	None	None	G3Q	S2?		Aquatic. Freshwater lakes and slow-moving streams and rivers. Taxonomy under review by specialists. Generally in shallow water.	**No Potential.** Closest (and only within 7-quad search area) known record is from Elk River, ~4 miles southeast of the Project Site (CDFW 2020b). Both the Project Site and greater PSB do not contain freshwater aquatic habitat required by this species. This species has no potential to occur at the Project Site or within the greater PSB.
Margaritifera falcata	Western Pearlshell	None	None	G4G5	S1S2		Aquatic. Aquatic. Prefers lower velocity waters.	**No Potential.** Closest known record is from Elk River, ~6 miles southeast of the Project Site (CDFW 2020b). Both the Project Site and PSB do not contain freshwater aquatic habitat required by this species. This species has no potential to occur at the Project Site or within the greater PSB.

Scientific Name	Common Name	FedList	CalList	GRank[2]	SRank[2]	Other Status	Habitat Requirements[1]	Potential to Occur in the Project Site and PSB
Insects								
Bombus caliginosus	Obscure Bumble Bee	None	None	G4?	S1S2	IUCN_VU-Vulnerable	Coastal areas from Santa Barabara county to north to Washington state. Food plant genera include *Baccharis, Cirsium, Lupinus, Lotus, Grindelia* and *Phacelia*.	**Moderate Potential.** Closest known record is from 1975 near the South Jetty, ~3 miles southwest of the Project Site (CDFW 2020b). The PSB falls within the species current range (Hatfield et al. 2014). In addition, the PSB is within the coastal fog belt and may include several of the species' food plants. Based on habitat and local recent records, this species has a low potential to occur at the Project Site and moderate potential to occur within the greater PSB.

Scientific Name	Common Name	FedList	CalList	GRank[2]	SRank[2]	Other Status	Habitat Requirements[1]	Potential to Occur in the Project Site and PSB
Bombus occidentalis	Western Bumble Bee	None	SCE	G2G3	S1	XERCES_IM-Imperiled	Once common & widespread, species has declined precipitously from central CA to southern B.C., perhaps from disease.	**Low Potential.** Closest known record is from 1993 on the North Spit, ~1 mile north of the Project Site (CDFW 2020b). Although the Project Site and PSB fall within the species pre-2002 range, the range has contracted significantly in the last decade and now only includes the intermountain west and cascade regions of the US (Williams et al. 2014, Xerces Society et al. 2018). This species is now regionally rare and has a low potential to occur at the Project Site and within the greater PSB.
Cicindela hirticollis gravida	Sandy Beach Tiger Beetle	None	None	G5T2	S2		Coastal dunes. Inhabits areas adjacent to non-brackish water along the coast of California from San Francisco Bay to northern Mexico. Clean, dry, light-colored sand in the upper zone. Subterranean larvae prefer moist sand not affected by wave action.	**No Potential.** Closest known record is from 1905 along the Eureka shoreline, within 1 mile of the Project Site (CDFW 2020b), although taxonomy is uncertain and some sources put the range at Marin County and south. Little available information; presumed to be either extirpated or outside the known range, depending on the source. This species has no potential to occur at the Project Site or within the greater PSB.

Footnotes:

[1] General habitat, and microhabitat column information, reprinted from CNDDB (April 2020).
[2] Rankings from CNDDB (April 2020)

Column Header Categories and Abbreviations:

FedList: Listing status under the federal Endangered Species Act (ESA) – FE (endangered); FT (threatened); FC (candidate); FP (proposed); FD (delisted); MMPA (Marine Mammal Protection Act protected species)

CalList: Listing status under the California state Endangered Species Act (CESA) - SE (endangered); ST (threatened); SC (candidate)

GRank: Global Rank from NatureServe's Heritage Methodology (NatureServe 2020) (ranking according to degree of global imperilment - G1 = Critically Imperiled—At very high risk of extinction due to extreme rarity (often 5 or fewer populations), very steep declines, or other factors; G2 = Imperiled—At high risk of extinction due to very restricted range, very few populations (often 20 or fewer), steep declines, or other factors; G3 = Vulnerable—At moderate risk of extinction due to a restricted range, relatively few populations (often 80 or fewer), recent and widespread declines, or other factors; G4 = Apparently Secure—Uncommon but not rare; some cause for long-term concern due to declines or other factors; G5 = Secure—Common; widespread and abundant. Subspecies/variety level: "Subspecies/varieties receive a T-rank attached to the G-rank. With the subspecies/varieties, the G-rank reflects the condition of the entire species, whereas the T-rank reflects the global situation of just the subspecies or variety" (CDFW 2019); ? = " Denotes inexact numeric rank" (NatureServe 2020); Q = " Questionable taxonomy that may reduce conservation priority" (NatureServe 2020)

SRank: State Rank from NatureServe's Heritage Methodology (NatureServe 2020) (ranking according to degree of imperilment in the state (California) - S1 = Critically Imperiled—Critically imperiled in the state because of extreme rarity (often 5 or fewer populations) or because of factor(s) such as very steep declines making it especially vulnerable to extirpation from the state; S2 = Imperiled—Imperiled in the state because of rarity due to very restricted range, very few populations (often 20 or fewer), steep declines, or other factors making it very vulnerable to extirpation from the state; S3 = Vulnerable—Vulnerable in the state due to a restricted range, relatively few populations (often 80 or fewer), recent and widespread declines, or other factors making it vulnerable to extirpation from the state; S4 = Apparently Secure—Uncommon but not rare in the state; some cause for long-term concern due to declines or other factors; S5 = Secure—Common, widespread, and abundant in the state; SNR = State Not Ranked; ? rank falls between two existing ranks

Other Status: Other federal or state listings may include:

N/A: not applicable

CDFW_FP (CDFW Fully Protected Animal): "This classification was the State of California's initial effort to identify and provide additional protection to those animals that were rare or faced possible extinction. Lists were created for fish, amphibians and reptiles, birds and mammals. Most of the species on these lists have subsequently been listed under the state and/or federal endangered species acts." (CDFW 2020a);

CDFW_SSC (CDFW Species of Special Concern): "It is the goal and responsibility of the Department of Fish and Wildlife to maintain viable populations of all native species. To this end, the Department has designated certain vertebrate species as 'Species of Special Concern' because declining population levels, limited ranges, and/or continuing threats have made them vulnerable to extinction. The goal of designating species as 'Species of Special Concern' is to halt or reverse their decline by calling attention to their plight and addressing the issues of concern early enough to secure their long-term viability" (CDFW 2020a);

CDFW_WL (California Department of Fish and Wildlife Watch List): "The CDFW maintains a list consisting of taxa that were previously designated as "Species of Special Concern" but no longer merit that status, or which do not yet meet SSC criteria, but for which there is concern and a need for additional information to clarify status" (CDFW 2020a);

IUCN_LC (International Union for Conservation of Nature Least Concern): “when it has been evaluated against the criteria and does not qualify for Critically Endangered, Endangered, Vulnerable or Near Threatened” (IUCN 2012);

IUCN_NT (International Union for Conservation of Nature Near Threatened): “when it has been evaluated against the criteria but does not qualify for Critically Endangered, Endangered or Vulnerable now, but is close to qualifying for or is likely to qualify for a threatened category in the near future (IUCN 2012);

IUCN_VU (International Union for Conservation of Nature Vulnerable): “when the best available evidence indicates that it meets any of the criteria A to E for Vulnerable…, and it is therefore considered to be facing a high risk of extinction in the wild” (IUCN 2012);

IUCN_EN (International Union for Conservation of Nature Endangered): “when the best available evidence indicates that it meets any of the criteria A to E for Endangered…,and it is therefore considered to be facing a very high risk of extinction in the wild” (IUCN 2012);

USFWS_BCC (U.S. Fish and Wildlife Service Birds of Conservation Concern): “The goal of the Birds of Conservation Concern 2008 report is to accurately identify the migratory and non-migratory bird species (beyond those already designated as Federally Threatened or Endangered) that represent our highest conservation priorities and draw attention to species in need of conservation action” (CDFW 2020a);

WBWG_H- (Western Bat Working Group High Priority): “those species considered the highest priority for funding, planning, and conservation actions. Information about status and threats to most species could result in effective conservation actions being implemented should a commitment to management exist. These species are imperiled or are at high risk of imperilment” (BCI 1998);

WBWG_M- (Western Bat Working Group Medium Priority): “a level of concern that should warrant closer evaluation, more research, and conservation actions of both the species and possible threats” (BCI 1998);

XERCES_IM (Xerces Society Imperiled): species “at high risk of extinction because of highly restricted range, rare populations (often 20 or fewer), steep declines, or other factors” (National Research Council 2007).

Potential to Occur:

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

Low Potential. Few of the habitat components meeting the species requirements are present, and/or the majority of habitat on and adjacent to the Project Site is unsuitable or of very poor quality. The species is not likely to be found in the Project Site.

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 Project Site is unsuitable. The species has a moderate probability of being found in the Project Site.

High Potential. All of the habitat components meeting the species requirements are present and/or most of the habitat on or adjacent to the Project Site is highly suitable. The species has a high probability of being found in the Project Site.

Present/Not Present. Detected or excluded (habitats only) during site visits.

5.3.2 Species Descriptions

A description of special status wildlife species with a moderate to high potential to occur (either at the Project Site or within in immediately adjacent habitat in the greater PSB) is included below. Potential noise-related construction-related impacts to for all potential wildlife receptors are evaluated in the Construction Noise, Vibration, and Hydroacoustic Assessment (Illingworth and Rodkin 2020).

Special Status Mammals

North American Porcupine *(Erethizon dorsatum)*
CDFW SAL (S3), Moderate Potential

North American Porcupines are primarily nocturnal, but can sometimes be seen during the day. They are approximately 27 inches in length with yellowish quills on the head, rump, and upper surfaces of the tail (Reid 2006). Their range extends across mainland Canada, Alaska, and the western and northeastern United States (Reid 2006). They use a wide variety of habitats, but are most common in montane conifer, Douglas fir, alpine dwarf-shrub (Sweitzer 2013). Porcupines are herbivores and feed on a variety of plant materials depending on the season (Appel et al. 2017, SNZ and CBI 2020). They feed on berries, seeds, grasses, leaves, roots and stems during the spring and summer (SNZ and CBI 2020). In contrast, they primarily feed on evergreen needles and tree bark during the winter. They often feed heavily on single trees which can result in the death of the tree. This attribute has resulted in historic persecution of the species by proponents of the timber industry. Their populations have been in decline across California. In northwestern California, this may be caused by the regeneration of forests to an age that no longer provides food resources (Appel et al. 2017). They have also been heavily extirpated through targeted control efforts such as poisoning and shooting (Appel et al. 2017).

The closest known record is from an unknown year in the 1990s along Highway 255 near Manila, approximately 3 miles north of the Project Site (CDFW 2020b). The species is known to occur within coastal dune systems on the north coast (e.g., Tolowa Dunes State Park). Porcupines along the North Coast (documented within Tolowa Dunes State Park) are known to occupy the coastal dune systems (rather than more typical coniferous forest habitat elsewhere; species has been documented in similar coastal habitat throughout Humboldt County; CDFW 2020b). Both the Project Site and greater PSB contain requisite foraging habitat for this species. Based on nearby records and available habitat, the species has a moderate potential to be present and forage within the Project Site and PSB. If present in the Project Site or PSB during construction activities, the species may be injured or trapped in open excavation pits. In addition, the species be impacted if rodenticides are used on-site. Potential Project-related impacts to this species (if any) would be avoided through the implementation of measures described further in **Section 6.1.4**.

Pacific Harbor Seal *(Phoca vitulina richardii)*
MMPA Protected, Moderate Potential

The species is found in temperate waters off the coast of North America, from the California/Mexico border to Alaska (NOAA Fisheries 2019a). Pacific Harbor Seals are non-migratory and show strong fidelity to haul-out sites. However, the species will travel to find breeding and foraging sites (Herder 1986, NOAA Fisheries 2019a, NOAA Fisheries 2019b).

Harbor Seals do not reach sexual maturity until three to seven years old. Breeding occurs in the water and pups are born at haul-out sites (NOAA Fisheries 2019b). Haul-out sites are located on the mainland as well as on offshore islands and may include beaches, rocky shores, and intertidal sandbars (NatureServe 2020). The peak haul-out period occurs from May to July in California (NOAA Fisheries 2019a). Pupping season primarily occurs during the spring and summer. Female Harbor Seals raise their pups in large nurseries (NOAA Fisheries 2019b). Harbor Seals feed on a variety of prey items including shellfish, crustaceans, and fish (NOAA Fisheries 2019b). Foraging sites may be located in the open ocean as well as in bays (Ougzin 2013). Along the west coast of the U.S., the Pacific Harbor Seal population is stable or increasing (NOAA Fisheries 2019b).

The species has no potential to occur at the Project Site due to a lack of suitable habitat. However, there is suitable foraging habitat for this species in the PSB (Humboldt Bay Samoa Channel), and suitable haul-out/loafing beach habitat in PSB. CDFW has not documented haul out locations near the PSB (CDFW 2012). The species is locally common in Humboldt Bay, and there is documented presence within the Samoa Channel (iNaturalist 2020). Therefore, this species has a moderate potential to occur within the PSB. Potential Project-related impacts to this species (if any) would be avoided or minimized through the implementation of measures described further in **Section 6.1.5**.

Harbor Porpoise *(Phocoena phocoena)*
MMPA Protected, Moderate Potential

Harbor Porpoises occur temperate, subarctic, and arctic near-shore waters (e.g., bays, fjords, estuaries, and harbors). Stocks on the east coast of North America undergo migratory movements, while West Coast stocks are year-round residents (NOAA Fisheries 2019a). In California, the range from Point Conception north (to the Beaufort Sea in Canada). The species primarily travels singly or in small groups (although larger pods are possible. Mating occurs from May through July; females give birth 10 to 11 months later. Harbor Porpoises prey on schooling fish (e.g., mackerel). Threats to the species include underwater noise pollution and entanglement in fishing gear (NOAA Fisheries 2019b).

The species has no potential to occur at the Project Site due to a lack of suitable habitat. However, there is suitable foraging habitat for this species in the PSB (Humboldt Bay Samoa Channel). The species is locally common in Humboldt Bay, and there is documented presence within the Samoa Channel (iNaturalist 2020). There would be a moderate potential for this species to occur within the PSB. Potential Project-related impacts to this species (if any) would be avoided or minimized through the implementation of measures described further in **Section 6.1.5**.

California Sea Lion (*Zalophus californianus*)
MMPA Protected, Moderate Potential

The species is found in the eastern North Pacific Ocean. California Sea Lions generally range from the U.S./Mexico border to Canada, although males may be found foraging during the winter as far north as southern Alaska (NatureServe 2020, NOAA Fisheries 2019b). California Sea Lions are polygynous, with males defending breeding territories of up to 14 females. Although sea lions reach sexual maturity at four to five years old, males do not defend territories until nine years of age, when they reach “social” maturity (NOAA Fisheries 2019b). The breeding season occurs in summer and early fall and pups are born in spring and summer the following year (NatureServe 2020, NOAA Fisheries 2019b). The largest breeding colonies are found on offshore islands from the Channel

Islands in California south to Baja. California Sea Lions breed on sandy beaches or in rocky coves. They also commonly haul-out on jetties, ocean buoys, and on marina docks (NOAA Fisheries 2019b). California Sea Lions feed at night on a variety of prey including squid and fish (Hawes 1983, NatureServe 2020).

The species has no potential to occur at the Project Site due to a lack of suitable habitat. However, there is suitable foraging habitat for this species in the PSB (Humboldt Bay Samoa Channel), and suitable haul-out/loafing beach habitat in PSB. The species is locally common in Humboldt Bay, and there is documented presence within the Samoa Channel (iNaturalist 2020). There would be a moderate potential for this species to occur within the PSB. Potential Project-related impacts to this species (if any) would be minimized through the implementation of measures described further in **Section 6.1.5**.

Special Status Birds

Sharp-shinned Hawk *(Accipiter striatus)*
CDFW WL, Present

Sharp-shinned Hawks are year-round residents across most densely forested areas of western and eastern North America. In California, migrants from more northern climes (southern Canada) pass through the state during the fall months (August-November). Some of these northern populations of Sharp-shinned Hawks winter in the state. Sharp-shinned Hawks may be found in a variety of forested habitats including coniferous forests, deciduous forests, woodlots, and transitional/forested edges. They prefer to nest in dense stands of a diversity of tree species. Nests are constructed out of dead twigs and placed against a tree trunk on a horizontal limb. Sharp-shinned Hawks primarily prey on small forest birds and mammals. In more urban/developed areas, Sharp-shinned Hawks hunt at bird feeders. (Bildstein and Meyer 2000).

There are multiple recent records from the immediate Project vicinity (approximately 5 mile radius around Project Site) (eBird 2020). This is a common species known to nest and forage in urban and rural areas. The Project Site contains requisite foraging habitat for this species. The PSB contains requisite nesting and foraging habitat for this species. A dead Sharp-shinned Hawk was observed on-site in the boiler building during the reconnaissance survey, and the species is assumed to be present on-site. If present in the Project Site or PSB during construction activities, the species may be impacted by elevated levels of noise and anthropogenic disturbance (no removal of potential nesting habitat is expected). Potential Project-related impacts to this species (if any) would be avoided through the implementation of measures described further in **Section 6.1.6**.

Great Egret *(Ardea alba)*
CDFW SAL (S4), Moderate Potential

Great Egrets are year-round residents in western California, with breeders concentrated in the Klamath and Warner basin in Siskiyou and Modoc Counties, along the coast in Humboldt County, the San Francisco Bay area, Monterey County, the Salton Sea, and the Central Valley. This species favors wetlands, estuaries, lakes, rivers, ponds, streams, marshes, and tidal flats. Great Egrets utilize a variety of substrates for nesting including trees, woody vegetation, or artificial nest platforms. Nests platforms are typically constructed of locally available sticks and vegetation. Great Egrets nest communally or in mixed-species colonies. They are opportunistic foragers, wading in

shallow water to feed on fish, amphibians, and invertebrates. They also hunt on shore for reptiles, birds, and small mammals. (Mccrimmon Jr. et al. 2011).

There are numerous recent records from the immediate Project vicinity (approximately 5 mile radius around Project Site) including evidence of nesting (e.g., rookeries such as Indian Island) (CDFW 2020b, eBird 2020). There is also a recent record from the Project Site (eBird 2020). The lack of large nest trees at the Project Site or within the PSB precludes the chance of breeding on-site. The Project Site contains marginal foraging habitat (man-made, concrete, large flooded pool) for this species. The PSB contains requisite foraging habitat for this species along the Humboldt Bay shoreline. Given the presence of suitable habitat and recent records from the vicinity, the species moderate potential to occur at the Project Site and within the greater PSB.

If present in the Project Site or PSB during construction activities, the species may be impacted by elevated levels of noise and anthropogenic disturbance (no removal of potential nesting habitat is expected). Potential Project-related impacts to this species (if any) would be avoided through the implementation of measures described further in **Section 6.1.6**.

Great Blue Heron *(Ardea herodias)*
CDFW SAL (S4), Moderate Potential

Great Blue Herons are year-round residents in the majority of coastal and central California. Notable exceptions include the Sierras and the very southeastern desert regions of the state. Great Blue Herons are extremely adaptable to a variety of habitats including most saltwater and freshwater bodies, agricultural land, wetlands, as well as commercial and residential areas such as golf courses. Nesting habitat includes trees, bushes, or artificial structures. Nests platforms are typically constructed out of locally available sticks and lined with material such as grass, moss, and reeds. Great Blue Herons are colonial nesters in mixed-species colonies. They are opportunistic foragers, wading in shallow water to feed on fish, amphibians, and invertebrates. They also hunt on shore for reptiles, birds, and small mammals. Additionally, they are known to scavenge carrion. (Vennesland and Butler 2011).

There are numerous recent records from the immediate Project vicinity (approximately 5 mile radius around Project Site), including evidence of nesting (CDFW 2020b, eBird 2020). Rookeries are present on Woodley and Indian islands in nearby Humboldt Bay (CDFW 2020b). There is also a recent record from the Project Site (eBird 2020). The lack of large nest trees in the PSB precludes the chance of breeding on-site. However, both the Project Site and greater PSB contain requisite foraging habitat for this species. Based on nearby records and available habitat, the species has a moderate potential to be present and forage within the Project Site and PSB.

If present in the Project Site or PSB during construction activities, the species may be impacted by elevated levels of noise and anthropogenic disturbance (no removal of potential nesting habitat is expected). Potential Project-related impacts to this species (if any) would be avoided through the implementation of measures described further in **Section 6.1.6**.

Marbled Murrelet *(Brachyramphus marmoratus)*
Federally Threatened, State Endangered, Moderate Potential

Marbled Murrelets spend the majority of their lives in the near-shore marine environments and prefer to forage along rocky coastal areas within 1.2 mi of shore (USFWS 1997, 2004). They feed

by diving for small fish (e.g., herring, anchovy, sand lance, and smelt) and invertebrates in coastal waters and bays but may also forage on rivers and lakes (USFWS 1997). Murrelets nest in old-growth coniferous forests less than 50 mi from the coast. Trees with a diameter at breast height (dbh) greater than 19 in (48.3 cm) are preferred for nesting (81 FR 51348). Stand size is also an important feature for nest site selection with stands greater than 500 acres selected for in California (57 FR 45328). Murrelets prefer old-growth conifer forests with decadent features such as remnant trees or large branch platforms from normal tree growth, disease, damage, or mistletoe (structure used for nesting). Nest site and nest tree fidelity is common (Nelson 2020). Proximity of nesting habitat to foraging habitat is an important factor in determining murrelet distribution (USFWS 1997).

There are numerous near-shore records of this species from along the Samoa Peninsula (both Pacific side and Bay side; CDFW 2020b, eBird 2020). Although there is no suitable foraging or nesting habitat (i.e., old growth coniferous forest) within the Project Site or greater PSB, there is ample suitable foraging habitat just east of the Project Site (Humboldt Bay Samoa Channel). The species has no potential to occur at the Project Site itself due to a lack of suitable. However, the species has moderate potential to occur and forage in the PSB (i.e., specifically the Samoa Channel of Humboldt Bay to the east).

If present in the PSB during construction activities, the species may be impacted by elevated levels noise and anthropogenic disturbance. Potential Project-related impacts to this species (if any) would be avoided through the implementation of measures described further in **Section 6.1.6**.

Black Brant *(Branta bernicla nigricans)*
CDFW SSC, Moderate Potential

Black Brant are a species of sea goose that breed in the arctic and sub-arctic and primarily winter in coastal bays and estuaries in Baja California. Humboldt Bay serves as a critical wintering area and spring staging site for Black Brant (Lewis et al. 2013). In fact, Humboldt Bay is believed to be the most important spring staging site for Brant in California, and the fourth most important staging site in the Pacific Flyway (Moore et al. 2013). This is due to the presence of large eelgrass beds in Humboldt Bay, which serve as a critical food resource for Black Brant. Brant build energy stores necessary for breeding by foraging on eelgrass during the winter. The population of Black Brant that use Humboldt Bay as a stop-over site have an estimated population size of 150,000 birds and harvest is allowed during the winter under the species management plan (Pacific Flyway Council 2002). Brant have been documented to feed on eelgrass beds during both low and high tides in Humboldt Bay and are relatively common winter visitors to the area (Elkinton 2013).

There are multiple recent records from the immediate Project vicinity (approximately 5 mile radius around Project Site) (migration/winter; this species does not breed in Humboldt County; eBird 2020). The closest known record is from 2017 in Humboldt Bay within the PSB (eBird 2020). The Project Site does not contain suitable habitat for this species. The PSB may contain requisite foraging and overwintering habitat within Humboldt Bay. Eelgrass habitat in the Samoa Channel is very limited (preferred depth criteria for eelgrass is greatly exceeded). Surveys have documented Brant in both the North and South Bays (Moore et al. 2013). Brant have been detected during the winter and spring migration in the PSB and seasonal presence is possible (eBird 2020). The species has no potential to occur at the Project Site due to a lack of suitable habitat. However,

based on historical records and available habitat in the greater vicinity, the species has a moderate potential to be seasonally present and forage within the PSB.

Construction will not occur on the shoreline of Humboldt Bay or within in-water habitat of Humboldt Bay (i.e., no impacts to foraging or wintering habitat are expected). However, the Project is likely to generate elevated levels of in-air noise and potential anthropogenic disturbance. Potential Project-related impacts to this species (if any) would be avoided through the implementation of measures described further in **Section 6.1.6**.

Vaux's Swift *(Chaetura vauxi)*
CDFW SSC, Moderate Potential

Vaux's Swifts are summer residents in California, breeding on the coast from central California northward and in the Cascades and Sierra Nevada mountains. Nesting occurs in large, accessible, chimney-like tree cavities that allow birds to fly within the cavity directly to secluded nest sites. Such cavities usually occur in conifers, particularly redwoods. Chimneys and similar man-made substrates are also used for nesting. This species is highly aerial and forages widely for insects in open airspace. During migration, nocturnal roosting occurs communally; favored roosts may host thousands of individuals. (Schwitters et al. 2020).

There are multiple recent records from the immediate Project vicinity (approximately 5 mile radius around Project Site) (eBird 2020). The closest known record is from 2019 in the town of Samoa, within 1 mile of the Project Site (eBird 2020). Nesting habitat may be present, as the species will occasionally nest in buildings/chimneys. In addition, the species is a generalist when it comes to foraging habitat, and presence is possible. Vaux's Swifts have a moderate potential to occur at the Project Site and within the PSB.

If present in the Project Site or PSB during construction activities, the species may be impacted by elevated levels of noise and anthropogenic disturbance. Removal of nesting habitat is also possible (i.e., building demolition on-site). Potential Project-related impacts to this species (if any) would be avoided through the implementation of measures described further in **Section 6.1.6**.

Northern Harrier *(Circus hudsonius)*
CDFW SSC, High Potential

Northern Harriers are a widely distributed raptor species, with year-round residents on the California coast, northeastern portion of the state, and the Central Valley. They are seasonal breeders throughout most of the rest of the state. Northern Harriers are associated with open habitat such as meadows, grazing land, marshes, tundra, prairies, riparian woodlands, and shrub-steppe. Many of these habitats are declining due to land conversion, wetland conversion, and monotypic farming. As a result, Northern Harriers have been designated as a CDFW Species of Special Concern in California, with further research necessary to determine the actual state-wide status of the species. In terms of nesting habitat, Northern Harriers prefer to nest on the ground in vegetated uplands or wetlands. Nests consist of a large grass-lined cup surrounded by tall and dense vegetation such as reeds, willows, or blackberry bushes. Northern Harriers are polygynous, with one male frequently supporting/providing food for multiple nesting females. Prey items include rodents, birds, reptiles, and amphibians. (Smith et al. 2011).

There are multiple recent records from the immediate Project vicinity (approximately 5 mile radius around Project Site) including evidence of nesting (CDFW 2020b, eBird 2020). The closest known record is from 1991 within the Project Site (eBird 2020). Both the Project Site and greater PSB contain suitable nesting and foraging habitat for this species. Based on nearby records and available habitat, the species has a moderate potential to be present, nest, and forage within the Project Site and PSB.

If present in the Project Site or PSB during construction activities, the species may be impacted by elevated levels of noise and anthropogenic disturbance (no removal of potential nesting habitat is expected). Potential Project-related impacts to this species (if any) would be avoided through the implementation of measures described further in **Section 6.1.6**.

Snowy Egret *(Egretta thula)*
CDFW SAL (S4), Moderate Potential

Wintering populations are also present along much of the rest of the California coast. Snowy Egrets prefer riparian and estuarine areas, marshes, wet meadows, inland lakes, and river courses. Snowy Egrets construct stick nest platforms in a variety of tree and shrub species including: willows, holly, birch, and wax myrtle. Nests are lined with reeds, grasses, and moss. Snowy Egrets are colonial nesters, with colonies comprised of both the same and different species (conspecifics and allospecifics). Snowy Egrets hunt in shallow water and on shore, making use of their bill (via "bill-vibrating") and distinctly yellow feet to capture and potentially attract prey items. (Meyerriecks 1959, Kushlan 1973, Willard 1977).

There are numerous recent records from the immediate Project vicinity (approximately 5 mile radius around Project Site) including evidence of nesting (CDFW 2020b, eBird 2020). The closest known record is from 1991 within the Project Site (eBird 2020). Rookeries are present on Woodley and Indian islands in nearby Humboldt Bay (CDFW 2020b). The lack of large nest trees in the PSB precludes the chance of breeding on-site. The Project Site contains marginal foraging habitat (anthropogenic large flooded pool) for this species. The PSB contains requisite foraging habitat for this species along the Humboldt Bay shoreline. Based on nearby records and available habitat, the species has a moderate potential to be present and forage within the Project Site and PSB.

Construction will not occur on the shoreline of Humboldt Bay or within in-water habitat of Humboldt Bay. Anticipated Project impacts would include elevated levels noise and anthropogenic disturbance. Potential Project-related impacts to this species (if any) would be avoided through the implementation of measures described further in **Section 6.1.6**.

White-tailed Kite *(Elanus leucurus)*
CDFW FP, Moderate Potential

White-tailed Kites are year-round residents in most of California west of the Sierras including the majority of the coastal foothills, Central Valley, and some arid regions such as Kern and Inyo Counties. White-tailed Kites prefer open landscapes at low elevations including marshes, grasslands, oak-woodlands, savannahs, and agricultural land. Nests are typically constructed on habitat edges on the top or upper third of a tree or bush. Nests consist of small sticks, grass, hay, and leaves placed in a variety of tree or shrub species including coastal redwoods *(Sequoia sempervirens)* and Sitka spruce *(Picea sitchensis)*. White-tailed Kites feed almost exclusively on small mammals captured via hover hunting. (Dunk 1995).

There are multiple recent records from the immediate Project vicinity (approximately 5 mile radius around Project Site) including evidence of nesting (CDFW 2020b, eBird 2020). The closest known record is from 1991 within the Project Site (eBird 2020). Both the Project Site and greater PSB contain requisite nesting and foraging habitat. Based on nearby records and available habitat, the species has a moderate potential to be present, nest, and forage within the Project Site and PSB.

If present in the Project Site or PSB during construction activities, the species may be impacted by elevated levels of noise and anthropogenic disturbance (no removal of potential nesting habitat is expected). Potential Project-related impacts to this species (if any) would be avoided through the implementation of measures described further in **Section 6.1.6**.

American Peregrine Falcon *(Falco peregrinus anatum)*
CDFW FP, Moderate Potential

The Peregrine Falcon is one of the world's most widely distributed raptor species, occurring in urban areas, wetlands, deserts, maritime islands, mountains, tundra, and the tropics. Peregrine Falcons received significant attention during the middle of the 20th century due to precipitous population declines. These population crashes have been attributed to the lethal and sub-lethal effects of the organochlorine pesticide DDT (Dichlorodiphenyltrichloroethane). After DDT was banned in 1972, the Peregrine Falcon started to rebound nationwide.

In western North America, resident populations of peregrines are found along the coast of California and the majority of the interior of the state, excluding the Central Valley and arid regions in the southeast (White et al. 2020). In California, peregrines generally prefer open landscapes for foraging and cliffs or buildings for breeding. Nests consist of a scrape in sand, gravel, or dirt on a cliff ledge, artificial nest boxes, or abandoned raptor or corvid nests. Occasionally they will also use coniferous forest tree tops (Wrege and Cade 1977, White et al. 2020). Peregrine Falcons feed on a variety of avian species including passerines, waterfowl, and shorebirds. They have also been known to predate bats, amphibians, fish, and mammals (Sherrod 1978). Prey are taken in flight, off the surface of water, or on land (Sherrod 1978). The Peregrine Falcon is the fastest member of the animal kingdom with diving ("stooping") speeds recorded at speeds of 238 miles per hour (Franklin 1999).

There are multiple recent records from the immediate Project vicinity (approximately 5 mile radius around Project Site) (eBird 2020). The closest known record is from 2020 in Humboldt Bay within the PSB (eBird 2020). There is a known breeding pair at the Samoa Bridge, approximately 2 miles east (eBird 2020). Both the Project Site and greater PSB contain requisite nesting (e.g., buildings on-site) and foraging habitat. Based on nearby records and available habitat, the species has a moderate potential to be present, breed, and forage within the Project Site and PSB.

If present in the Project Site or PSB during construction activities, the species may be impacted by elevated levels of noise and anthropogenic disturbance. Potential Project-related impacts to this species (if any) would be avoided through the implementation of measures described further in **Section 6.1.6**.

Bald Eagle *(Haliaeetus leucocephalus)*
State Endangered, CDFW FP, Moderate Potential

As the national bird, the Bald Eagle is perhaps one of the most well-known raptors in the U.S. It is also one of the well-studied species on the continent. The Bald Eagle is the second largest bird of prey in North America with a wingspan surpassed only by that of the California Condor (Palmer et al. 1988). Bald Eagles are found throughout North America, with year-round residents along both coasts and near large bodies of water such as rivers, lakes, and reservoirs. Seasonal breeding populations occur throughout most of Canada and Alaska, with these populations wintering through the U.S. and Central America (Buehler 2000). In California, Bald Eagle breeding is restricted primarily to the northern portion of the state, with a few breeding populations along the coast south of San Luis Obispo and on the Channel Islands (Buehler 2000, NatureServe 2020).

Bald Eagles nest in large trees, on cliffs, or on the ground in treeless regions adjacent to lakes, rivers, estuaries, and dams (Buehler 2000). Platform nests are constructed out of large sticks and lined with grass, moss, down feathers, and other soft vegetation (Buehler 2000). Bald Eagles are opportunistic feeders, taking fish, waterfowl, mammals, and even carrion during the winter (Buehler 2000).

Bald Eagles received substantial attention during the middle of the 20th century due to precipitous population declines. These population crashes have been attributed to the sub-lethal effects of the organochlorine pesticide DDT (Weimeyer et al. 1993). Human persecution is also thought to have historically contributed to population declines through trapping, poisoning, and egg-collecting (Buehler 2000).

There are multiple recent records from the immediate Project vicinity (approximately 5 mile radius around Project Site) (eBird 2020). The closest known record is from 2009 in the town of Samoa, within 1 mile of the Project Site (eBird 2020). The Project Site does not contain suitable nesting or foraging habitat for this species. The PSB contains requisite foraging habitat within Humboldt Bay. Based on nearby records and available habitat, the species has no potential to occur at the Project Site and a moderate potential to be present and forage within the PSB.

If present in the Project Site or PSB during construction activities, the species may be impacted by elevated levels of noise and anthropogenic disturbance (no removal of potential nesting habitat is expected). Potential Project-related impacts to this species (if any) would be avoided through the implementation of measures described further in **Section 6.1.6**.

Caspian Tern *(Hydroprogne caspia)*
CDFW SAL (S4), Moderate Potential

The Caspian Tern is the largest species of tern in the world and easily recognizable by its bright red bill with a dray gray/black mark near tip. Caspian Terns are found along coastlines, lakes, and inlets throughout North America (Cuthbert and Wires 1999). Habitat preferences include lakes, rivers, estuaries, shorelines, sloughs, lagoons, and occasionally open ocean (Cuthbert and Wires 1999). In California, these terns largely breed along the coast from the Oregon border to Point Conception. Caspian Terns favor islands in rivers and lakes, coastal estuarine habitat, salt marsh, and barrier islands for nesting with sandy, pebble, or gravel beaches (Cuthbert and Wires 1999). The species typically nests in colonies (Cuthbert and Wires 1999). Nests consist of a depression/scrap in the sand/gravel lined with dried vegetation, shells, pebbles, and other debris (Penland 1976). Terns feed on fish, crayfish, and insects (Cuthbert and Wires 1999).

There are numerous recent records from the immediate Project vicinity (approximately 5 mile radius around Project Site) (eBird 2020). The closest known record is from 2019 in Humboldt Bay within

the PSB (eBird 2020). The Project Site does not contain suitable nesting (e.g., beaches or gravel bars) or foraging habitat for this species. The PSB contains requisite foraging habitat within Humboldt Bay. Based on nearby records and available habitat, the species has no potential to occur at the Project Site and a moderate potential to be present seasonally and forage within the PSB (i.e., Humboldt Bay Samoa Channel).

Construction will not occur on the shoreline of Humboldt Bay or within in-water habitat of Humboldt Bay. If present in the PSB during construction activities, the species may be impacted by elevated levels of in-air and underwater noise and potentially anthropogenic disturbance. Potential Project-related impacts to this species (if any) would be avoided through the implementation of measures described further in **Section 6.1.6**.

Long-billed Curlew *(Numenius americanus)*
CDFW WL Species, Moderate Potential

Long-billed Curlews are the largest shorebird species in North America. They breed in the northwestern U.S. and Canadian prairie states and winter in central California, Baja, and along the Gulf of Mexico. Long-billed Curlews breed in long and short-grass prairies and build their nests on the ground. Nests are frequently constructed near conspicuous items on the landscape such as rocks, dung piles, or mounds of dirt. Both males and females participate in constructing nest scrapes. Scrapes are lined with dung, pebbles, grass, bark, twigs, and leaves. Both sexes incubate although males primarily take on parental care of chicks. Long-billed Curlews forage on a variety of invertebrate species, but particularly select shrimp, crabs, and earthworms. This species has declined in North America as a result of historic overharvesting and habitat loss (Dugger and Dugger 2002). The species does not breed in Humboldt County (Hunter et al. 2005, Leeman and Colwell 2005).

There are numerous recent records from the immediate Project vicinity (approximately 5 mile radius around Project Site) (during fall migration and the winter; the species does not nest in Humboldt County) (eBird 2020). The closest known record is from 2019 within the PSB (eBird 2020). The Project Site does not contain suitable habitat for this species. The PSB contains requisite foraging habitat for this species along the Humboldt Bay shoreline. Based on nearby records and available habitat, the species has no potential to occur at the Project Site and a moderate potential to be present seasonally and forage within the PSB.

Construction will not occur on the shoreline of Humboldt Bay or within in-water habitat of Humboldt Bay (i.e., no impacts to foraging or wintering habitat are expected). However, the Project is likely to generate elevated levels of in-air noise and potential anthropogenic disturbance. Potential Project-related impacts to this species (if any) would be avoided through the implementation of measures described further in **Section 6.1.6**.

Black-crowned Night-Heron *(Nycticorax nycticorax)*
CDFW SAL (S4), Moderate Potential

Black-crowned Night-Herons are year-round residents in much of California, with notable exceptions in the Sierras, Central Valley, and the arid southeast portion of the state. These herons can be found in a wide variety of habitats adjacent to water bodies including urban, wetland, partially forested, and agricultural landscapes. Black-crowned Night-Herons are colonial nesters and nest with mixed species, building platform stick nests in trees, reeds, cattails, bushes, or on the ground on nearshore

islands. As opportunistic feeders, Black-crowned Night-Herons eat fish, insects, mammals, birds, carrion, clams, crayfish, turtles, and many other food items. (Hothem et al. 2010).

There are numerous recent records from the immediate Project vicinity (approximately 5 mile radius around Project Site) including evidence of historical nesting (CDFW 2020b, eBird 2020). The closest known record is from 2009 in the town of Samoa, within 1 mile of the Project Site (eBird 2020). Rookeries are present on Indian island in the nearby Humboldt Bay, and in Fairhaven south of the Project Site (CDFW 2020b). The Project Site only contains marginal foraging habitat (man-made pool) for this species. The PSB contains requisite foraging habitat for this species along the Humboldt Bay shoreline. Based on nearby records and available habitat, the species has a moderate potential to be present and forage within the Project Site and PSB.

Construction will not occur on the shoreline of Humboldt Bay or within in-water habitat of Humboldt Bay. Construction will not occur on the shoreline of Humboldt Bay or within in-water habitat of Humboldt Bay (i.e., no impacts to foraging habitat are expected). However, the Project is likely to generate elevated levels of in-air noise and potential anthropogenic disturbance. Potential Project-related impacts to this species (if any) would be avoided through the implementation of measures described further in **Section 6.1.6**.

Osprey *(Pandion haliaetus)*
CDFW WL, Present

Ospreys have a cosmopolitan distribution and their breeding range throughout North America is widespread. The majority of individuals within the breeding range are migratory (except for individuals in temperate southern areas of their range, e.g. in southern Florida, the Caribbean, southern California, and the Baja Peninsula). In California, Ospreys breed throughout the state near various bodies of water including and inland near rivers and lakes as well as on the coast near bays, estuaries, and marshes. Specific nest location preferences include: proximity to shallow fish-bearing waters, and a nest site free of predators (usually highly elevated but Ospreys nest on the ground on predator-free islands). Ospreys build large stick nests on a wide variety of natural and artificial nest substrates, especially trees, but also large rocks or bluffs, as well as nest platforms, towers supporting electrical lines or cellphone relays, and channel markers). Ospreys feed almost exclusively on fish, but anecdotal observations of non-fish prey have been documented. (Bierregaard et al. 2020).

There are three Osprey nest sites on power poles and artificial nest platforms within and immediately adjacent to the Project Site (**Appendix A, Figure 6**). Two were occupied during the 2020 breeding season. Additional nesting substrate may be present in the PSB. The species is considered to be present at the Project Site and within the PSB. If present in the Project Site or PSB during construction activities, the species may be impacted by elevated levels of noise and anthropogenic disturbance. In addition, potential/historical nest sites may be impacted by construction activities. . A management plan for Ospreys at the Project Site was implemented in 2020 by the HBHRCD with coordination by the CDFW. The plan included removing nesting material from one nest site (closest to Project Site) and constructing one new nest site outside the Project limits (HBHRCD 2020; A. Wagschal, pers. comm., January 6, 2021). Potential Project-related impacts to this species (if any) would be avoided through the implementation of measures described further in **Section 6.1.6**.

Double-crested Cormorant *(Phalacrocorax auritus)*
CDFW WL, Moderate Potential

Double-crested Cormorants are widely-distributed in North American, with resident populations along the southern coasts and breeding populations in the Canadian and U.S. interior and northern coastal areas (Hatch 1995). Interior and eastern populations are highly migratory (Dorr et al. 2014). In California, Double-crested Cormorants breed along most of the California coast and some inland areas such as the Salton Sea, Central Valley, and Colorado River (Small 1994). Cormorants are associated with aquatic environments such as coastal or aquaculture areas with suitable roosting and loafing sites on rocks, pilings, or sandbars (Dorr et al. 2014). Double-crested Cormorants nest colonially on the ground, cliffs, power poles, rock islands, or trees or shrubs (Stenzel et al. 1995, Chapdelaine and Bédard 2005). Nests are composed of small sticks, seaweed, and trash such as rope, balloons, and fishing line. Double-crested Cormorants typically feed in shallow, open water fairly close to shore. They are primarily piscivores but also will eat crustaceans, insects, eels, and amphibians (Palmer 1962, Coleman et al. 2005). In Humboldt County, breeding is restricted to offshore islands, nearshore sea stacks, or structures in Humboldt Bay such as Old Arcata Wharf (Hunter et al. 2005). Based on nearby records and available habitat, the species has no potential to occur at the Project Site and a moderate potential to be present and forage within the PSB.

There are numerous recent records from the immediate Project vicinity (approximately 5 mile radius around Project Site) including evidence of nesting (CDFW 2020b, eBird 2020). The closest known record is from 2009 in the town of Samoa, within 1 mile of the Project Site (eBird 2020). The Project Site does not contain suitable habitat for this species. The PSB contains requisite foraging habitat within Humboldt Bay, but no nesting habitat is present. The species has no potential to occur at the Project Site and a moderate potential to occur within the PSB.

Construction will not occur on the shoreline of Humboldt Bay or within in-water habitat of Humboldt Bay. If present in the PSB during construction activities, the species may be impacted by elevated levels of in-air and underwater noise and anthropogenic disturbance. Potential Project-related impacts to this species (if any) would be avoided through the implementation of measures described further in **Section 6.1.6**.

California Brown Pelican *(Pelecanus occidentalis californicus)*
Federally and State Delisted, CDFW FP, Moderate Potential

Following drastic declines as a result of DDT contamination, the Brown Pelican was federally listed effective June 2, 1970 (35 FR 16047). Due to recovery success, the species was delisted effective December 17, 2009 (74 FR 59444). The California Brown Pelican is one of five subspecies of Brown Pelican. The subspecies was removed first listed in California in 1971, and removed from the CESA in 2009.

The range of California Brown Pelicans extends along the Pacific Coast from British Columbia, Canada, south to Nayarit, Mexico (NPS 2020). Breeding occurs along the coast from the Channel Islands south through Baja California and the Gulf of California as far as Sinaloa (Shields 2020). Nesting colonies consist of nest mounds on the ground typically on steep slopes, including canyons and ridges (Shields 2020). Nests are constructed from various local materials, including sticks, grasses, and other debris, with kelp being the most commonly used in California populations (Shields 2020). The pelicans disperse across the entire coastline of California following their breeding season (Granholm et al. 1990). Known for their impressive plunge diving abilities, pelicans

feed on fish (typically small, surface-schooling species) as well as invertebrates captured via their large gular pouches. Their distribution is concentrated closely with coastal upwellings (Shields 2020). Outside of the breeding season groups roosts at traditional areas on rocks, as well as mudflats, sandy beaches, wharfs, and jetties (Granholm et al. 1990). Despite Brown Pelicans successful recovery story, they continue to be vulnerable to oil spills, ingestion of plastics and lead, entanglement with fishing equipment, disturbance at nesting colonies and roost sites, collision (power lines and vehicles), as well as habitat loss and degradation (especially vulnerable to sea level rise) (Shields 2020).

There are numerous recent records from the immediate Project vicinity (approximately 5 mile radius around Project Site) (seasonal occurrences; the species does not nest in Humboldt County; eBird 2020). The closest known record is from 2019 within the PSB (eBird 2020). The Project Site does not contain suitable habitat for this species. The PSB contains requisite foraging and roosting habitat within Humboldt Bay. Based on nearby records and available habitat, the species has no potential to occur at the Project Site and a moderate potential to be seasonally present, forage, and roost within the PSB.

Construction will not occur on the shoreline of Humboldt Bay or within in-water habitat of Humboldt Bay. If present in the PSB during construction activities, the species may be impacted by elevated levels of in-air and underwater noise and anthropogenic disturbance. Potential Project-related impacts to this species (if any) would be avoided through the implementation of measures described further in **Section 6.1.6**.

Bank Swallow *(Riparia riparia)*
State Threatened, Moderate Potential

Bank Swallows breed in most of North America at low elevations in suitable habitat. Breeding ranges extend from Alaska to Northern California, and occasionally occurs in the southern half of the U.S.A. Wintering grounds occur along the western coast of Central America. In California, Bank Swallows are found in Siskiyou, Shasta, Yolo, Del Norte, Humboldt, and Lassen Counties. Bank Swallows favor open habitat associated with water features such as coastlines, streams, rivers, lake banks, wetlands, agricultural areas, prairies, and riparian woodlands. Bank Swallows generally nest colonially along stream/river banks in burrows excavated perpendicular to the bank. These burrows are lined with grasses, straw, leaves, feathers, and other organic material. Bank Swallows capture insects on the wing, but will also consume aquatic insects and larvae. (Garrison 1999).

No available muddy banks/cliffs for nesting are present in the Project Site. However, there are species reliable nesting records from the Project vicinity, near the confluence of the Van Duzen and Eel River, above Fernbridge, and below Cock Robbin Island above the confluence with the Salt River (eBird 2019). Based on available habitat in the study area, the presence of any established breeding colonies at or near the Project Area is unlikely. Based on historical records and available habitat, the species has a moderate potential to be present and forage around the study area.

There are numerous recent records from the immediate Project vicinity, approximately 5 miles, including evidence of historical nesting (eBird 2020). The closest known record is from 2017 on the North Spit, approximately 1 mile south of the Project Site (eBird 2020). The Project Site does not contain suitable nesting habitat for this species (no riparian areas or muddy banks/cliffs). However, the Project Site and PSB may contain suitable foraging habitat. Based on nearby records and

available habitat, the species has a moderate potential to be present and forage within the Project Site and PSB.

If present in the Project Site or PSB during construction activities, the species may be impacted by elevated levels of noise and anthropogenic disturbance (no removal of potential nesting habitat is expected). Potential Project-related impacts to this species (if any) would be avoided through the implementation of measures described further in **Section 6.1.6**.

Special Status Amphibians

Northern Red-legged Frog *(Rana aurora)*
CDFW SSC, Moderate Potential

Northern Red-legged Frogs occur along the west coast of North America from British Columbia to California. The geographic range split between the Northern and California Red-legged Frog species occurs just south of Elk Creek in Mendocino County where both species overlap (Nafis 2020, AmphibiaWeb 2020). Northern Red-legged Frogs are typically found near freshwater sources (e.g., wetlands, ponds, streams, etc.). However, they can range widely and inhabit damp places far from water. Northern Red-legged Frogs reproduce in water from December to February in Humboldt County, with some breeding occurring as late as March. Preferred egg laying locations are in "vegetated shallows with little water flow in permanent wetlands and temporary pools" (Nafis 2016). Northern Red-legged Frogs are relatively common in and near coastal portions of Humboldt County and historical records have documented the species nearby (within approximately 5 miles of the Project Site; CDFW 2020b) (AmphibiaWeb 2020).

There are numerous recent records from the immediate Project vicinity (approximately 5 mile radius around Project Site; CDFW 2020b). The Project Site contains some suitable habitat for this species (several anthropogenic pools on-site). Suitable habitat is also present within the greater PSB. This species has moderate potential to occur with the Project Site and PSB.

If present in the Project Site or PSB during construction activities, the species may be injured or killed via crushing, entrapment, or burying (related to ground disturbance). Potential Project-related impacts to this species (if any) would be avoided through the implementation of measures described further in **Section 6.1.7**.

Special Status Fish

Green Sturgeon, Southern and Northern DPS *(Acipenser medirostris)*
Federally Threatened, CDFW SSC, Moderate Potential

The Green Sturgeon is an anadromous fish with an olive to dark green back, yellow belly, shovel-shaped snout, cartilaginous skeleton, and ossified bony scutes along its back and sides. They are long-lived fish (70+ years) that can reach lengths of up to two meters (6.6 feet; Moyle 2002, NatureServe 2019). The full range of the species extends along the Pacific Coast from the Gulf of Alaska to Ensenada, Mexico (Moyle 2002). The Southern DPS is known to breed only in the upper Sacramento River and Feather River.

During the non-breeding season, the sturgeons migrate north along the continental shelf and are found in bays and estuaries as far north as Washington and Alaska (Lindley et al. 2011, NMFS

2015). The Green Sturgeon is a benthic feeder that mostly eats small fish and invertebrates including ghost shrimp, mud shrimp, and clams. It is found in estuaries, the lower reaches of large rivers, and salt or brackish waters off river mouths. It is a demersal species that primarily occurs in the marine environment and only enters freshwater to spawn (70 FR 17386, Moyle 2002). Spawning occurs from March to July with a peak from April to June (Moyle 2002). Eggs are broadcast-spawned and externally fertilized in relatively fast flowing water. Spawning occurs in waters with depths greater than 3 m and usually in deep pools (Emmett et al. 1991). Preferred spawning substrate includes large cobble, clean sand, or bedrock (Moyle 2002). Female Green Sturgeon produce 60,000-140,000 eggs (Emmett et al. 1991). Larvae grow quickly, reaching a length of 74 millimeters (mm) within 45 days after hatching, 300 mm by one year, and 600 mm by two years (Nakamoto et al. 1995, Deng 2000). Juveniles under 300 mm are not tolerant of salinity, and are thought to spend one to three years in freshwater before entering the ocean where they disperse widely. At maturity (13-20 years), Green Sturgeon return to freshwater spawning grounds. Spawning is thought to occur every three to five years (Nakamoto et al. 1995). A number of threats have been identified for the Green Sturgeon Southern DPS including impassable barriers (dams), adult migration barriers, insufficient water flow, increased water temperatures, juvenile entrainment, exotic species, pesticides, land use practices resulting in increased sedimentation, and local harvesting (Moyle 2002).

Green Sturgeon are known to occur in Humboldt Bay, and both the northern and southern DPS are present (Pinnix 2010). Although individual fish may be present throughout Humboldt Bay, density is highest in the northern part of the Bay. Green Sturgeon generally enter Humboldt Bay in April or May and depart by September or October, with some fish spending only a day or two and others remaining for extended periods up to several months. Humboldt Bay is apparently an important summer feeding resource (Pinnix 2010). The species has no potential to occur on the Project Site, as no aquatic habitat is present. However, the species has moderate potential to occur in the PSB (specifically the eastern edge of the PSB that overlaps the Humboldt Bay Samoa Channel).

Construction will not occur on the shoreline of Humboldt Bay or within in-water habitat of Humboldt Bay. Potential Project-related impacts to this species (if any) would be avoided or minimized through the implementation of measures described further in **Section 6.1.8**.

Pacific Lamprey *(Entosphenus tridentatus)*
CDFW SSC, Moderate Potential

The Pacific Lamprey, *Entosphenus tridentatus* formerly *Lampetra tridentate*, is a primitive fish lacking true fins and jaws of true fishes (Streif 2007, Stillwater Sciences 2010). They appear eel-like and have a sucker-like mouth, no scales, and breathing holes instead of gills (Streif 2007). Pacific Lamprey range from the Japan to the Bering Sea in Alaska and along the west coast of North America to central Baja, California (Stillwater Sciences 2010).

Pacific Lamprey are anadromous with typical spawning from March through July (Stillwater Sciences et al. 2016). Both sexes build redds (nests) where eggs are deposited by moving stones with their mouths, typically in riffles of gravel-bottomed streams and upstream of quality ammocoete (larval lamprey) habitat. Females may lay 30 to 240 thousand eggs (Stillwater Sciences et al. 2016). Adults then die within a few days to a month of spawning (Streif 2007). Ammocoetes hatch within approximately 19 days depending on water temperature (Streif 2007). Upon hatching, ammocoetes

move downstream where they settle into silty sandy substrates (Streif 2007). They remain in these areas, often in colonies, for two to seven years filter feeding primarily on algae until they metamorphose into macropthalmia (juveniles; Streif 2007). During this metamorphosis, they develop eyes, a suctoral disc, sharp teeth, and more-defined fins allowing them to be free swimming (Streif 2007, Stillwater Sciences et al. 2016). As macropthalmia, they emigrate downstream to the ocean (Streif 2007). They mature into adults where they are parasitic on a variety of fishes. Adults return to their natal streams following one to three years in the marine environment (Streif 2007). There may be two major life strategies in which some adults spawn immediately upon returning to freshwater and other adults may overwinter in freshwater before spawning (Streif 2007, Stillwater Sciences et al. 2016).

This species is of particular cultural value to many native indigenous tribes, including the Weott Tribe in the larger Fortuna area, and was historically a major fishery species in the Eel River basin. Threats to their populations are similar to those experienced by salmonid species (Stillwater Sciences and Wiyot Tribe 2017). These threats include limits to passage (e.g. dams), diversions, urban development, mining, pollution, estuary modification, stream and floodplain degradation, declines in prey abundance predation by non-native species, and overharvest (Streif 2007, Stillwater Sciences and Wiyot Tribe 2017).

Pacific Lamprey move through Humboldt Bay during migration to and from freshwater spawning habitat (in-migration of adults, who die after breeding, and out-migration of juveniles). It is currently unknown how much time the species spends in the Bay before entering the Pacific Ocean (requires considerable additional study; Stillwater Sciences 2016). As no aquatic habitat is present in the Project Site, the species has no potential to occur. However, seasonal presence of this species in the PSB cannot be excluded; the species has moderate potential to seasonally occur in the PSB (specifically the Samoa Channel).

Construction will not occur on the shoreline of Humboldt Bay or within in-water habitat of Humboldt Bay. Potential Project-related impacts to this species (if any) would be avoided or minimized through the implementation of measures described further in **Section 6.1.8**.

Coho Salmon - southern Oregon / northern California ESU Coho Salmon *(Oncorhynchus kisutch)* Federally Threatened, State Threatened, Moderate Potential

The southern Oregon/northern California coast Coho Salmon ESU is defined as all Coho Salmon naturally produced in streams between Punta Gorda in northern California, Humboldt County and Cape Blanco in southern Oregon (70 FR 37160). Adult Coho Salmon enter rivers from late summer to mid-winter with most spawning occurring in early-to mid-winter. Eggs incubate for one to one and a half months during winter. Fry emerge and occupy shallow areas with vegetative cover. Juvenile Coho Salmon rear in freshwater for over a year (some for two years) before migrating to the ocean in spring (Weitkamp et al. 1995). Juveniles and yearlings spend various amounts of time in freshwater/estuary transition zones. Length of stay by an individual averages about one to two months, with spring being the heaviest time of use. Adults typically spend the next two years in the ocean before returning to their home streams to spawn (Wallace 2010).

Marine invertebrates, such as copepods, euphausids, amphipods, and crab larvae, are the primary food sources for Coho Salmon when they first enter saltwater. Fish represent an increasing proportion of the diet as Coho Salmon grow and mature (Moyle 2002).

Freshwater habitat requirements for juvenile Coho Salmon include cool water temperatures (12-14 ºC is optimal), clear water, riparian vegetation that provides shade, clean silt-free gravel for spawning, in-stream large woody debris, availability of food (invertebrates), and overwintering habitat consisting of large off-channel pools with complex cover or small spring-fed tributary streams (Moyle 2002). Coho Salmon from Humboldt Bay tributaries that rear in the estuary grow larger than their cohorts that reared farther upstream, which suggests that a stream/estuary ecotone is an important overwintering and rearing habitat for juvenile Coho Salmon (Wallace and Allen 2009).

Population declines and extirpations in individual streams and tributaries have occurred due to widespread degradation of freshwater habitats from activities such as timber harvest, road building, grazing and mining activities, urbanization, stream channelization, dam construction, wetland filling or draining, beaver trapping, and water withdrawals and diversions for irrigation (NOAA Fisheries 2011). These activities have resulted in changes to channel morphology and substrate, loss and degradation of estuaries, wetlands, and riparian areas, declines in water quality (e.g., elevated pH and water temperatures, reduced dissolved oxygen, altered stream fertility and biological communities, and toxics), altered stream flows, and fish passage impediments such as dams and road crossings (NOAA Fisheries 2011).

Construction will not occur on the shoreline of Humboldt Bay or within in-water habitat of Humboldt Bay. Potential Project-related impacts to this species (if any) would be avoided or minimized through the implementation of measures described further in **Section 6.1.8**.

Steelhead, Northern California DPS *(Oncorhynchus mykiss irideus)*
Federally Threatened, Moderate Potential

The Northern California Steelhead (northern California DPS) occupies river basins from Redwood Creek in Humboldt County to the Gualala River (near the Mendocino/Sonoma County line). Both summer and winter-run Steelhead are included in this DPS.

Steelhead spend their adult lives in marine environments, returning to freshwater at the age of four or five to spawn, usually in their stream of origin. Steelhead is the anadromous form of rainbow trout. Unlike salmon, Steelhead do not necessarily die after spawning. Eggs are deposited in redds constructed in gravel, and (for winter run fish) hatch after three to 14 weeks in later winter through spring. The hatchlings, or alevins, emerge from the gravel after an additional two to five weeks (Moyle 2002). During the egg and alevin stages, survival depends in part on the presence of clean, well-oxygenated gravel (excessive siltation contributes to mortality at these stages) (Barnhart 1991, Stillwater Sciences 2006). Juveniles remain in fresh water for one or two years before returning to saltwater, with emigration typically occurring from March through June. A second year of growth is thought to contribute to a much higher probability of survival in the open ocean (Stillwater Sciences 2006). Less is known about the life history of summer run Steelhead, although adult fish are believed to enter rivers in May (Yoshiyama and Moyle 2010).

In the Northern California DPS, the decline of Steelhead has been attributed to factors such as watershed disturbances, including logging on steep slopes, grazing, road building, water diversions, and severe habitat degradation caused by timber harvest and intensive agricultural practices. These factors have resulted in decreased flows, loss of riparian habitat, channel widening, and increased siltation and water temperatures. Despite this decline, north coast rivers and streams have the

greatest amount of Steelhead habitat in California. The most abundant populations of Steelhead are in the Klamath/Trinity River system (Barnhart 1991, Stillwater Sciences 2006).

Steelhead move through Humboldt Bay during the fall and winter, as adults return from the open ocean and migrate toward spawning streams. Juveniles are found in the bay in the spring as they disperse out of estuaries (Barnhart et al. 1992). As no aquatic habitat is present in the Project Site, the species has no potential to occur. However, seasonal presence of this species in the PSB cannot be excluded; the species has moderate potential to seasonally occur in the PSB (specifically the Samoa Channel).

Construction will not occur on the shoreline of Humboldt Bay or within in-water habitat of Humboldt Bay. Potential Project-related impacts to this species (if any) would be avoided or minimized through the implementation of measures described further in **Section 6.1.8**.

Chinook Salmon – California Coastal ESU *(Oncorhynchus tshawytscha)*
Federally Threatened, Moderate Potential

The California Coast Chinook Salmon (California coastal ESU) ranges from Redwood Creek in Humboldt County south to the Russian River in Sonoma County. California Coast Chinook Salmon spawn and rear in coastal and interior rivers in Northern California. Ocean-type Chinook (fall run) rear for less than one year in freshwater, while stream-type Chinook (spring run) remain in freshwater for one year or more before emigrating to forage in coastal and marine zones of California for two to five years (Healey 1991). Currently, only fall-run Chinook appear to be extant in the DPS. These Chinook Salmon typically migrate to the ocean within their first year from April through July, but have also been observed in Humboldt Bay in the fall (NOAA Fisheries 2007). The ideal temperature range for rearing, smolting, and migrating (seaward) Chinook Salmon appears to be 50° to 55° F (Rich 1997).

The destruction and modification of historic spawning habitat, fish passage barriers, over-harvesting, decreased floodplain connectivity and function, as well as reduced stream flow and predation are considered moderate to very high threats to this ESU. Land use activities (logging, road construction, streambank alterations, etc.), water diversions and overutilization of rivers and streams for recreational purposes are also have contributed to the decline of the ESU. The main factors limiting this Chinook Salmon ESU are low abundance, low distribution, and negative population trends. Predation by pikeminnow in the Eel River and genetic integrity are considered significant threats to the population (NOAA Fisheries 2007).

Chinook Salmon have been documented in Elk River Slough, Freshwater Slough, and Humboldt Bay (Pinnix et al. 2005, Wallace 2006). Chinook Salmon are assumed to move through Humboldt Bay on the way to and from spawning streams, but information on habitat use within Humboldt Bay is limited (Pinnix et al. 2005). As no aquatic habitat is present in the Project Site, the species has no potential to occur. However, seasonal presence of this species in the PSB cannot be excluded; the species has moderate potential to seasonally occur in the PSB (specifically the Samoa Channel).

Construction will not occur on the shoreline of Humboldt Bay or within in-water habitat of Humboldt Bay. Potential Project-related impacts to this species (if any) would be avoided or minimized through the implementation of measures described further in **Section 6.1.8**.

Longfin Smelt *(Spirinchus thaleichthys)*
Federal Candidate, State Threatened, Moderate Potential

The Longfin Smelt is a small, euryhaline, anadromous fish. In 2009, it was listed as threatened under the California Endangered Species Act (CDFG 2009a). The species has been under review for listing at the federal level several times since 1994 (USFWS 2020). In conjunction with a substantial 12-month finding, the San Francisco Bay-Delta Distinct Population Segment (DPS) of Longfin Smelt was added to the USFWS candidate species list on April 2, 2012 (77 FR 19756).

Mature adults range from about 7 to 11 cm in length (CDFW 2009b). The fish are semi-translucent silver in coloration with an olive to iridescent pink back. Most of their life is spent in brackish or saline water, while spawning occurs in freshwater (Moyle et al. 1995). The species occurs in scattered populations along the Pacific coast of North America, with the largest California population located in the San Francisco Estuary (CDFW 2009b).

Longfin Smelt generally live for two to three years. In the summer, adults inhabit bays, estuaries, or offshore waters, and reportedly prefer a temperature range of 16-18 ºCelsius (; UC Davis 2017). Adults are reported to congregate in deeper channels in the warmer months. While foraging in open water, smelt may show “daily vertical migrations, moving into deep water during the day and in the upper water column at night” to follow prey (Emmett et al. 1991, CDFW 2009c). Fish school off the mouths of spawning streams and rivers prior to upstream spawning migrations. Peak spawning is reported from February to April (UC Davis 2017). Spawning occurs at temperatures less than 16 ºC in freshwater streams (CDFW 2009b). Eggs are deposited on sand, rocks, or aquatic plants (Emmett et al. 1991). Since eggs are adhesive, they are able to stick to a variety of substrates. Females may lay between 5,000-24,000 eggs (Dryfoos 1965). Hatching occurs roughly 40 days after fertilization at water temperature of 7 ºC (Dryfoos 1965). Adults primarily die after spawning, although some females may survive another year (Moyle et al. 1995). The larval to juvenile stage of the life cycle is present from March to June in the San Francisco Bay. The Department of Fish and Game Longfin Smelt Quick Reference reports that “by June, small juveniles and older longfin have mostly emigrated…and favor deeper channel habitats relative to shoal (CDFG 2009a).”

Longfin Smelt feed on copepods and cladocerans as well as mysids, amphipods, and opossum shrimp (Moyle et al. 1995, CDFW 2009b). As a euryhaline species, they have the ability to tolerate a wide range of water salinities. However, they are not typically found in water warmer than 20 ºC and salinities outside of the range of 15-30 parts per thousand (ppt; UC Davis 2017). Spawning adult Longfin Smelt require freshwater habitat with water temperature less than 16 ºC. Eggs, larvae, and juvenile smelt require brackish-water rearing habitat (CDFW 2009b).

The Longfin Smelt has declined or been extirpated throughout much of its range due to numerous anthropogenic and environmental factors. These declines are likely the result of synergistically acting elements such as reduction in outflows, specifically in the Sacramento-San Joaquin Estuary, entrainment at water diversions, water pollution and agricultural runoff, dredging, predation by introduced species (e.g., Striped Bass, *Morone saxatilis*), and climate change (Moyle et al. 1995, CDFG 2009b).

The closest known record to the Project Site is from 2005 in Humboldt Bay (within the PSB) (CDFW 2020b). Populations are currently known in Humboldt County from the Eel River estuary and from

Humboldt Bay, although relatively few individuals have been reported from recent samples (Schlosser and Eicher 2012). Pinnix et al. 2005 captured 12 adults during fish sampling efforts at eelgrass beds in North Humboldt Bay during the fall in 2003, 2004, and 2005 (Pinnix et al. 2005). As no aquatic habitat is present in the Project Site, the species has no potential to occur. However, seasonal presence of this species in the PSB cannot be excluded; the species has moderate potential to seasonally occur in the PSB (specifically the Samoa Channel).

Construction will not occur on the shoreline of Humboldt Bay or within in-water habitat of Humboldt Bay. Eelgrass beds or estuarine habitat favored by this species would not impacted as a result of the Project. Potential Project-related impacts to this species (if any) would be avoided or minimized through the implementation of measures described further in **Section 6.1.8**.

Special Status Insects

Obscure Bumble Bee *(Bombus caliginosus)*
CDFW SAL (G4? S1S2), Moderate Potential

The Obscure Bumble Bee is primarily black with yellow on the head, forward half of the thorax, and on the fourth tergite (dorsal abdominal segment) (Project Noah 2020). Individuals can live approximately one year (Hatfield et al. 2014). They occur in coastal habitat within the fog-belt from British Columbia to southern California (Koch et al. 2012, Hatfield et al. 2014). Preferred plants for foraging include the following genera: *Baccharis, Cirsium, Lupinus, Lotus, Grindelia, Phacelia* (Koch et al. 2012). Their populations have experienced severe declines range wide. These declines are poorly understood, largely because they overlap with *Bombus vosnesenskii*, a common bee that is difficult to distinguish from *B. caliginosus* in the field (Xerces Society 2020).

The closest known record is from 1975 near the South Jetty, approximately 3 miles southwest of the Project Site (CDFW 2020b). The Project Site and PSB fall within the current documented range of the Obscure Bumble Bee and includes fog-belt coastal habitat preferred by the species (Hatfield et al. 2014). In addition, the PSB may include several of the species' food plants. Based on the location of the Project, the possible presence of host plants in the area, and historical records documenting species presence in the 7-quad search area, the Obscure Bumble Bee has a moderate likelihood of occurring within the PSB; however, the species only has a low potential to occur at the Project Site itself, as no large areas of nectar plants are present. No impacts to Obscure Bumble Bees are expected as a result of project construction (e.g., no nectar resources, nesting, or foraging habitat will be impacted). Therefore, the Project would have no impact on this species and no avoidance and minimization measures are proposed at this time.

5.4 Critical Habitat

There is no designated critical habitat within the Project Site. The PSB overlaps federally designated critical habitat within Humboldt Bay. Critical habitat was designated for the southern Green Sturgeon DPS effective November 9, 2009 (74 FR 52299). This designation includes Humboldt Bay up to the mean higher high water (MHHW) line within northern portions of the Project Area and PSB.

6. Summary of Potential Impacts and Avoidance and Minimization Measures

6.1 Proposed Avoidance and Minimization Measures

General measures are recommended to protect the water quality of Humboldt Bay from sediment and other contaminants. A summary of noise impacts is included below; refer to the Construction Noise, Vibration, and Hydroacoustic Assessment (Illingworth and Rodkin 2020) for additional details and avoidance measures resulting from noise and vibrations related to ground densification. More specific measures are recommended for special status bats, terrestrial mammals, marine mammals, birds, amphibians, and fish.

6.1.1 General Measures

- Silt fences will be deployed at onshore construction areas to prevent any sediment from flowing into Humboldt Bay. If the silt fences are not adequately containing sediment, construction activity will cease until remedial measures are implemented that prevents sediment from entering the waters east of the construction area.
- Construction materials or debris, will not be placed or stored where it may be allowed to enter into or be placed where it may be washed by rainfall into Humboldt Bay.
- Best Management Practices (BMPs) will be implemented to prevent entry of storm water runoff into Humboldt Bay during construction, the entrainment of excavated contaminated materials leaving the site, and to prevent the entry of polluted storm water runoff into coastal waters during the transportation and storage of excavated materials.
- Non-essential work vehicles and equipment will be parked at least 100 feet away from the shoreline.

6.1.2 Noise

Construction of the Project would temporarily increase noise in the immediate vicinity of the Project Site. Illingworth & Rodkin (2020) analyzed potential in-air and underwater noise impacts at the Project Site. Based on their results, in-air noise is expected not to exceed a maximum of 93 dBA (A-weighted) decibels at 50 feet (periodic max) from the noise source; however, in general, continuous noise would not exceed 88 dBA at 50 feet from the source. This is typical of construction noise involving heavy machinery. Based on the properties of noise attenuation in air (and the presence of existing structures on-site that will result in noise shielding, absorption, or bounce-back), elevated levels of in-air noise are expected to be largely restricted to the Project footprint, with slightly elevated levels of noise directly east of the project along Humboldt Bay (not expected to exceed 75 dB root-mean-squared [rms] at the Bay edge). Based on the Illingworth & Rodkin analysis, elevated levels of in-air noise are not expected to result in a significant impact to any terrestrial wildlife receptors in the vicinity. However, to avoid any potential noise disturbance to protected terrestrial wildlife species in the vicinity during construction/demolition, pre-activity surveys and buffers will be implemented as appropriate (see **Section 6.1.6** for details specific to special status birds).

In terms of underwater noise impacts, the Illingworth & Rodkin (2020) concluded noise related impacts to fish in Humboldt Bay would not result. As applicable to marine mammals, Illingworth & Rodkin (2020) further indicates that elevated levels of underwater noise are only anticipated within 330 feet (100 meters) of the shore of Humboldt Bay (east side of Project only) during construction on the southeastern-most project building (Phase 2 Grow-Out Module). These elevated underwater noise levels could rise to the level of Level B take (behavioral disturbance) of nearshore marine mammals protected under the MMPA. However, these impacts would be completely avoided (detailed in the Project's CEQA Initial Study/Mitigated Negative Declaration [IS/MND]) by only allowing for work on the portion of that structure nearest Humboldt Bay during lower tides.

6.1.3 Special Status Bats

Special status bats were not observed on the Project Site during the reconnaissance-level survey for this BRR or the targeted bat habitat assessment, and would only have a low potential to occur within the PSB based on existing habitat. However, habitat for common bat species (protected under the FGC and may occasionally form roosts that also contain special-status bat species) (buildings, crevices, pipe holes, etc.) is present at the Project Site (see Bat Habitat Assessment). Structures on the Project Site may provide habitat for a variety of bat species. Construction of the Project may impact bat species through the removal or modification of structures as well as potential noise disturbance.

A Bat Habitat Assessment was completed for the Project Site by bat expert Greg Tatarian. Evidence of past or current roosting use by common bat species was observed in three of fifteen structures surveyed (WRA 2021). A separate report detailing the survey and proposed avoidance and minimization measures (and mitigation, if appropriate), will be appended to the Project's IS/MND. Specifically, the Project shall implement the recommendations included in the following sections of the Bat Habitat Assessment (WRA 2021):

- Effective Strategies to Prevent Direct Mortality of Bats
- Use of Mitigation Roost Habitat
- Project-Specific Recommendations
- Additional Partial Dismantling Details
- Table 1 – Detailed Recommended Actions and Timing for Each Structure

6.1.4 Special Status Terrestrial Mammals

Potential Project impacts to terrestrial mammals are expected to be limited to ground disturbance/excavation. While elevated levels of noise at the Project Site may disturb terrestrial mammals in the vicinity, no impacts are expected as the species are highly mobile and likely to leave the area once noisy construction activities commence. The following construction-related protection measures are recommended during construction:

- Steep-sided excavations capable of trapping mammals shall be ramped or covered if left overnight.
- No pets (i.e., dogs) shall be allowed on the Project Site.

- No poisons (including anticoagulant rodenticides) or other potentially injurious materials attractive to mammals shall be utilized or left unattended during construction or operation activities.

6.1.5 Special Status Marine Mammals

Marine mammals are expected to occur year-round in the Project vicinity (i.e., Humboldt Bay Samoa Channel), and an increase in noise (associated with ground densification, specifically work on the southeast corner of the Phase 2 Grow-Out Module) could potentially impact marine mammals through permanent injury to hearing, temporary injury to hearing, and masking (through auditory interference) of important communication calls (NOAA 2016). The potential for these impacts to occur were evaluated separately in the Construction Noise, Vibration, and Hydroacoustic Assessment (Illingworth and Rodkin 2020).

The Illingworth and Rodkin (2020) report indicates that elevated levels of underwater noise are only anticipated within 330 feet (100 meters) of the shore of Humboldt Bay (east side of Project only) during ground densification on the Phase 2 Grow-Out Module building (shown in Figure 2 of Illingworth and Rodkin 2020). These elevated underwater noise levels could rise to the level of Level B take (behavioral disturbance) of nearshore marine mammals protected under the MMPA. To avoid any potential Project impacts to marine mammals resulting from elevated levels of underwater noise, soil densification within the eastern section of the Phase 2 Grow-Out Module footprint would only occur when the tidal surface water elevation is below the 100-meter radius where Level B injury could occur. This area is specifically shown in Figure 2 of Illingworth and Rodkin 2020.

Aside from potential noise-related impacts, no additional impacts to marine mammals in Humboldt Bay would occur.

6.1.6 Special Status Birds

Potential Project impacts to special status birds (including migratory birds) during construction and demolition may include visual disturbance, habitat destruction (no trees will be cleared; however, some species may nest on or inside buildings proposed for demolition on-site or be nesting in shrubs near the ground), and noise disturbance. Refer to the Construction Noise, Vibration, and Hydroacoustic Assessment (Illingworth and Rodkin 2020) for details related to noise disturbance resulting from ground densification.

- Ground disturbance (i.e., ground densification, construction, or demolition activities) and vegetation clearing shall be conducted, if possible, during the fall and/or winter months and outside of the avian nesting season (March 15 – August 15) to avoid any direct effects to special status and protected birds. If ground disturbance cannot be confined to work outside of the nesting season, a qualified ornithologist shall conduct pre-construction surveys within the vicinity of the Project Site, to check for nesting activity of native birds and to evaluate the site for presence of raptors and special status bird species. The ornithologist shall conduct at minimum a one day pre-construction survey within the 7-day period prior to vegetation removal and ground-disturbing activities. If ground disturbance or vegetation removal work lapses for seven

days or longer during the breeding season, a qualified ornithologist shall conduct a supplemental avian pre-construction survey before project work is reinitiated.

- If active nests are detected within the construction footprint or up to 500 feet from construction activities, the ornithologist shall flag a buffer around each nest (assuming property access). Construction activities shall avoid nest sites until the ornithologist determines that the young have fledged or nesting activity has ceased. If nests are documented outside of the construction (disturbance) footprint, but within 500 feet of the construction area, buffers will be implemented as needed (buffer size dependent on species). Buffer sizes for common species would be determined on a case-by-case basis in consultation with the CDFW and, if applicable, with USFWS. Buffer sizes will take into account factors such as (1) noise and human disturbance levels at the construction site at the time of the survey and the noise and disturbance expected during the construction activity; (2) distance and amount of vegetation or other screening between the construction site and the nest; and (3) sensitivity of individual nesting species and behaviors of the nesting birds.
- If active nests are detected during the survey, the qualified ornithologist shall monitor all nests at least once per week to determine whether birds are being disturbed. Activities that might, in the opinion of the qualified ornithologist, disturb nesting activities (e.g., excessive noise), shall be prohibited within the buffer zone until such a determination is made. If signs of disturbance or distress are observed, the qualified ornithologist shall immediately implement adaptive measures to reduce disturbance. These measures may include, but are not limited to, increasing buffer size, halting disruptive construction activities in the vicinity of the nest until fledging is confirmed or nesting activity has ceased, placement of visual screens or sound dampening structures between the nest and construction activity, reducing speed limits, replacing and updating noisy equipment, queuing trucks to distribute idling noise, locating vehicle access points and loading and shipping facilities away from noise-sensitive receptors, reducing the number of noisy construction activities occurring simultaneously, and/or reorienting and/or relocating construction equipment to minimize noise at noise-sensitive receptors.

6.1.7 Special Status Amphibians

Impacts to special status amphibians on the Project Site may include injury or mortality as a result of crushing or burying from vehicle use and excavation/earth moving. In addition, elevated levels of noise may mask species calls during the breeding season (the species call during both the day and night). To avoid impacts to special status amphibian species, the following avoidance and minimization measures are proposed:

- No more than one week prior to commencement of ground disturbance (i.e., construction or demolition activities) within 50 feet of suitable Northern Red-legged Frog habitat (e.g., pools, riparian areas, damp meadows), a qualified biologist shall perform a pre-construction survey for Northern Red-legged Frogs, and shall relocate any individuals or egg masses that occur within the work-impact zone to nearby suitable habitat.
- In the event that a Northern Red-legged Frog is observed in an active construction zone, the contractor shall halt construction activities in the immediate area where observed and the Northern Red-legged Frog shall be moved to a safe location in similar habitat outside of the construction zone.

6.1.8 Special Status Fish

No in-water work is proposed as part of this Project. Standard construction BMPs (as described in **Section 6.1.1**) to reduce the potential for polluted run-off into Humboldt Bay will be implemented to minimize impacts to aquatic resources. Based on the Construction Noise, Vibration, and Hydroacoustic Assessment (Illingworth and Rodkin 2020) any elevated underwater noise associated with terrestrial construction activities will not result in any significant impacts to fish. Given no in-water work is proposed, standard BMPs will be implemented, and no impacts associated with elevated levels of underwater noise are expected, no impacts to species status fish would occur. Avoidance and minimization measures are thus not proposed.

6.1.9 Special Status Bees

Although the Project Site and PSB fall within the species pre-2002 range for the Western Bumble Bee, the range has contracted significantly in the last decade and now only includes the intermountain west and cascade regions of the U.S. (Williams et al. 2014, Xerces Society et al. 2018). Additionally, there are only a handful of records of the species from the County, and most of those are historical (BumbleBee Watch 2021). The closest records are from 1971, 1976, and 1993 (CDFW 2020b).

Potential impacts (although unlikely, due to the rarity of the species on the landscape) could occur if considerable areas of nesting or foraging habitat (large areas of nectar plants) were planned for clearing/grubbing or excavation on this Project. However, this is not proposed or expected. This is a brownfield site with marginal habitat for the species at best. Project activities (including revegetation and restoration activities) are actually expected to improve habitat for dune bee species (if present) in the vicinity and result in a net benefit (see details in the Project's Restoration and Monitoring Plan; GHD 2021d). 0.75 acres of existing dune mat will be enhanced by restoration planting on-site (GHD 2021d). 0.41 acres of invasive European beachgrass (*Ammophila arenaria*) and yellow bush lupine (*Lupinus arboreus*) removal will be planted with dune mat species on-site (GHD 2021d). The HBHRCD parcel to be enhanced is 0.5 acres. Restoration efforts will also include 0.18 acres of European beachgrass removal on-site and 2.8 acres of European beachgrass removal off-site (GHD 2021d).

In addition, a recent court case calls into question the legality of CESA candidate status (and associated incidental take permit requirements) for four bumble bee species, including the Western Bumble Bee in California (Defenders of Wildlife 2020). Although the status and regulatory requirements for this species are currently in flux, regulatory changes are not anticipated to affect this Project for the following reasons: (1) the species is highly rare on the landscape with no recent records from the Project vicinity, (2) the species is not likely to occur based on degraded habitat conditions at the brownfield site, (3) and no significant impacts to potential bee habitat are expected. Based on previous negotiations with CDFW, the current guidance is to treat Western Bumble Bee as a candidate species for the time being, with the threshold for impact being significant impacts or loss to nectar resources.

7. Conclusion

Four special status mammal species, seventeen special status bird species, one special status amphibian, five special status fish, and one special status insect may occur at the Project Site or in immediately adjacent habitat within the PSB. With implementation of measures described in **Section 6.1**, any potential Project-related impacts to sensitive wildlife species will be avoided or minimized. More specific measures may be identified in subsequent environmental review and permit applications.

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10. List of Preparers

Prepared by:

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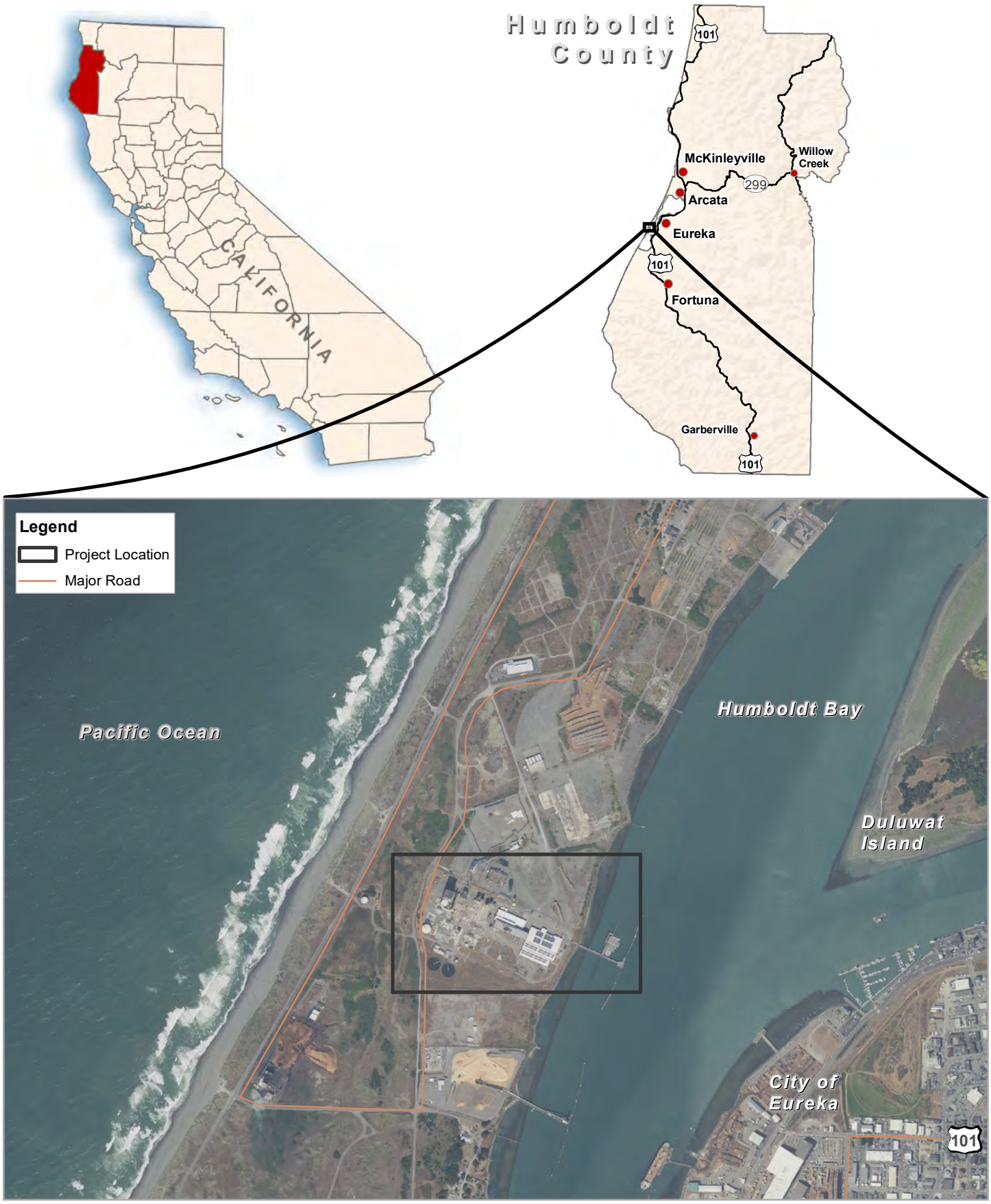
APPENDICES

Appendix A Figures



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Nordic Aquafarms California, LLC
Samoa Peninsula Sustainable Aquaculture Development Project
Samoa, Humboldt County, California

Vicinity Map

Project No. **11205607**
Revision No. **1**
Date **Jan 2021**

FIGURE 1

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Data source: Sources: Esri, USGS, NOAA. Created by: jclark2

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Nordic Aquafarms California, LLC
Samoa Peninsula Sustainable Aquaculture Development Project
Samoa, Humboldt County, California

Project Area

Project No. **11205607**
Revision No. **1**
Date **Jan 2021**

FIGURE 2

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Data source: USDA, NAIP Imagery, 2018; Humboldt County Parcel Dataset, 2019. Created by: jclark2

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Nordic Aquafarms California, LLC
Samoa Peninsula Sustainable Aquaculture Development Project
Samoa, Humboldt County, California

Project Study Boundary

Project No. **11205607**
Revision No. **1**
Date **Jan 2021**

FIGURE 3

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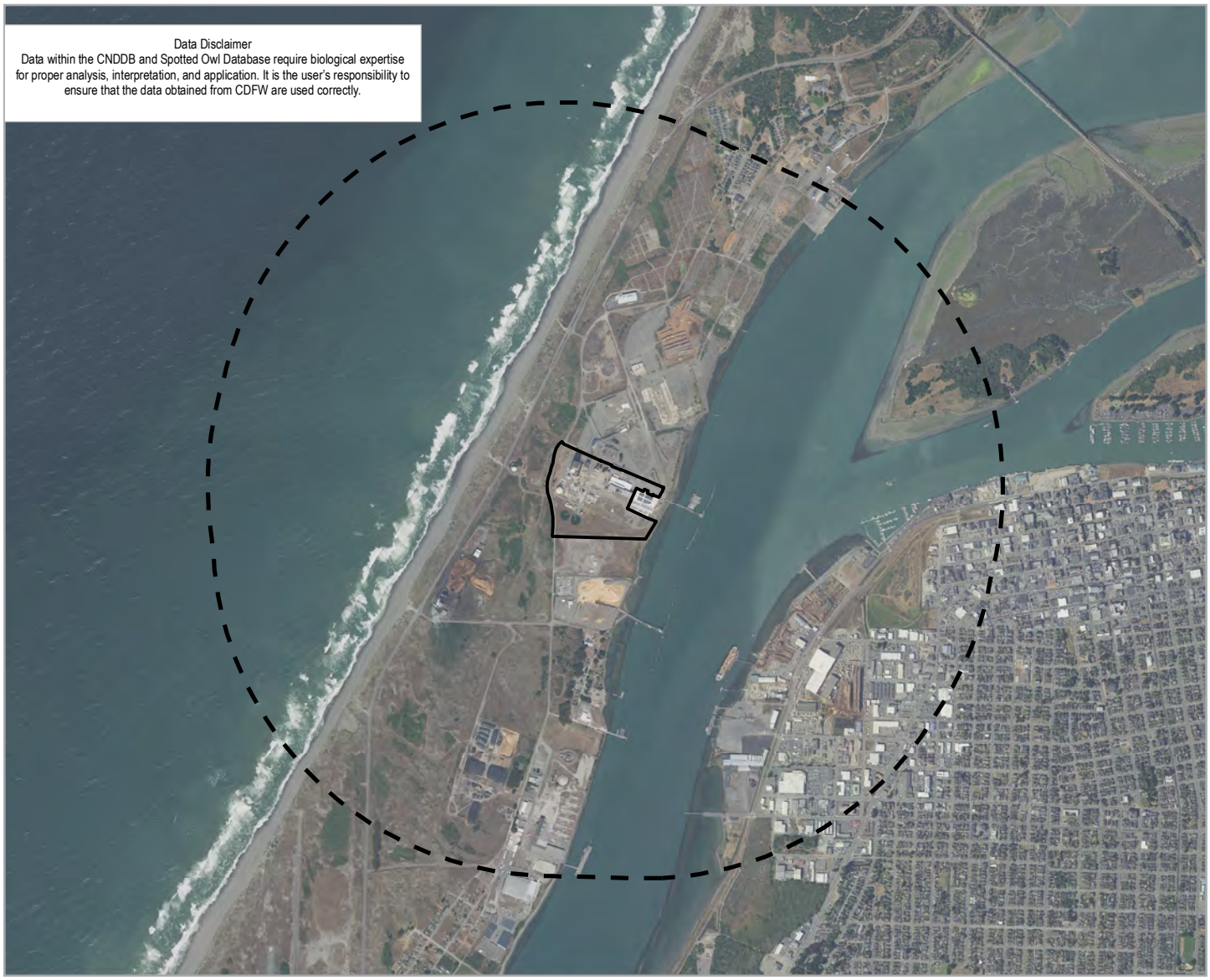

Legend

1 mile buffer (Area of Interest)

Project Location

CNDDB Occurrences within Area of Interest

- California Ridgway's rail
- Howell's montia
- Humboldt Bay owl's-clover
- Humboldt mountain beaver
- Menzies' wallflower
- Northern Coastal Salt Marsh
- Oregon coast paintbrush
- Point Reyes salty bird's-beak
- alpine marsh violet
- bank swallow
- beach layia
- black-crowned night heron
- coast fawn lily
- coastal marsh milk-vetch
- dark-eyed gilia
- eulachon
- green sturgeon
- longfin smelt
- maple-leaved checkerbloom
- marsh pea
- northern clustered sedge
- obscure bumble bee
- perennial goldfields
- pink sand-verbena
- round-headed Chinese-houses
- sandy beach tiger beetle
- western bumble bee
- western lily
- western sand-spurrey
- western snowy plover
- yellow rail

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Map Projection: Lambert Conformal Conic
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Nordic Aquafarms California, LLC
Samoa Peninsula Sustainable Aquaculture Development Project
Samoa, Humboldt County, California

CNDDB Occurrences
1 mile radius

Project No. **11205607**
Revision No. **1**
Date **Jan 2021**

FIGURE 4

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Data source: CNDDB, June, 2020; . Created by: jclark2

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Feet

Map Projection: Lambert Conformal Conic
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Nordic Aquafarms California, LLC
Samoa Peninsula Sustainable Aquaculture Development Project
Samoa, Humboldt County, California

National Wetland Inventory

Project No. **11205607**
Revision No. **1**
Date **Jan 2021**

FIGURE 5

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Map Projection: Lambert Conformal Conic
Horizontal Datum: North American 1983
Grid: NAD 1983 StatePlane California I FIPS 0401 Feet

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Nordic Aquafarms California, LLC
Samoa Peninsula Sustainable Aquaculture Development Project
Samoa, Humboldt County, California

Osprey Nest Locations at Redwood Marine Terminal II

Project No. **11205607**
Revision No. **1**
Date **Jan 2021**

FIGURE 6

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Print date: 07 Jan 2021 - 13:30

Data source: Osprey locations, Dec 2020; USDA, NAIP Imagery, 2018; . Created by: jclark2

Appendix B CNDDB Database Search Results

Appendix B. Samoa Peninsula Land-based Aquaculture Project – 7-Quad Database Search of CDFW CNDDB centered on Project quad (Eureka) on 04.28.2020. Quads included Tyee City, Arcata North, Arcata South, McWhinney Creek, Fields Landing, and Cannibal Island.											
SciName	ComName	Taxon Group	FedList	CalList	GRank	SRank	CRPR	OthrStatus	Habitats	GenHab	MicroHab
Ascaphus truei	Pacific tailed frog	Amphibians	None	None	G4	S3S4		CDFW_SSC-Species of Special Concern | IUCN_LC-Least Concern	Aquatic | Klamath/North coast flowing waters | Lower montane coniferous forest | North coast coniferous forest | Redwood | Riparian forest	Occurs in montane hardwood-conifer, redwood, Douglas-fir & ponderosa pine habitats.	Restricted to perennial montane streams. Tadpoles require water below 15 degrees C.

Rana aurora	northern red-legged frog	Amphibians	None	None	G4	S3		CDFW_SSC-Species of Special Concern | IUCN_LC-Least Concern | USFS_S-Sensitive	Klamath/North coast flowing waters | Riparian forest | Riparian woodland	Humid forests, woodlands, grasslands, and streamsides in northwestern California, usually near dense riparian cover.	Generally near permanent water, but can be found far from water, in damp woods and meadows, during non-breeding season.

Rana boylii	foothill yellow-legged frog	Amphibians	None	Candidate Threatened	G3	S3		BLM_S-Sensitive | CDFW_SSC-Species of Special Concern | IUCN_NT-Near Threatened | USFS_S-Sensitive	Aquatic | Chaparral | Cismontane woodland | Coastal scrub | Klamath/North coast flowing waters | Lower montane coniferous forest | Meadow & seep | Riparian forest | Riparian woodland | Sacramento/San Joaquin flowing waters	Partly-shaded, shallow streams and riffles with a rocky substrate in a variety of habitats.	Needs at least some cobble-sized substrate for egg-laying. Needs at least 15 weeks to attain metamorphosis.

Rhyacotriton variegatus	southern torrent salamander	Amphibians	None	None	G3G4	S2S3		CDFW_SSC-Species of Special Concern | IUCN_LC-Least Concern | USFS_S-Sensitive	Lower montane coniferous forest | Oldgrowth | Redwood | Riparian forest	Coastal redwood, Douglas-fir, mixed conifer, montane riparian, and montane hardwood-conifer habitats. Old growth forest.	Cold, well-shaded, permanent streams and seepages, or within splash zone or on moss-covered rocks within trickling water.
Accipiter striatus	sharp-shinned hawk	Birds	None	None	G5	S4		CDFW_WL-Watch List | IUCN_LC-Least Concern	Cismontane woodland | Lower montane coniferous forest | Riparian forest | Riparian woodland	Ponderosa pine, black oak, riparian deciduous, mixed conifer, and Jeffrey pine habitats. Prefers riparian areas.	North-facing slopes with plucking perches are critical requirements. Nests usually within 275 ft of water.

Ardea alba	great egret	Birds	None	None	G5	S4		CDF_S-Sensitive | IUCN_LC-Least Concern	Brackish marsh | Estuary | Freshwater marsh | Marsh & swamp | Riparian forest | Wetland	Colonial nester in large trees.	Rookery sites located near marshes, tide-flats, irrigated pastures, and margins of rivers and lakes.
Ardea herodias	great blue heron	Birds	None	None	G5	S4		CDF_S-Sensitive | IUCN_LC-Least Concern	Brackish marsh | Estuary | Freshwater marsh | Marsh & swamp | Riparian forest | Wetland	Colonial nester in tall trees, cliffsides, and sequestered spots on marshes.	Rookery sites in close proximity to foraging areas: marshes, lake margins, tide-flats, rivers and streams, wet meadows.

Brachyramphus marmoratus	marbled murrelet	Birds	Threatened	Endangered	G3G4	S1		CDF_S-Sensitive | IUCN_EN-Endangered | NABCI_RWL-Red Watch List	Lower montane coniferous forest | Oldgrowth | Redwood	Feeds near-shore; nests inland along coast from Eureka to Oregon border and from Half Moon Bay to Santa Cruz.	Nests in old-growth redwood-dominated forests, up to six miles inland, often in Douglas-fir.
Charadrius alexandrinus nivosus	western snowy plover	Birds	Threatened	None	G3T3	S2S3		CDFW_SSC-Species of Special Concern | NABCI_RWL-Red Watch List | USFWS_BCC-Birds of Conservation Concern	Great Basin standing waters | Sand shore | Wetland	Sandy beaches, salt pond levees & shores of large alkali lakes.	Needs sandy, gravelly or friable soils for nesting.

Charadrius montanus	mountain plover	Birds	None	None	G3	S2S3		BLM_S-Sensitive | CDFW_SSC-Species of Special Concern | IUCN_NT-Near Threatened | NABCI_RWL-Red Watch List | USFWS_BCC-Birds of Conservation Concern	Chenopod scrub | Valley & foothill grassland	Short grasslands, freshly plowed fields, newly sprouting grain fields, & sometimes sod farms.	Short vegetation, bare ground, and flat topography. Prefers grazed areas and areas with burrowing rodents.
Circus hudsonius	northern harrier	Birds	None	None	G5	S3		CDFW_SSC-Species of Special Concern | IUCN_LC-Least Concern	Coastal scrub | Great Basin grassland | Marsh & swamp | Riparian scrub | Valley & foothill grassland | Wetland	Coastal salt & freshwater marsh. Nest and forage in grasslands, from salt grass in desert sink to mountain cienagas.	Nests on ground in shrubby vegetation, usually at marsh edge; nest built of a large mound of sticks in wet areas.

Coturnicops noveboracensis	yellow rail	Birds	None	None	G4	S1S2		CDFW_SSC-Species of Special Concern | IUCN_LC-Least Concern | NABCI_RWL-Red Watch List | USFS_S-Sensitive | USFWS_BCC-Birds of Conservation Concern	Freshwater marsh | Meadow & seep	Summer resident in eastern Sierra Nevada in Mono County.	Freshwater marshlands.
Egretta thula	snowy egret	Birds	None	None	G5	S4		IUCN_LC-Least Concern	Marsh & swamp | Meadow & seep | Riparian forest | Riparian woodland | Wetland	Colonial nester, with nest sites situated in protected beds of dense tules.	Rookery sites situated close to foraging areas: marshes, tidal-flats, streams, wet meadows, and borders of lakes.

Elanus leucurus	white-tailed kite	Birds	None	None	G5	S3S4		BLM_S-Sensitive | CDFW_FP-Fully Protected | IUCN_LC-Least Concern	Cismontane woodland | Marsh & swamp | Riparian woodland | Valley & foothill grassland | Wetland	Rolling foothills and valley margins with scattered oaks & river bottomlands or marshes next to deciduous woodland.	Open grasslands, meadows, or marshes for foraging close to isolated, dense-topped trees for nesting and perching.
Haliaeetus leucocephalus	bald eagle	Birds	Delisted	Endangered	G5	S3		BLM_S-Sensitive | CDF_S-Sensitive | CDFW_FP-Fully Protected | IUCN_LC-Least Concern | USFS_S-Sensitive | USFWS_BCC-Birds of Conservation Concern	Lower montane coniferous forest | Oldgrowth	Ocean shore, lake margins, and rivers for both nesting and wintering. Most nests within 1 mile of water.	Nests in large, old-growth, or dominant live tree with open branches, especially ponderosa pine. Roosts communally in winter.

Nycticorax nycticorax	black-crowned night heron	Birds	None	None	G5	S4		IUCN_LC-Least Concern	Marsh & swamp | Riparian forest | Riparian woodland | Wetland	Colonial nester, usually in trees, occasionally in tule patches.	Rookery sites located adjacent to foraging areas: lake margins, mud-bordered bays, marshy spots.
Pandion haliaetus	osprey	Birds	None	None	G5	S4		CDF_S-Sensitive | CDFW_WL-Watch List | IUCN_LC-Least Concern	Riparian forest	Ocean shore, bays, freshwater lakes, and larger streams.	Large nests built in tree-tops within 15 miles of a good fish-producing body of water.
Phalacrocorax auritus	double-crested cormorant	Birds	None	None	G5	S4		CDFW_WL-Watch List | IUCN_LC-Least Concern	Riparian forest | Riparian scrub | Riparian woodland	Colonial nester on coastal cliffs, offshore islands, and along lake margins in the interior of the state.	Nests along coast on sequestered islets, usually on ground with sloping surface, or in tall trees along lake margins.

Rallus obsoletus obsoletus	California Ridgway's rail	Birds	Endangered	Endangered	G5T1	S1		CDFW_FP-Fully Protected | NABCI_RWL-Red Watch List	Brackish marsh | Marsh & swamp | Salt marsh | Wetland	Salt water and brackish marshes traversed by tidal sloughs in the vicinity of San Francisco Bay.	Associated with abundant growths of pickleweed, but feeds away from cover on invertebrates from mud-bottomed sloughs.
Riparia riparia	bank swallow	Birds	None	Threatened	G5	S2		BLM_S-Sensitive | IUCN_LC-Least Concern	Riparian scrub | Riparian woodland	Colonial nester; nests primarily in riparian and other lowland habitats west of the desert.	Requires vertical banks/cliffs with fine-textured/sandy soils near streams, rivers, lakes, ocean to dig nesting hole.
Fissidens pauperculus	minute pocket moss	Bryophytes	None	None	G3?	S2	1B.2	USFS_S-Sensitive	North coast coniferous forest | Redwood	North coast coniferous forest.	Moss growing on damp soil along the coast. In dry streambeds and on stream banks. 30-1025 m.

Trichodon cylindricus	cylindrical trichodon	Bryophytes	None	None	G4G5	S2	2B.2		Broadleaved upland forest | Meadow & seep | Upper montane coniferous forest	Broadleafed upland forest, upper montane coniferous forest, meadows and seeps.	Moss growing in openings on sandy or clay soils on roadsides, stream banks, trails or in fields. 35-2005 m.
Abronia umbellata var. breviflora	pink sand-verbena	Dicots	None	None	G4G5T2	S2	1B.1	BLM_S-Sensitive | SB_RSABG-Rancho Santa Ana Botanic Garden	Coastal dunes	Coastal dunes and coastal strand.	Foredunes and interdunes with sparse cover. A. umbellata var. breviflora is usually the plant closest to the ocean. 0-75 m.

Astragalus pycnostachyus var. pycnostachyus	coastal marsh milk-vetch	Dicots	None	None	G2T2	S2	1B.2	BLM_S-Sensitive | SB_RSABG-Rancho Santa Ana Botanic Garden | SB_SBBG-Santa Barbara Botanic Garden | SB_UCBG-UC Botanical Garden at Berkeley	Coastal dunes | Coastal scrub | Marsh & swamp | Wetland	Coastal dunes,marshes and swamps, coastal scrub.	Mesic sites in dunes or along streams or coastal salt marshes. 0-155 m.
Cardamine angulata	seaside bittercress	Dicots	None	None	G4G5	S3	2B.1		Lower montane coniferous forest | North coast coniferous forest | Wetland	North coast coniferous forest, lower montane coniferous forest.	Wet areas, streambanks. 5-515 m.
Castilleja ambigua var. humboldtiensis	Humboldt Bay owl's-clover	Dicots	None	None	G4T2	S2	1B.2	BLM_S-Sensitive	Marsh & swamp | Salt marsh | Wetland	Marshes and swamps.	In coastal saltmarsh with Spartina, Distichlis, Salicornia, Jaumea. 0-20 m.

Castilleja litoralis	Oregon coast paintbrush	Dicots	None	None	G3	S3	2B.2		Coastal bluff scrub | Coastal dunes | Coastal scrub	Coastal bluff scrub, coastal dunes, coastal scrub.	Sandy sites. 5-255 m.
Chloropyron maritimum ssp. palustre	Point Reyes salty bird's-beak	Dicots	None	None	G4?T2	S2	1B.2	BLM_S-Sensitive	Marsh & swamp | Salt marsh | Wetland	Coastal salt marsh.	Usually in coastal salt marsh with Salicornia, Distichlis, Jaumea, Spartina, etc. 0-115 m.
Collinsia corymbosa	round-headed Chinese-houses	Dicots	None	None	G1	S1	1B.2		Coastal dunes	Coastal dunes.	0-30 m.
Erysimum menziesii	Menzies' wallflower	Dicots	Endangered	Endangered	G1	S1	1B.1	SB_RSABG-Rancho Santa Ana Botanic Garden | SB_UCBG-UC Botanical Garden at Berkeley	Coastal dunes	Coastal dunes.	Localized on dunes and coastal strand. 1-25 m.

Gilia capitata ssp. pacifica	Pacific gilia	Dicots	None	None	G5T3	S2	1B.2		Chaparral | Coastal bluff scrub | Coastal prairie | Valley & foothill grassland	Coastal bluff scrub, chaparral, coastal prairie, valley and foothill grassland.	5-1345 m.
Gilia millefoliata	dark-eyed gilia	Dicots	None	None	G2	S2	1B.2	BLM_S-Sensitive	Coastal dunes	Coastal dunes.	1-60 m.
Hesperevax sparsiflora var. brevifolia	short-leaved evax	Dicots	None	None	G4T3	S2	1B.2	BLM_S-Sensitive	Coastal bluff scrub | Coastal dunes | Coastal prairie	Coastal bluff scrub, coastal dunes, coastal prairie.	Sandy bluffs and flats. 0-640 m.
Lasthenia californica ssp. macrantha	perennial goldfields	Dicots	None	None	G3T2	S2	1B.2		Coastal bluff scrub | Coastal dunes | Coastal scrub	Coastal bluff scrub, coastal dunes, coastal scrub.	5-185 m.
Lathyrus japonicus	seaside pea	Dicots	None	None	G5	S2	2B.1		Coastal dunes	Coastal dunes.	3-65 m.

Lathyrus palustris	marsh pea	Dicots	None	None	G5	S2	2B.2		Bog & fen | Coastal prairie | Coastal scrub | Lower montane coniferous forest | Marsh & swamp | North coast coniferous forest | Wetland	Bogs & fens, lower montane coniferous forest, marshes and swamps, north coast coniferous forest, coastal prairie, coastal scrub.	Moist coastal areas. 2-140 m.
Layia carnosa	beach layia	Dicots	Endangered	Endangered	G2	S2	1B.1	SB_RSABG-Rancho Santa Ana Botanic Garden | SB_SBBG-Santa Barbara Botanic Garden	Coastal dunes | Coastal scrub	Coastal dunes, coastal scrub.	On sparsely vegetated, semi-stabilized dunes, usually behind foredunes. 3-30 m.

Mitellastra caulescens	leafy-stemmed mitrewort	Dicots	None	None	G5	S4	4.2		Broadleaved upland forest | Lower montane coniferous forest | Meadow & seep | North coast coniferous forest	Broadleafed upland forest, lower montane coniferous forest, meadows and seeps, north coast coniferous forest.	Mesic sites. 5-1700 m.
Monotropa uniflora	ghost-pipe	Dicots	None	None	G5	S2	2B.2		Broadleaved upland forest | North coast coniferous forest	Broadleafed upland forest, north coast coniferous forest.	Often under redwoods or western hemlock. 15-855 m.
Montia howellii	Howell's montia	Dicots	None	None	G3G4	S2	2B.2		Meadow & seep | North coast coniferous forest | Vernal pool | Wetland	Meadows and seeps, north coast coniferous forest, vernal pools.	Vernally wet sites; often on compacted soil. 10-1215 m.

Oenothera wolfii	Wolf's evening-primrose	Dicots	None	None	G2	S1	1B.1	BLM_S-Sensitive | SB_BerrySB-Berry Seed Bank	Coastal bluff scrub | Coastal dunes | Coastal prairie	Coastal bluff scrub, coastal dunes, coastal prairie, lower montane coniferous forest.	Sandy substrates; usually mesic sites. 0-125 m.
Sidalcea malachroides	maple-leaved checkerbloom	Dicots	None	None	G3	S3	4.2		Broadleaved upland forest | Coastal prairie | Coastal scrub | North coast coniferous forest | Riparian forest	Broadleafed upland forest, coastal prairie, coastal scrub, north coast coniferous forest, riparian forest.	Woodlands and clearings near coast; often in disturbed areas. 4-765 m.
Sidalcea malviflora ssp. patula	Siskiyou checkerbloom	Dicots	None	None	G5T2	S2	1B.2	BLM_S-Sensitive	Coastal bluff scrub | Coastal prairie | North coast coniferous forest	Coastal bluff scrub, coastal prairie, north coast coniferous forest.	Open coastal forest; roadcuts. 5-1255 m.

Sidalcea oregana ssp. eximia	coast checkerbloom	Dicots	None	None	G5T1	S1	1B.2	BLM_S-Sensitive	Lower montane coniferous forest | Meadow & seep | North coast coniferous forest | Wetland	Meadows and seeps, north coast coniferous forest, lower montane coniferous forest.	Near meadows, in gravelly soil. 5-1805 m.
Silene scouleri ssp. scouleri	Scouler's catchfly	Dicots	None	None	G5T4T5	S2S3	2B.2		Coastal bluff scrub | Coastal prairie | Valley & foothill grassland	Coastal bluff scrub, coastal prairie, valley and foothill grassland.	5-315 m.
Spergularia canadensis var. occidentalis	western sand-spurrey	Dicots	None	None	G5T4	S1	2B.1		Marsh & swamp | Wetland	Marshes and swamps (coastal salt marshes).	0-3 m.
Viola palustris	alpine marsh violet	Dicots	None	None	G5	S1S2	2B.2		Bog & fen | Coastal scrub | Wetland	Coastal scrub, bogs and fens.	Swampy, shrubby places in coastal scrub or coastal bogs. 0-150 m.
Northern Foredune Grassland	Northern Foredune Grassland	Dune	None	None	G1	S1.1			Coastal dunes		

Lycopodium clavatum	running-pine	Ferns	None	None	G5	S3	4.1		Lower montane coniferous forest | Marsh & swamp | North coast coniferous forest | Wetland	Lower montane coniferous forest, north coast coniferous forest, marshes and swamps.	Forest understory, edges, openings, roadsides; mesic sites with partial shade and light. 45-1225 m.
Acipenser medirostris	green sturgeon	Fish	Threatened	None	G3	S1S2		AFS_VU-Vulnerable | CDFW_SSC-Species of Special Concern | IUCN_NT-Near Threatened | NMFS_SC-Species of Concern	Aquatic | Klamath/North coast flowing waters | Sacramento/San Joaquin flowing waters	These are the most marine species of sturgeon. Abundance increases northward of Point Conception. Spawns in the Sacramento, Klamath, & Trinity Rivers.	Spawns at temps between 8-14 C. Preferred spawning substrate is large cobble, but can range from clean sand to bedrock.

Entosphenus tridentatus	Pacific lamprey	Fish	None	None	G4	S4		AFS_VU-Vulnerable | BLM_S-Sensitive | CDFW_SSC-Species of Special Concern | USFS_S-Sensitive	Aquatic | Klamath/North coast flowing waters | Sacramento/San Joaquin flowing waters | South coast flowing waters	Found in Pacific Coast streams north of San Luis Obispo County, however regular runs in Santa Clara River. Size of runs is declining.	Swift-current gravel-bottomed areas for spawning with water temps between 12-18 C. Ammocoetes need soft sand or mud.
Eucyclogobius newberryi	tidewater goby	Fish	Endangered	None	G3	S3		AFS_EN-Endangered | CDFW_SSC-Species of Special Concern | IUCN_VU-Vulnerable	Aquatic | Klamath/North coast flowing waters | Sacramento/San Joaquin flowing waters | South coast flowing waters	Brackish water habitats along the California coast from Agua Hedionda Lagoon, San Diego County to the mouth of the Smith River.	Found in shallow lagoons and lower stream reaches, they need fairly still but not stagnant water and high oxygen levels.

Lampetra richardsoni	western brook lamprey	Fish	None	None	G4G5	S3S4		CDFW_SSC-Species of Special Concern | USFS_S-Sensitive			
Oncorhynchus clarkii clarkii	coast cutthroat trout	Fish	None	None	G4T4	S3		AFS_VU-Vulnerable | CDFW_SSC-Species of Special Concern | USFS_S-Sensitive	Aquatic | Klamath/North coast flowing waters	Small coastal streams from the Eel River to the Oregon border.	Small, low gradient coastal streams and estuaries. Needs shaded streams with water temperatures <18C, and small gravel for spawning.
Oncorhynchus kisutch pop. 2	coho salmon - southern Oregon / northern California ESU	Fish	Threatened	Threatened	G4T2Q	S2?		AFS_TH-Threatened	Aquatic | Klamath/North coast flowing waters | Sacramento/San Joaquin flowing waters	Federal listing refers to populations between Cape Blanco, Oregon and Punta Gorda, Humboldt County, California.	State listing refers to populations between the Oregon border and Punta Gorda, California.

Oncorhynchus mykiss irideus pop. 16	steelhead - northern California DPS	Fish	Threatened	None	G5T2T3Q	S2S3		AFS_TH-Threatened	Aquatic | Sacramento/San Joaquin flowing waters	Coastal basins from Redwood Creek south to the Gualala River, inclusive. Does not include summer-run steelhead.	
Spirinchus thaleichthys	longfin smelt	Fish	Candidate	Threatened	G5	S1			Aquatic | Estuary	Euryhaline, nektonic & anadromous. Found in open waters of estuaries, mostly in middle or bottom of water column.	Prefer salinities of 15-30 ppt, but can be found in completely freshwater to almost pure seawater.

Thaleichthys pacificus	eulachon	Fish	Threatened	None	G5	S3			Aquatic | Klamath/North coast flowing waters	Found in Klamath River, Mad River, Redwood Creek, and in small numbers in Smith River and Humboldt Bay tributaries.	Spawn in lower reaches of coastal rivers with moderate water velocities and bottom of pea-sized gravel, sand, and woody debris.
Sitka Spruce Forest	Sitka Spruce Forest	Forest	None	None	G1	S1.1					
Coastal Terrace Prairie	Coastal Terrace Prairie	Herbaceous	None	None	G2	S2.1			Coastal prairie		
Bombus caliginosus	obscure bumble bee	Insects	None	None	G4?	S1S2		IUCN_VU-Vulnerable		Coastal areas from Santa Barabara county to north to Washington state.	Food plant genera include Baccharis, Cirsium, Lupinus, Lotus, Grindelia and Phacelia.

Bombus occidentalis	western bumble bee	Insects	None	Candidate Endangered	G2G3	S1		USFS_S-Sensitive | XERCES_IM-Imperiled		Once common & widespread, species has declined precipitously from central CA to southern B.C., perhaps from disease.	
Cicindela hirticollis gravida	sandy beach tiger beetle	Insects	None	None	G5T2	S2			Coastal dunes	Inhabits areas adjacent to non-brackish water along the coast of California from San Francisco Bay to northern Mexico.	Clean, dry, light-colored sand in the upper zone. Subterranean larvae prefer moist sand not affected by wave action.
Bryoria spiralifera	twisted horsehair lichen	Lichens	None	None	G1G2	S1S2	1B.1		North coast coniferous forest	North coast coniferous forest.	Usually on conifers. 5-30 m.

Usnea longissima	Methuselah's beard lichen	Lichens	None	None	G4	S4	4.2	BLM_S-Sensitive	Broadleaved upland forest | North coast coniferous forest | Oldgrowth | Redwood	North coast coniferous forest, broadleafed upland forest.	Grows in the "redwood zone" on tree branches of a variety of trees, including big leaf maple, oaks, ash, Douglas-fir, and bay. 45-1465 m in California.
Aplodontia rufa humboldtiana	Humboldt mountain beaver	Mammals	None	None	G5TNR	SNR			Coastal scrub | Redwood | Riparian forest	Coast Range in southwestern Del Norte County and northwestern Humboldt County.	Variety of coastal habitats, including coastal scrub, riparian forests, typically with open canopy and thickly vegetated understory.

Arborimus albipes	white-footed vole	Mammals	None	None	G3G4	S2		CDFW_SSC-Species of Special Concern | IUCN_LC-Least Concern	North coast coniferous forest | Redwood | Riparian forest	Mature coastal forests in Humboldt and Del Norte counties. Prefers areas near small, clear streams with dense alder and shrubs.	Occupies the habitat from the ground surface to the canopy. Feeds in all layers and nests on the ground under logs or rock.
Arborimus pomo	Sonoma tree vole	Mammals	None	None	G3	S3		CDFW_SSC-Species of Special Concern | IUCN_NT-Near Threatened	North coast coniferous forest | Oldgrowth | Redwood	North coast fog belt from Oregon border to Somona County. In Douglas-fir, redwood & montane hardwood-conifer forests.	Feeds almost exclusively on Douglas-fir needles. Will occasionaly take needles of grand fir, hemlock or spruce.

Corynorhinus townsendii	Townsend's big-eared bat	Mammals	None	None	G3G4	S2		BLM_S-Sensitive | CDFW_SSC-Species of Special Concern | IUCN_LC-Least Concern | USFS_S-Sensitive | WBWG_H-High Priority	Broadleaved upland forest | Chaparral | Chenopod scrub | Great Basin grassland | Great Basin scrub | Joshua tree woodland | Lower montane coniferous forest | Meadow & seep | Mojavean desert scrub | Riparian forest | Riparian woodland | Sonoran desert scrub |	Throughout California in a wide variety of habitats. Most common in mesic sites.	Roosts in the open, hanging from walls and ceilings. Roosting sites limiting. Extremely sensitive to human disturbance.

Erethizon dorsatum	North American porcupine	Mammals	None	None	G5	S3		IUCN_LC-Least Concern	Broadleaved upland forest | Cismontane woodland | Closed-cone coniferous forest | Lower montane coniferous forest | North coast coniferous forest | Upper montane coniferous forest	Forested habitats in the Sierra Nevada, Cascade, and Coast ranges, with scattered observations from forested areas in the Transverse Ranges.	Wide variety of coniferous and mixed woodland habitat.
Martes caurina humboldtensis	Humboldt marten	Mammals	None	Endangered	G5T1	S1		CDFW_SSC-Species of Special Concern | USFS_S-Sensitive	North coast coniferous forest | Oldgrowth | Redwood	Occurs only in the coastal redwood zone from the Oregon border south to Sonoma County.	Associated with late-successional coniferous forests, prefer forests with low, overhead cover.

Myotis evotis	long-eared myotis	Mammals	None	None	G5	S3		BLM_S-Sensitive | IUCN_LC-Least Concern | WBWG_M-Medium Priority		Found in all brush, woodland and forest habitats from sea level to about 9000 ft. Prefers coniferous woodlands and forests.	Nursery colonies in buildings, crevices, spaces under bark, and snags. Caves used primarily as night roosts.
Pekania pennanti	fisher - West Coast DPS	Mammals	None	Threatened	G5T2T3Q	S2S3		BLM_S-Sensitive | CDFW_SSC-Species of Special Concern | USFS_S-Sensitive	North coast coniferous forest | Oldgrowth | Riparian forest	Intermediate to large-tree stages of coniferous forests and deciduous-riparian areas with high percent canopy closure.	Uses cavities, snags, logs and rocky areas for cover and denning. Needs large areas of mature, dense forest.
Northern Coastal Salt Marsh	Northern Coastal Salt Marsh	Marsh	None	None	G3	S3.2			Marsh & swamp | Wetland		

Anodonta californiensis	California floater	Mollusks	None	None	G3Q	S2?		USFS_S-Sensitive	Aquatic	Freshwater lakes and slow-moving streams and rivers. Taxonomy under review by specialists.	Generally in shallow water.
Margaritifera falcata	western pearlshell	Mollusks	None	None	G4G5	S1S2			Aquatic	Aquatic.	Prefers lower velocity waters.
Carex arcta	northern clustered sedge	Monocots	None	None	G5	S1	2B.2		Bog & fen | North coast coniferous forest | Wetland	Bogs and fens, north coast coniferous forest.	Mesic sites. 60-1405 m.
Carex leptalea	bristle-stalked sedge	Monocots	None	None	G5	S1	2B.2		Bog & fen | Freshwater marsh | Marsh & swamp | Meadow & seep | Wetland	Bogs and fens, meadows and seeps, marshes and swamps.	Mostly known from bogs and wet meadows. 3-1395 m.
Carex lyngbyei	Lyngbye's sedge	Monocots	None	None	G5	S3	2B.2		Marsh & swamp | Wetland	Marshes and swamps (brackish or freshwater).	0-200 m.

Carex praticola	northern meadow sedge	Monocots	None	None	G5	S2	2B.2		Meadow & seep | Wetland	Meadows and seeps.	Moist to wet meadows. 15-3200 m.
Erythronium revolutum	coast fawn lily	Monocots	None	None	G4G5	S3	2B.2		Bog & fen | Broadleaved upland forest | North coast coniferous forest | Wetland	Bogs and fens, broadleafed upland forest, north coast coniferous forest.	Mesic sites; streambanks. 60-1405 m.
Lilium occidentale	western lily	Monocots	Endangered	Endangered	G1	S1	1B.1	SB_BerrySB-Berry Seed Bank	Bog & fen | Coastal bluff scrub | Coastal prairie | Coastal scrub | Freshwater marsh | Marsh & swamp | North coast coniferous forest | Wetland	Coastal scrub, freshwater marsh, bogs and fens, coastal bluff scrub, coastal prairie, north coast coniferous forest, marshes and swamps.	Well-drained, old beach washes overlain with wind-blown alluvium and organic topsoil; usually near margins of Sitka spruce. 3-110 m.

Puccinellia pumila	dwarf alkali grass	Monocots	None	None	G4?	SH	2B.2		Marsh & swamp | Wetland	Marshes and swamps.	Mineral spring meadows and coastal salt marshes. 1-10 m.
Emys marmorata	western pond turtle	Reptiles	None	None	G3G4	S3		BLM_S-Sensitive | CDFW_SSC-Species of Special Concern | IUCN_VU-Vulnerable | USFS_S-Sensitive	Aquatic | Artificial flowing waters | Klamath/North coast flowing waters | Klamath/North coast standing waters | Marsh & swamp | Sacramento/San Joaquin flowing waters | Sacramento/San Joaquin standing waters | South coast flowing waters | South coast	A thoroughly aquatic turtle of ponds, marshes, rivers, streams and irrigation ditches, usually with aquatic vegetation, below 6000 ft elevation.	Needs basking sites and suitable (sandy banks or grassy open fields) upland habitat up to 0.5 km from water for egg-laying.

Appendix C NOAA Fisheries Database Search Results

Appendix C. Samoa Peninsula Land-based Aquaculture Project – 7-Quad Database Search of NOAA Fisheries West Coast Region California Species List Tools centered on Project quad (Eureka) on 04.28.2020. Quads included Tyee City, Arcata North, Arcata South, McWhinney Creek, Fields Landing, and Cannibal Island.							
Quad Name	**Eureka**	**Tyee City**	**Arcata North**	**Arcata South**	**McWhinney Creek**	**Fields Landing**	**Cannibal Island**
Quad Number	**40124-G2**	**40124-H2**	**40124-H1**	**40124-G1**	**40124-F1**	**40124-F2**	**40124-F3**
ESA Anadromous Fish							
SONCC Coho ESU (T) -	**X**	**X**	**X**	**X**	**X**	**X**	**X**
CCC Coho ESU (E) -							
CC Chinook Salmon ESU (T) -	**X**	**X**	**X**	**X**	**X**	**X**	**X**
CVSR Chinook Salmon ESU (T) -							
SRWR Chinook Salmon ESU (E) -							

NC Steelhead DPS (T) -	**X**	**X**	**X**	**X**	**X**	**X**	**X**
CCC Steelhead DPS (T) -							
SCCC Steelhead DPS (T) -							
SC Steelhead DPS (E) -							
CCV Steelhead DPS (T) -							
Eulachon (T) -		**X**	**X**	**X**			
sDPS Green Sturgeon (T) -	**X**	**X**	**X**	**X**		**X**	**X**
ESA Anadromous Fish Critical Habitat							
SONCC Coho Critical Habitat -	**X**	**X**	**X**	**X**	**X**	**X**	**X**

CCC Coho Critical Habitat -							
CC Chinook Salmon Critical Habitat -	**X**	**X**	**X**	**X**	**X**	**X**	**X**
CVSR Chinook Salmon Critical Habitat -							
SRWR Chinook Salmon Critical Habitat -							
NC Steelhead Critical Habitat -	**X**	**X**	**X**	**X**	**X**	**X**	**X**
CCC Steelhead Critical Habitat -							
SCCC Steelhead Critical Habitat -							

SC Steelhead Critical Habitat -							
CCV Steelhead Critical Habitat -							
Eulachon Critical Habitat -		**X**	**X**	**X**			
sDPS Green Sturgeon Critical Habitat -	**X**	**X**	**X**	**X**		**X**	**X**
ESA Marine Invertebrates							
Range Black Abalone (E) -							
Range White Abalone (E) -							

ESA Marine Invertebrates Critical Habitat							
Black Abalone Critical Habitat -							
ESA Sea Turtles							
East Pacific Green Sea Turtle (T) -	**X**	**X**	**X**			**X**	**X**
Olive Ridley Sea Turtle (T/E) -	**X**	**X**	**X**			**X**	**X**
Leatherback Sea Turtle (E) -	**X**	**X**	**X**			**X**	**X**
North Pacific Loggerhead Sea Turtle (E) -							

ESA Whales							
Blue Whale (E) -	**X**	**X**	**X**			**X**	**X**
Fin Whale (E) -	**X**	**X**	**X**			**X**	**X**
Humpback Whale (E) -	**X**	**X**	**X**			**X**	**X**
Southern Resident Killer Whale (E) -	**X**	**X**	**X**			**X**	**X**
North Pacific Right Whale (E) -	**X**	**X**	**X**			**X**	**X**
Sei Whale (E) -	**X**	**X**	**X**			**X**	**X**
Sperm Whale (E) -	**X**	**X**	**X**			**X**	**X**
ESA Pinnipeds							

Guadalupe Fur Seal (T) -							
Steller Sea Lion Critical Habitat -							
Essential Fish Habitat							
Coho EFH -	**X**	**X**	**X**	**X**	**X**	**X**	**X**
Chinook Salmon EFH -	**X**	**X**	**X**	**X**	**X**	**X**	**X**
Groundfish EFH -	**X**	**X**	**X**	**X**		**X**	**X**
Coastal Pelagics EFH -	**X**	**X**	**X**	**X**		**X**	**X**
Highly Migratory Species EFH -							
MMPA Species (See list at left)							

ESA and MMPA Cetaceans/Pinnipeds							
See list at left and consult the NMFS Long Beach office							
562-980-4000							
MMPA Cetaceans -	**X**	**X**	**X**			**X**	**X**
MMPA Pinnipeds -	**X**	**X**	**X**	**X**		**X**	**X**

Appendix D USFWS IPaC Database Search Results

IPaC Information for Planning and Consultation **U.S. Fish & Wildlife Service**

IPaC resource list

This report is an automatically generated list of species and other resources such as critical habitat (collectively referred to as *trust resources*) under the U.S. Fish and Wildlife Service's (USFWS) jurisdiction that are known or expected to be on or near the project area referenced below. The list may also include trust resources that occur outside of the project area, but that could potentially be directly or indirectly affected by activities in the project area. However, determining the likelihood and extent of effects a project may have on trust resources typically requires gathering additional site-specific (e.g., vegetation/species surveys) and project-specific (e.g., magnitude and timing of proposed activities) information.

Below is a summary of the project information you provided and contact information for the USFWS office(s) with jurisdiction in the defined project area. Please read the introduction to each section that follows (Endangered Species, Migratory Birds, USFWS Facilities, and NWI Wetlands) for additional information applicable to the trust resources addressed in that section.

Location

Humboldt County, California

Local office

Arcata Fish And Wildlife Office

(707) 822-7201
(707) 822-8411

1655 Heindon Road
Arcata, CA 95521-4573

Endangered species

This resource list is for informational purposes only and does not constitute an analysis of project level impacts.

The primary information used to generate this list is the known or expected range of each species. Additional areas of influence (AOI) for species are also considered. An AOI includes areas outside of the species range if the species could be indirectly affected by activities in that area (e.g., placing a dam upstream of a fish population, even if that fish does not occur at the dam site, may indirectly impact the species by reducing or eliminating water flow downstream). Because species can move, and site conditions can change, the species on this list are not guaranteed to be found on or near the project area. To fully determine any potential effects to species, additional site-specific and project-specific information is often required.

Section 7 of the Endangered Species Act **requires** Federal agencies to "request of the Secretary information whether any species which is listed or proposed to be listed may be present in the area of such proposed action" for any project that is conducted, permitted, funded, or licensed by any Federal agency. A letter from the local office and a species list which fulfills this requirement can **only** be obtained by requesting an official species list from either the Regulatory Review section in IPaC (see directions below) or from the local field office directly.

For project evaluations that require USFWS concurrence/review, please return to the IPaC website and request an official species list by doing the following:

1. Draw the project location and click CONTINUE.
2. Click DEFINE PROJECT.
3. Log in (if directed to do so).
4. Provide a name and description for your project.
5. Click REQUEST SPECIES LIST.

Listed species

[1] and their critical habitats are managed by the Ecological Services Program of the U.S. Fish and Wildlife Service (USFWS) and the fisheries division of the National Oceanic and Atmospheric Administration (NOAA Fisheries[2]).

Species and critical habitats under the sole responsibility of NOAA Fisheries are **not** shown on this list. Please contact NOAA Fisheries for species under their jurisdiction.

1. Species listed under the Endangered Species Act are threatened or endangered; IPaC also shows species that are candidates, or proposed, for listing. See the listing status page for more information.
2. NOAA Fisheries, also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

The following species are potentially affected by activities in this location:

Mammals

NAME	STATUS
Fisher Pekania pennanti No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/3651	Proposed Threatened

Birds

NAME	STATUS
Marbled Murrelet Brachyramphus marmoratus There is **final** critical habitat for this species. Your location overlaps the critical habitat. https://ecos.fws.gov/ecp/species/4467	Threatened
Northern Spotted Owl Strix occidentalis caurina There is **final** critical habitat for this species. Your location is outside the critical habitat. https://ecos.fws.gov/ecp/species/1123	Threatened
Short-tailed Albatross Phoebastria (=Diomedea) albatrus No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/433	Endangered
Western Snowy Plover Charadrius nivosus nivosus There is **final** critical habitat for this species. Your location overlaps the critical habitat. https://ecos.fws.gov/ecp/species/8035	Threatened
Yellow-billed Cuckoo Coccyzus americanus There is **proposed** critical habitat for this species. Your location is outside the critical habitat. https://ecos.fws.gov/ecp/species/3911	Threatened

Reptiles

NAME	STATUS
Green Sea Turtle Chelonia mydas No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/6199	Threatened

Fishes

NAME	STATUS
Tidewater Goby Eucyclogobius newberryi There is **final** critical habitat for this species. Your location overlaps the critical habitat. https://ecos.fws.gov/ecp/species/57	Endangered

Flowering Plants

NAME	STATUS
Beach Layia Layia carnosa No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/6728	Endangered
Kneeland Prairie Penny-cress Thlaspi californicum There is **final** critical habitat for this species. Your location is outside the critical habitat. https://ecos.fws.gov/ecp/species/3743	Endangered

Menzies' Wallflower Erysimum menziesii No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/2935	Endangered
Western Lily Lilium occidentale No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/998	Endangered

Critical habitats

Potential effects to critical habitat(s) in this location must be analyzed along with the endangered species themselves.

This location overlaps the critical habitat for the following species:

NAME	TYPE
Marbled Murrelet Brachyramphus marmoratus https://ecos.fws.gov/ecp/species/4467#crithab	Final
Tidewater Goby Eucyclogobius newberryi https://ecos.fws.gov/ecp/species/57#crithab	Final
Western Snowy Plover Charadrius nivosus nivosus https://ecos.fws.gov/ecp/species/8035#crithab	Final

Migratory birds

Certain birds are protected under the Migratory Bird Treaty Act [1] and the Bald and Golden Eagle Protection Act[2].

Any person or organization who plans or conducts activities that may result in impacts to migratory birds, eagles, and their habitats should follow appropriate regulations and consider implementing appropriate conservation measures, as described below.

1. The Migratory Birds Treaty Act of 1918.
2. The Bald and Golden Eagle Protection Act of 1940.

Additional information can be found using the following links:

- Birds of Conservation Concern http://www.fws.gov/birds/management/managed-species/birds-of-conservation-concern.php
- Measures for avoiding and minimizing impacts to birds http://www.fws.gov/birds/management/project-assessment-tools-and-guidance/conservation-measures.php
- Nationwide conservation measures for birds http://www.fws.gov/migratorybirds/pdf/management/nationwidestandardconservationmeasures.pdf

MIGRATORY BIRD INFORMATION IS NOT AVAILABLE AT THIS TIME

Tell me more about conservation measures I can implement to avoid or minimize impacts to migratory birds.

Nationwide Conservation Measures describes measures that can help avoid and minimize impacts to all birds at any location year round. Implementation of these measures is particularly important when birds are most likely to occur in the project area. When birds may be breeding in the area, identifying the locations of any active nests and avoiding their destruction is a very helpful impact minimization measure. To see when birds are most likely to occur and be breeding in your project area, view the Probability of Presence Summary. Additional measures and/or permits may be advisable depending on the type of activity you are conducting and the type of infrastructure or bird species present on your project site.

What does IPaC use to generate the migratory birds potentially occurring in my specified location?

The Migratory Bird Resource List is comprised of USFWS Birds of Conservation Concern (BCC) and other species that may warrant special attention in your project location.

The migratory bird list generated for your project is derived from data provided by the Avian Knowledge Network (AKN). The AKN data is based on a growing collection of survey, banding, and citizen science datasets and is queried and filtered to return a list of those birds reported as occurring in the 10km grid cell(s) which your project intersects, and that have been identified as warranting special attention because they are a BCC species in that area, an eagle (Eagle Act requirements may apply), or a species that has a particular vulnerability to offshore activities or development.

Again, the Migratory Bird Resource list includes only a subset of birds that may occur in your project area. It is not representative of all birds that may occur in your project area. To get a list of all birds potentially present in your project area, please visit the AKN Phenology Tool.

What does IPaC use to generate the probability of presence graphs for the migratory birds potentially occurring in my specified location?

The probability of presence graphs associated with your migratory bird list are based on data provided by the Avian Knowledge Network (AKN). This data is derived from a growing collection of survey, banding, and citizen science datasets .

Probability of presence data is continuously being updated as new and better information becomes available. To learn more about how the probability of presence graphs are produced and how to interpret them, go the Probability of Presence Summary and then click on the "Tell me about these graphs" link.

How do I know if a bird is breeding, wintering, migrating or present year-round in my project area?

To see what part of a particular bird's range your project area falls within (i.e. breeding, wintering, migrating or year-round), you may refer to the following resources: The Cornell Lab of Ornithology All About Birds Bird Guide, or (if you are unsuccessful in locating the bird of interest there), the Cornell Lab of Ornithology Neotropical Birds guide. If a bird on your migratory bird species list has a breeding season associated with it, if that bird does occur in your project area, there may be nests present at some point within the timeframe specified. If "Breeds elsewhere" is indicated, then the bird likely does not breed in your project area.

What are the levels of concern for migratory birds?

Migratory birds delivered through IPaC fall into the following distinct categories of concern:

1. "BCC Rangewide" birds are Birds of Conservation Concern (BCC) that are of concern throughout their range anywhere within the USA (including Hawaii, the Pacific Islands, Puerto Rico, and the Virgin Islands);
2. "BCC - BCR" birds are BCCs that are of concern only in particular Bird Conservation Regions (BCRs) in the continental USA; and
3. "Non-BCC - Vulnerable" birds are not BCC species in your project area, but appear on your list either because of the Eagle Act requirements (for eagles) or (for non-eagles) potential susceptibilities in offshore areas from certain types of development or activities (e.g. offshore energy development or longline fishing).

Although it is important to try to avoid and minimize impacts to all birds, efforts should be made, in particular, to avoid and minimize impacts to the birds on this list, especially eagles and BCC species of rangewide concern. For more information on conservation measures you can implement to help avoid and minimize migratory bird impacts and requirements for eagles, please see the FAQs for these topics.

Details about birds that are potentially affected by offshore projects

For additional details about the relative occurrence and abundance of both individual bird species and groups of bird species within your project area off the Atlantic Coast, please visit the Northeast Ocean Data Portal. The Portal also offers data and information about other taxa besides birds that may be helpful to you in your project review. Alternately, you may download the bird model results files underlying the portal maps through the NOAA NCCOS Integrative Statistical Modeling and Predictive Mapping of Marine Bird Distributions and Abundance on the Atlantic Outer Continental Shelf project webpage.

Bird tracking data can also provide additional details about occurrence and habitat use throughout the year, including migration. Models relying on survey data may not include this information. For additional information on marine bird tracking data, see the Diving Bird Study and the nanotag studies or contact Caleb Spiegel or Pam Loring.

What if I have eagles on my list?

If your project has the potential to disturb or kill eagles, you may need to obtain a permit to avoid violating the Eagle Act should such impacts occur.

Proper Interpretation and Use of Your Migratory Bird Report

The migratory bird list generated is not a list of all birds in your project area, only a subset of birds of priority concern. To learn more about how your list is generated, and see options for identifying what other birds may be in your project area, please see the FAQ "What does IPaC use to generate the migratory birds potentially occurring in my specified location". Please be aware this report provides the "probability of presence" of birds within the 10 km grid cell(s) that overlap your project; not your exact project footprint. On the graphs provided, please also look carefully at the survey effort (indicated by the black vertical bar) and for the existence of the "no data" indicator (a red horizontal bar). A high survey effort is the key component. If the survey effort is high, then the probability of presence score can be viewed as more dependable. In contrast, a low survey effort bar or no data bar means a lack of data and, therefore, a lack of certainty about presence of the species. This list is not perfect; it is simply a starting point for identifying what birds of concern have the potential to be in your project area, when they might be there, and if they might be breeding (which means nests might be present). The list helps you know what to look for to confirm presence, and helps guide you in knowing when to implement conservation measures to avoid or minimize potential impacts from your project activities, should presence be confirmed. To learn more about conservation measures, visit the FAQ "Tell me about conservation measures I can implement to avoid or minimize impacts to migratory birds" at the bottom of your migratory bird trust resources page.

Facilities

National Wildlife Refuge lands

Any activity proposed on lands managed by the National Wildlife Refuge system must undergo a 'Compatibility Determination' conducted by the Refuge. Please contact the individual Refuges to discuss any questions or concerns.

This location overlaps the following National Wildlife Refuge lands:

LAND	ACRES
Humboldt Bay National Wildlife Refuge	3,535.85 acres

(707) 733-5406
(707) 733-1946

MAILING ADDRESS
P.O. Box 576
Loleta, CA 95551-9633

PHYSICAL ADDRESS
1020 Ranch Road
Loleta, CA 95551-9633

https://www.fws.gov/refuges/profiles/index.cfm?id=81590

Fish hatcheries

THERE ARE NO FISH HATCHERIES AT THIS LOCATION.

Wetlands in the National Wetlands Inventory

Impacts to NWI wetlands and other aquatic habitats may be subject to regulation under Section 404 of the Clean Water Act, or other State/Federal statutes.

For more information please contact the Regulatory Program of the local U.S. Army Corps of Engineers District.

Please note that the NWI data being shown may be out of date. We are currently working to update our NWI data set. We recommend you verify these results with a site visit to determine the actual extent of wetlands on site.

This location overlaps the following wetlands:

The area of this project is too large for IPaC to load all NWI wetlands in the area. The list below may be incomplete. Please contact the local U.S. Fish and Wildlife Service office or visit the NWI map for a full list.

ESTUARINE AND MARINE WETLAND
- Marine
- Estuarine

FRESHWATER FORESTED/SHRUB WETLAND
- Palustrine

LAKE
- Lacustrine

RIVERINE
- Riverine

A full description for each wetland code can be found at the National Wetlands Inventory website

Data limitations

The Service's objective of mapping wetlands and deepwater habitats is to produce reconnaissance level information on the location, type and size of these resources. The maps are prepared from the analysis of high altitude imagery. Wetlands are identified based on vegetation, visible hydrology and geography. A margin of error is inherent in the use of imagery; thus, detailed on-the-ground inspection of any particular site may result in revision of the wetland boundaries or classification established through image analysis.

The accuracy of image interpretation depends on the quality of the imagery, the experience of the image analysts, the amount and quality of the collateral data and the amount of ground truth verification work conducted. Metadata should be consulted to determine the date of the source imagery used and any mapping problems.

Wetlands or other mapped features may have changed since the date of the imagery or field work. There may be occasional differences in polygon boundaries or classifications between the information depicted on the map and the actual conditions on site.

Data exclusions

Certain wetland habitats are excluded from the National mapping program because of the limitations of aerial imagery as the primary data source used to detect wetlands. These habitats include seagrasses or submerged aquatic vegetation that are found in the intertidal and subtidal zones of estuaries and nearshore coastal waters. Some deepwater reef communities (coral or tuberficid worm reefs) have also been excluded from the inventory. These habitats, because of their depth, go undetected by aerial imagery.

Data precautions

Federal, state, and local regulatory agencies with jurisdiction over wetlands may define and describe wetlands in a different manner than that used in this inventory. There is no attempt, in either the design or products of this inventory, to define the limits of proprietary jurisdiction of any Federal, state, or local government or to establish the geographical scope of the regulatory programs of government agencies. Persons intending to engage in activities involving modifications within or adjacent to wetland areas should seek the advice of appropriate federal, state, or local agencies concerning specified agency regulatory programs and proprietary jurisdictions that may affect such activities.

Appendix E Site Visit Photographs

Photo 1. Inactive raptor or Common Raven *(Corvus corax)* nest in boiler building.

Photo 2. Man-made wetland in large flooded pool.

Photos 3. Pacific Chorus Frog *(Hyla/Pseudacris regilla)* tadpole.

Photo 4. Pacific Chorus Frog *(Hyla/Pseudacris regilla)* eggmass.

Photo 5. Dead Sharp-shinned Hawk *(Accipiter striatus)* with unknown dead bird.

Photo 6. Dead North American Raccoon *(Procyon lotor).*

Photo 7. Dead Common Raven *(Corvus corax)*.

Photo 8. Dead Barn Owl *(Tyto alba)*.

Photo 9. Dead Gray Fox (*Urocyon cinereoargenteus)*, likely drowned itself as a result of anticoagulant rodenticide poisoning.

Photo 10. Dead Gray Fox (*Urocyon cinereoargenteus).*

Photo 11. Dune mat habitat with beach sagewort (*Artemisia pycnocephala*) and dune goldenrod (*Solidago spathulata*) on the southeast side of the property.

Photo 12. The intersection of high quality dune mat (left), European beach grass swards (right), and yellow bush lupine scrub in the distance to the east.

Photo 13. View of buildings and demolished materials on-site (facing west).

Photo 14. Closer view of main boiler building with inactive nest visible (unknown species, likely Common Raven).

Photo 15. Closer view of side building located to the northeast of main boiler building.

Photo 16. View of buildings on-site with large warehouse to the far right, and the main boiler building center-right.

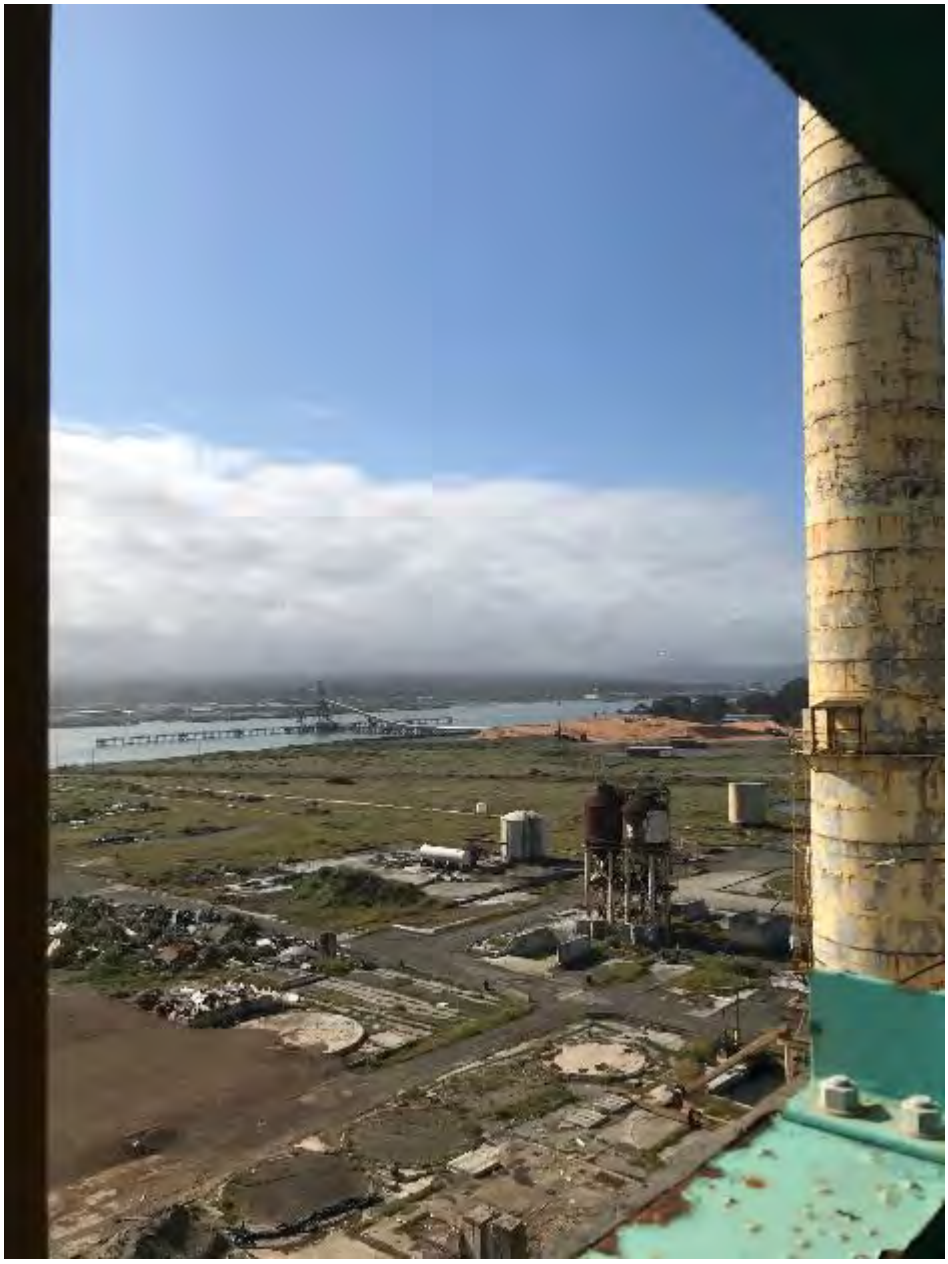

Photo 17. View of Project Site from mid-level window of main boiler building with view of Humboldt Bay channel in the distance.

Appendix F On-site Species Lists

Table F-1 Avian Species Detected On-site

Common Name	Scientific Name	Protected/Special Status
California Quail	*Callipepla californica*	CFGC
Rock Pigeon*	*Columba livia*	None; non-native
Eurasian Collared-Dove	*Streptopelia decaocto*	None; non-native
Turkey Vulture	*Cathartes aura*	MBTA/CFGC/MBPA
Osprey	*Pandion haliaetus*	MBTA/CFGC/MBPA
Sharp-shinned Hawk*	*Accipiter striatus*	MBTA/CFGC/MBPA
Red-tailed Hawk	*Buteo jamaicensis*	MBTA/CFGC/MBPA
Barn Owl*	*Tyto alba*	MBTA/CFGC/MBPA
Common Raven*	*Corvus corax*	MBTA/CFGC/MBPA
Black Phoebe	*Sayornis nigricans*	MBTA/CFGC/MBPA
Violet-green Swallow	*Tachycineta thalassina*	MBTA/CFGC/MBPA
Barn Swallow	*Hirundo rustica*	MBTA/CFGC/MBPA
American Robin	*Turdus migratorius*	MBTA/CFGC/MBPA
European Starling	*Sturnus vulgaris*	None; non-native
Purple Finch	*Haemorhous purpureus*	MBTA/CFGC/MBPA
White-crowned Sparrow	*Zonotrichia leucophrys*	MBTA/CFGC/MBPA

Key:
* = found dead on-site
MBTA: federal Migratory Bird Treaty Act
CFGC: California Fish and Game Code
MBPA: California Migratory Bird Protection Act

Table F-2 Other Wildlife Species Detected On-site

Common Name	Scientific Name	Special Status
Coyote	*Canis latrans*	None
Pacific Chorus Frog	*Hyla/Pseudacris regilla*	None
Columbian Black-tailed Deer	*Odocoileus hemionus columbianus*	None
North American Raccoon*	*Procyon lotor*	None
Gray Fox*	*Urocyon cinereoargenteus*	None

Key:
* = found dead on-site

Appendix C2
Bat Habitat Assessment

Wildlife Research Associates

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2/4/2021

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BAT HABITAT ASSESSMENT, REPORT, RECOMMENDATIONS – SAMOA PENINSULA LAND-BASED AQUACULTURE PROJECT – SAMOA, CA

SUMMARY

Wildlife Research Associates was hired by GHD to conduct a daytime bat habitat assessment of the exteriors and interiors of buildings and other structures located within the construction boundary of the former LP Samoa Pulp Mill in the unincorporated community of Samoa, CA. These structures will be demolished to facilitate construction of the Samoa Land-Based Aquaculture Project (project) (ICF 2020).

The County of Humboldt Planning and Building Department (County) requested a peer review of the GHD Biological Resource Report for the Samoa Land-Based Aquaculture Project (GHD 2020) that is proposed by Nordic Aquafarms, California. In their peer-review report, ICF found that additional assessments, surveys and Avoidance and Minimization Measures (AMM) for bat species with potential to occur at the project site were recommended (ICF 2020). Greg Tatarian, bat specialist, Wildlife Research Associates[1], conducted a thorough visual survey of the structures as part of a detailed bat habitat assessment; this report details the methods, results, and building-specific measures to prevent direct mortality to bats. In addition, measures to provide suitable replacement roost habitat are discussed.

[1] Greg Tatarian is an independent bat-specialist wildlife consultant with 30 years of experience with bats in human-made structures. He has held a Scientific Collection Permit from the California Department of Fish and Wildlife (CDFW) for approximately 25 years with Additional Authorizations for Research on Bats, including radio-tracking, banding, genetic sampling, mist-netting, and hand-capturing of various species, including California Species of Special Concern (SSC), including pallid bat (*Antrozous pallidus*) and Townsend's big-eared bat (*Corynorhinus townsendii*) (permit currently being renewed as an Entity Permit under new permit procedures). Mr. Tatarian is an expert in conducting habitat assessments, species surveys (bioacoustic, visual and capture) for both day and night roost habitat and has extensive experience with anthropogenic roosts. Has performed inspections of over 4,100 structures, including bridges and buildings, to satisfy CEQA requirements for demolition, development, retrofit and rehabilitation projects. He has personally performed ca. 350 bat evictions from residential, commercial, and institutional structures, and designs, implements, and supervises mitigation strategies including humane bat eviction from bridges, culverts, large buildings, and other settings. Mr. Tatarian has unique and extensive expertise with artificial replacement bat roosts, creating first known successful maternity bat house in California *A. pallidus* in 1995, culminating in successful designs of on and in-structure bridge bat habitat.

SUMMARY OF RESULTS

A visual survey of the exterior surfaces and perimeters of the structures, and interior spaces of all structures safe to enter (see Methods for details) showed that three of the fifteen structures contained evidence of past or present use by roosting bats (see Results). Some structures offer no suitable roost habitat for bats due to excessive light and airflow or other factors, while some structures containing no evidence of past or present use by bats have features that could potentially be used by bats that could be displaced from existing roost structures. Night roost use was more clearly indicated in the three buildings; maternity roost usage was not clearly indicated or precluded, though certainty would require follow-up surveys during maternity season (see Discussion). No overwintering bats were observed in any of the roost features that could be surveyed. Large populations were not indicated, based on staining and fecal accumulations. No indications of Species of Special Concern (SSC) bats were present, including Townsend's big-eared bat (*Corynorhinus townsendii*) and pallid bat (*Antrozous pallidus*); all signs present indicate Myotis species, most likely Yuma myotis (*Myotis yumanensis*) or little brown bat (*Myotis lucifugus*). Although the timing of the demolition of three building will restricted and require mitigation activities described below the majority of the buildings at the site can be demolished without restriction related to bat habitation.

PROJECT DESCRIPTION AND SETTING

The proposed project will redevelop the site of the decommissioned Freshwater Tissue Samoa Pulp Mill facility (pulp mill) to construct an aquaculture facility. Most of the structures, including buildings, tanks, and remnants of structures partially demolished, will be removed and new structures and associated infrastructure built on the site (GHD 2020).

The 36-acre project site is situated in Section 21 of Township 5N, Range 1W on the U.S. Geological Survey Eureka 7.5-minute quadrangle at approximately 22' elevation. The site is designated as Assessor Parcel Number (APN) 401-112-21 and is shown on Figure 1. Buildings names were provided by GHD, however the buildings where evidence of bat activity was observed during our survey were unlabeled, so we have assigned descriptive names in this report.

Construction of the pulp mill began in 1963 and was ultimately shut down by the last owners in 2010, after which some decommissioning was conducted until 2013, and some hazardous remediation was conducted in 2014 (GHD 2020).

METHODS

Prior to arriving at the site, I reviewed Unmanned Aerial Vehicle (UAV) aerial photographs provided by Nordic Aquafarms which showed the structures from many angles and elevations. I also reviewed Google Earth satellite images from many angles to get a preliminary understanding of the condition of the structures.

My daytime habitat assessment was conducted on January 19 and 20, 2021; all building exteriors, as well as the interior of the Machine Building were surveyed on January 19, and interiors of all safely accessible structures were surveyed on January 20. Silos and tanks were not safe to enter, so except for one tank with an open hatch, only exteriors were surveyed, although some aerial photos previously reviewed provided additional detail.

On January 19, I was met by, Misha Schwarz, of GHD at noon, who provided additional detail about the previous habitat evaluation of the site, project description, brief history of the site, and an examination of the boundary of the project site. After he left the site, I conducted a visual inspection of the structure exteriors, beginning with a 1.5-hour survey of the exterior of the 12-story Boiler Building and attached structure connecting to the Smokestack. I used a 20-60 power, 82mm objective spotting scope on a tripod as well as 10

x 42 roof-prism binoculars to examine exterior siding joints, corner wall and roof flashing, attachments to other portions of the structure. A 700-Lumen LED flashlight and a 550-Lumen LED spotlight were used to illuminate cavities and recesses when useful. The remaining buildings were surveyed over the next 3.5 hours. I surveyed all exterior surfaces for signs of past or present use by bats, consisting of urine staining, fur staining at entrances, adhered fecal pellets on walls around entrances or potential exterior roost locations, and fecal pellet accumulations on the ground or other flat surfaces around the perimeter of the structures. Weather was clear and mild with temperatures around 55F, with a light breeze.

On January 20, 2021, I was met by Harbor District Maintenance Worker, Robert Provolt, of, who provided access to all building interiors as well as additional background information about the project site. My survey on January 20 was conducted between 0730 and 1330. Weather was clear and mild with no wind, and temperatures ranging between 49-54F.

I began with the 12-story Boiler Building, examining the interior walls, floors, and equipment of every level, for signs of past or present use by bats, consisting of live or dead bats, fecal pellets adhered to interior walls, windows, or other surfaces, fecal pellet accumulations below suitable roost locations, insect prey remains, audible vocalizations, and characteristic odor. I examined the interior surfaces of exterior siding for gaps at panel overlaps, as well as joints at metal girders and ceiling materials. Equipment that could provide enclosed roosting features was examined, as were other locations with suitable potential cavity, crevice, or open roost features, such as light fixtures, open ducts and pipes, and concrete wall and ceiling sections.

My survey continued with the following structures, as labeled in white by GHD in Figure 1: second Boiler Building (3-story), Brick Silos, concrete/brick Smokestack, Machine Building, Warehouse, Office Building, Water Softener and Filter Tank Support Building, and concrete Structure. In addition, other structures not labeled by GHD in Figure 1 were surveyed and have been further labeled with green arrows as: Softener/Filter Tank Building, Pump House, SUB FL.2 (per sign on door), Concrete Structure 2, Concrete Footings, and Brick Silo near Machine Building. Additional unlabeled tanks are located on the site but contained no suitable habitat and are not provided additional labeling in Figure 1. Binoculars and lights were used as needed, and a small, infrared-sensitive video camera on a 3’ extension pole was used to examine the Smokestack through an opening previously cut into the steel access panel at ground level.

Two small buildings and an elevated water tank north of the project boundary were also surveyed, but contained either no suitable habitat (tank, portable building) or had no signs of past or present use (small building with smokestack).

Bat fecal pellets can be distinguished from rodent droppings by visual and physical examination; bat droppings are easily fragmented, and consist of undigested chitin from insect prey, showing reflectivity of insect exoskeletons. Rodent droppings are usually firm or hard and do not fragment easily. Bird droppings on vertical surfaces are also different from bat fecal pellets or urine staining; birds excrete both urine and feces together, resulting in streaky, white and either black, brown, or green feces components. Bat urine and efflorescence of concrete are often confused, and it can take careful examination to determine the difference; white surface streaking or staining in the presence of fecal pellets is a strong indicator of urine, either alone or together with efflorescence.

RESULTS

Structures with Bat Activity:

The following three structures contained evidence of past or present bat activity. No live or dead bats were present, indicating these structures are not currently used for overwintering roosts during seasonal torpor. The amount and distribution of bat fecal pellets and urine staining do not indicate these structures are being used as maternity roosts, however, they likely serve as either as night roosts between foraging bouts, or

possibly as day roosts for males or non-reproductive females. See Figure 2 for photo for locations of all three structures; additional photos of all buildings are included in this report.

Pump House (SUB BF2)
This is a small concrete structure with a T-beam concrete roof/ceiling located between the square-shaped water reservoir and the large Water Storage tank in the western portion of the project site. Openings occur around the walls of the structure where pipes and conduits have been removed, and potentially through a louvered vent near the access door.

The concrete material together with the concrete T-beam roof/ceiling construction mimics bridge construction design and materials that bats find highly desirable. Roost suitability is very high, only mitigated by what is likely a building that remains cool throughout the summer – too cool to provide suitable maternity roost habitat, since most bats that choose structures select those with warmer temperatures during maternity season so that pups remain at or above their metabolic thermoneutral zone, reducing demands on maternal milk production and care, and maximizing growth and development of pups.

Bat fecal pellets were located in many different locations throughout the building, and urine staining on concrete T-beams and wall sections was evident, though not pronounced. There were no large accumulations of fecal pellets in any one location, and no extensive staining at roost locations which would indicate a large population or long period of roosting activity since site closure in 2010. Evidence of rodent activity was almost non-existent, with very few mouse droppings which required discerning from bat fecal pellets; however, bird activity (nesting, urates) was present in many locations in the building.

Bat fecal pellets were consistent in shape, size and color with *Myotis* species – presumably either *M. lucifugus* or *M. yumanensis*. No fecal matter consistent with either *C. townsendii* or *A. pallidus* was present anywhere in the structure; ample open-roost features were present for the former species, however almost no suitable crevice features suitable for the latter species were present.

SUB FL.2
Situated just east of the Pump House, the building designated Sub FL.2 is a single-story concrete structure with a partial corrugated metal roof and partial concrete roof. Pipes and conduits entering and exiting the structure were previously removed, and gaps and openings into the structure suitable for entry by bats remain as a result.

Bat fecal pellets were present in several different locations throughout the interior of the structure; however, no large accumulations of fecal pellet or urine streaking or staining were present, and no evidence of large populations such as a maternity colony was noted.

Roost suitability is high, though less so than the Pump House and Filter/Softener Tank Building, perhaps mitigated by what is likely a building that remains cool throughout the summer – too cool to provide suitable maternity roost habitat, since most bats that choose structures select those with warmer temperatures during maternity season so that pups remain at or above their metabolic thermoneutral zone, reducing demands on maternal milk production and care, and maximizing growth and development of pups.

Filter/Softener Tank Building
A concrete structure with a concrete T-beam roof, this structure contains pumps, machine equipment, and control stations, and is attached to the concrete Water Softener and Filter Tank support building. The structure is complex, and the concrete material together with the concrete T-beam roof/ceiling construction mimics bridge construction design and materials that bats find highly desirable. The tanks themselves do not provide suitable roost habitat, but inside the structure, roost suitability is very high, only mitigated by what is likely a building that remains cool throughout the summer – too cool to provide suitable maternity roost habitat, since most bats that choose structures select those with warmer temperatures during maternity season

so that pups remain at or above their metabolic thermoneutral zone, reducing demands on maternal milk production and care, and maximizing growth and development of pups.
Bat fecal pellets were located in many different locations throughout the building, and urine staining on concrete T-beams and wall sections was evident, though not pronounced. There were no large accumulations of fecal pellets in any one location, and no extensive staining at roost locations which would indicate a large population or long period of roosting activity since site closure in 2010. Evidence of rodent activity was almost non-existent, with very few mouse droppings which required discerning from bat fecal pellets; however, bird activity (nesting, urates) was present in many locations in the building.

Structures with No Bat Activity:

None of the remaining structures that were safe to enter contained evidence of past or present use by bats. Some structures were not safe or possible to enter (Silos (tanks) with roofs, Smokestack) but have low habitat suitability for reasons discussed below, and others do not provide any suitable bat roost habitat due to materials, construction, and/or condition (Silos with open roofs).

Water Softener and Filter Tank Support Building
Despite being connected to the Filter/Softener Tank Building described above where bat activity is present, no signs of use by bats were present in this concrete, J-shaped structure. Suitable potential habitat is present due to the concrete material and roosting features available; however, bats have not selected it yet, perhaps because it does not offer the temperature range desired.

12-Story Boiler Building
The tallest structure on the project site, the 12-story Boiler Building, is constructed of steel girders with alternating vertical corrugated metal and corrugated fiberglass panels, and a steel roof. Attached to the main portion of the structure is a smaller steel-framed building with corrugated metal siding that housed machinery that connects to the adjacent Smokestack.

A very careful, 1.5-hour visual survey using a spotting scope and binoculars of all of the exterior siding panel overlaps and corner moldings, as well as wall and ground surfaces showed no evidence of use by bats - no fecal pellets or urine staining. However, there are numerous suitable entrances into each structure.

The interior of the 12-story structure is filled in most areas with ambient light, due to the opaque fiberglass wall panels. There are large sections of siding that have fallen from the building. Louvered vents also admit light and airflow. Several dead birds and nests were present in the structure, but no bat fecal pellets, urine, fur staining, live or dead bats were present in the structure. As a result of these observations along with the building conditions, roost habitat suitability is extremely low in this structure.

The smaller attached structure was not possible to enter, however, the same careful visual examination with a high-power spotting scope and binoculars with lights was made, which revealed no exterior signs of use by bats. This structure has slightly greater potential for use by bats in the upper story which could not be surveyed because it is darker inside than the taller structure. However, other portions of the structure that would normally provide suitable roost habitat for bat species using the three structures on the site, such as roof perimeter flashing and corner moldings that overlap the corrugated siding, contained no signs of past or present use by bats.

Smokestack
The roughly 270-foot-tall smokestack is attached via a large diameter pipe to the smaller structure attached to the 12-story Boiler Building. Apparent construction is a relatively smooth concrete outer structure with a concentric inner stack made of firebrick, with lining between the two concentric stacks at the base, tapering to none near the top opening, and a coating over the interior brick of the inner stack. The structure was not safe to completely enter, however I was able to reach into the opening at a hatch in the base, where I was able to photograph and video record the floor and inner walls at the lower portion of the Smokestack and

view up to the top opening. No urine staining, adhered fecal pellets, or accumulated fecal pellets on the floor of the Smokestack were observed. Based on the open top admitting light and moisture from above, lack of protected roost crevices or cavities observed, and lack of bat fecal pellets or urine/fur staining, visible from the base opening up about 100 feet, the Smokestack likely provides poor habitat suitability

2-Story Concrete Building Near Smokestack
Immediately south of the 12-story and attached Boiler Buildings, this concrete structure has small openings in the wall from conduits that had been removed, but no past or present signs of bats in either the lower or upper portions of the structure was observed. This structure has low habitat suitability based on lack of prior evidence of use over the many years it has been decommissioned, but it could potentially become occupied if bats were caused to abandon occupied roosts.

3-Story Boiler Building
Located east of the 12-story Boiler Building at the northern boundary of the project site, this is a steel structure with corrugated metal siding with a band of opaque fiberglass siding around the 2nd story. It is connected to the 12-story Boiler Building by a large diameter pipe and associated gantry. There are openings around the exterior walls, and a portion of the wall is damaged and missing. No signs of past or present use by bats were present either around the exterior or in the interior of the structure. Habitat suitability is low based on conditions inside the building as well as lack of prior evidence of use over the many years it has been decommissioned, but it could potentially become occupied if bats were caused to abandon occupied roosts.

Concrete Footings (Foundations & Structures)
In the interior of the project site, various concrete foundations and structural footing, some very large, remain after prior demolition. None contained suitable habitat for day or night roosting bats.

Structure (concrete)
Labeled "Structure" on Figure 1, this is one of two nearby, similarly designed and constructed 2-story concrete structures. This one is located immediately west of the Machine Building and Warehouse. A set of windows previously removed allows access into the structure at ground level, and there are smaller openings suitable for bats. No signs of past or present use by bats were present, however the upper floor is actively used by barn owls (*Tyto alba*), based on presence of fecal material and regurgitated pellets. Presence of barn owls likely precludes any use by bats in this building, as bats are a prey item of barn owls, and there are no protected roost crevices inside the structure. However, in the absence of nesting barn owls, bats could potentially begin to occupy the building if they were caused to abandon occupied roosts.

Structure 2 (concrete)
Adjacent to and immediately south of a row of brick Silos at the north-central portion of the site is a two-story concrete structure almost identical to the Structure (concrete) noted above. A window in the front doors and other smaller openings around the exterior walls provide suitable entry for bats. The interior was warmer than the other structures inside, and provides highly suitable potential bat roost habitat; although no signs of past or present use by bats were present around the exterior or in the interior of this structure, bats could easily begin to occupy the structure either spontaneously, or due to being caused to abandon other occupied roosts.

Brick Silos (tanks)
These roughly 3-story high brick silos, or tanks were not safe to enter, however one was viewable through an open hatch at the base. Aerial UAV photographs provided by Nordic Aquafarms show several of the tanks with totally or mostly missing roofs, and three tanks still with roofs that had small openings a few inches in diameter. Bats prefer protected roost locations that provide cover from above; the three tanks with no roofs provide no suitable day-roost habitat for bats, The three tanks with roofs had openings too small and not oriented properly for bats to enter and exit those tanks. As a result, tanks with no roof have no habitat suitability for bats; those with intact roofs with small openings have extremely low habitat suitability.

Machine Building
The Machine Building is a long, tall structure located immediately south and attached to the Existing Offices (Office Building) and is attached at the east end of the building to the newer, actively utilized aquaculture building at the eastern portion of the site. This structure is constructed of steel girders covered with alternating panels of corrugated metal and corrugated translucent fiberglass panels. Very large portions of the roof and exterior walls are missing.

The interior of the structure has high ambient illumination, with strong airflow throughout all but the most protected portions or rooms inside the structure. On the ground level, there is a length of concrete-walled rooms, with concrete joists and beams supporting an upper-level floor. These concrete beams and walls would normally provide very good roost habitat for bats; however, the light and airflow are excessive for use by day-roosting bats. There may also be insufficient shelter for bats from airflow during the night, because no signs of past or present use by bats were present at locations that would normally be expected to provide suitable roost habitat. Additionally, a survey of the interior rooms and other recessed, protected internal tank structures showed no evidence of past or present use by bats anywhere inside the structure. Given the high ambient daytime light and windy conditions throughout most of the building, habitat suitability, except potentially for small numbers of night-roosting bats, is extremely low.

Brick Silo (tank) Near Machine Building
Smaller and not as tall as the row of brick tanks at the north portion of the site, this tank is located at the southwest corner of the Machine Building. The access hatch was open, allowing an inspection which showed no past or present use by bats inside the tank. The roof consisted of opaque green panels that allowed light from above into the tank.

Existing Offices and Warehouse
Labeled Existing Offices in Figure 1, the Office Building and Warehouse are enclosed together with corrugated metal siding. The Existing Offices are actively used by tenants and were not accessible for an interior survey. Construction is a mixture of concrete, concrete block, wood, and metal. The exterior siding of the Office Building and Warehouse is of much more recent construction, and the condition is excellent.

The Warehouse portion of the structure is actively used as a space shared by a tenant operating a cleaning business, and for other purposes by the Harbor District tenants (Provolt, pers. comm.). The Warehouse portion comprises the space between the attached Machine Building immediately south, and the Existing Offices on the north side of the building. There are openings into the structure that are suitable for bats, however, a careful visual examination showed no signs of entry by bats - no urine or fur staining on walls or openings, no adhered bat fecal pellets on walls or windows, and no accumulated fecal pellets on the ground surfaces. A survey of the shared spaces inside the structure, including the leased portion of the Warehouse, and all spaces and rooms, used by Harbor District tenants, showed no signs of past or present use by bats. As a result, habitat suitability is low.

BACKGROUND REGULATORY AND BIOLOGICAL INFORMATION

Regulatory Status of Bats

Bats are protected as nongame mammals in California under California Fish and Game Code (FGC) (See Appendix A). Thirteen species are classified as Species of Special Concern (SSC) (CDFW 2020); none are currently listed as Threatened or Endangered. Typically, only special-status species, comprised of Threatened, Endangered, and SSC are addressed in California Environmental Quality Act (CEQA) review and documentation. However, non-SSC bats can often form maternity colonies large enough to be considered significant local breeding populations under CEQA which provides protections for nursery sites. In addition, many bat species will roost together, including special-status bats that may form smaller colonies that are less easily detected or observed than their more commonly occurring cohorts (Tatarian, personal observations).

For these reasons, protections such as measures to prevent direct mortality of special-status bat species are generally also best applied to non-special-status bat species if they have large breeding populations. Habitat replacement measures for SSC bats may also be appropriate for non-SSC bats if the maternity colony is large and the loss would be significant to the local population.

General Roosting Ecology

Bats in California can be separated into two categories based on social structure. The first category consists of colonial species that roost in groups throughout the year in natural and anthropogenic (human-made) habitat including caves, rock outcrops and crevices, mines, culverts, buildings, bridges, and trees. Colonial bats roost in groups of dozens to 10s or 100s or thousands; examples include Brazilian free-tailed bat (*Tadarida brasiliensis*), *M. yumanensis*, *M. lucifugus*, big brown bat (*Eptesicus fuscus*), and two SSC species – pallid bat (*Antrozous pallidus*) and *C. townsendii*, among others.

Colonial bats roost together in maternity roosts to raise young beginning in spring months into summer, concluding in early fall. Some bat species migrate to regions where they can remain active throughout the winter, but other species remain nearby or make smaller seasonal movements to winter roosts where they spend cold, rainy months in hibernation or in torpor (a light form of hibernation interspersed with occasional activity when weather conditions permit). In some cases, bat dispersing from maternity roosts may use dispersal roosts that differ from either maternity or winter roosts. Reproductive males generally roost separately from females and young during maternity season, either individually or in small groups in roosts referred to as bachelor roosts. Roosts for colonial bat species can include one or more of the following: caves, mines, rock crevices or outcrops, buildings, bridges and cavity, crevice or exfoliating bark roost features in trees. A more detailed description of roost types, and temporal patterns of usage is provided in the sections below.

The second category consists of solitary, obligate tree-roosting species that include western red bat (*Lasiurus blossevillii*) and hoary bat (*Lasiurus cinereus*) that typically roost exclusively or almost exclusively alone in trees, with the exception of females when raising their young. No habitat for these species occurs on or adjacent to the project site.

Bats are dependent on roost sites for protection from predators and weather, and bats spend most of their lives in roosts. Availability and selection of roosts influence distribution, population density, reproduction, foraging, social structure, seasonal movements, and more (Altringham 1996). Because of the importance of suitable roosts, bats typically show strong site fidelity to permanent roost sites, both natural and anthropogenic, and maternity roost sites elicit very high site fidelity (Kunz 1982), although roost fidelity is variable among species (Lewis 1995). Bats are the longest-living mammal for their size (Wilkinson and South 2002), with records of individuals in the wild of 30 years – and the oldest bat, a male Brandt's myotis (*Myotis brandtii*) reaching at least 41 years of age (Locke 2006). As a result, bats have a long individual and colonial memory of roost sites, further driving roost fidelity behavior. Because of this high site fidelity behavior by bats, signs of usage are often well established. Typical signs of roosting bats in buildings include urine staining on exterior landing surfaces, fecal pellet accumulation, and characteristic odor. These signs are also usually present to varying degrees in natural roost sites such as trees, rocks, and caves.

Roost Types and Usage by Bats

Colonial Bat Species

Bats use a wide variety of roost sites that can be divided into "natural roosts," and man-made or "anthropogenic" roosts. Natural roost sites include caves, tree hollows, rock crevices, and exfoliating tree bark. Anthropogenic roost sites are analogous to natural sites, and include buildings, mines, and bridges (Barbour and Davis 1969, Constantine 1961, Davis and Cockrum 1963, Fenton 1983, Kunz 1982, Rainey and Pierson 1996). Some species roost only in tree cavities or under bark; others use a wider range of roost types, both natural and anthropogenic.

Depending on the species, day roosts generally consist of crevices and cavities, with males often roosting separately from females. Breeding and maternity care may take place in day roosts, where young remain until volant, and females may return throughout the night to lactate for young. In buildings, bats can roost in crevices formed where fascias or gutters overlap walls, between rafters, behind wood moldings, or under metal flashing. Colonies may also use more open spaces, such as interior rooms, attics, or ceiling spaces. Night roosts are generally more open and accessible, but still provide light, airflow, and protection from predators, while permitting easier ingress and egress between foraging bouts. Night roosting sites may be found on exterior walls, beneath shed roofs, or in breezeways.

Although some species exhibit preferences for caves, mines, and rock outcroppings, many species adapt readily to structures such as bridges, which can provide day roosting opportunities in crevices; and to larger cavities that provide protection during the day and retain heat during night roosting hours.

Temporal Patterns of Roost Usage

Seasonal

Use of roosts by bats varies temporally and spatially throughout annual cycles as well as shorter seasonal and daily cycles. Bats in the project regions are not actively flying year-round. During the maternity season, nonvolant young of colonial bats remain in the roost until at least late summer (generally the end of August, but varies slightly with locality and bat species), after which they may disperse from the natal roost or remain in the roost into or through the winter. If roosting bats do not migrate in the winter months to regions where they can remain active, or to hibernacula where they can hibernate, they will typically enter winter torpor, rousing only occasionally to drink water or opportunistically feed on insects. The onset of torpor depends on environmental conditions, primarily temperature and rainfall. Many bats overwinter in building roosts that maintain suitable, cool temperatures, particularly near and along the coast of Northern California and Southern Oregon, where winter temperatures are more temperate than further inland.

Daily

Roost types are generally referred to as day roosts (sometimes also called bachelor roosts) which are used during breeding season by males and/or nonreproductive females, day maternity roosts (used for pup-rearing by females), night roosts (used by all volant bats during seasonal periods of bat activity—e.g., when foraging), dispersal roosts (could be different roost locations where breeding occurs, or while dispersing to winter roosts), and winter roosts (used either for hibernation or torpor).

Because bats are nocturnal, day roosts typically involve periods of rest, and night roosts are associated with temporary rest, prey processing, and intraspecific communication interspersed with periods of foraging (Kunz 1982). Roosts are not exclusively day or night roosts, however. Maternity roosts are used by young both day and night, and females return from foraging at night to feed their pups, so these are both day and night roosts. This is also true for some bachelor roosts, dispersal roosts, and especially for winter roosts when bats are in torpor or hibernation.

Suitable day (bachelor), day maternity, dispersal, and winter roosts, as stated earlier, elicit high site fidelity in colonial bat species, and limit occurrence, species, distribution, and behavior of bats. However, bats are more opportunistic in their selection of night roosts, which occur within the range of foraging activities, which can vary individually through resource competition, partitioning, and temporal availability of insect prey. This might imply that site fidelity at these roosts would be low, however, studies (Lewis 1994, Pierson 1999, and unpublished radio telemetry studies and personal observations by G. Tatarian) suggest that night roosts elicit high night-to-night and year-to-year site fidelity.

General Information – Measures to Prevent Mortality of Bats in Buildings

To prevent direct or indirect mortality of bats roosting in structures resulting from demolition, renovation or reconstruction activities, it is generally necessary to passively remove bats from the structure. There are two known effective methods, and a third that can sometimes be effective in a limited number of situations and conditions; 1) "humane eviction", or "bat exclusion", which relies on the bats' ability to fly out of the roost, utilized when the building is in sufficiently sound condition, 2) partial dismantling of key components of the structure to significantly alter the temperature, light and airflow inside the structure, causing bats to abandon on their own, and 3) introduction of light and airflow into the roost to cause bats to abandon.

During the typical humane eviction process, all potential but unused entry points into the structure are sealed first, except those that are actively being used by bats. The active entry points are fitted with one-way exits, which are left in place 7-10 days to allow all bats to emerge normally during nightly feeding flights. The one-way exits are then removed, and the remaining openings sealed until the building will be demolished more than 30 days after humane eviction or left in place if the building will either be demolished within 30 days, or if the building will not be demolished, but repaired or renovated. Upon completion of construction activities, the one-way exits are either removed and sealed if bats are to be permanently excluded or removed and left open if bats are to be allowed to re-enter the structure. This work must be conducted by, or under direct supervision or instruction by a bat biologist qualified in humane bat eviction methods and materials.

In some cases, the physical condition of the structure is so poor that humane eviction as described above is not possible. If that occurs, the building must be carefully, and selectively dismantled in such a way that the internal environment is altered sufficiently to cause bats to abandon the roost and not return. This must occur under the guidance of a bat biologist qualified in partial dismantling of structures for bat eviction, in order to prevent direct or indirect mortality of bats. The three structures on this project site with signs of bat activity fall into this category, making them candidates for the following method.

The last method is effective only in limited circumstances where the roost area is sufficiently confined for the introduction of light, and possibly airflow, to significantly alter the roost conditions, causing bats to abandon the roost. With this method, multiple LED, AC-powered, 2,000 or higher-Lumen shop lights are aimed at the roost locations throughout the night when bats are actively flying in and out of the structure. The lights are switched off during the day to prevent undue stress on any individuals that have not abandoned the roost at night, but are turned on again each night. In some cases, opening portions of the structure to permit additional airflow, or installing AC-powered fans to increase airflow, is required to supplement the lighting. Generally, roost abandonment occurs within 4-7 nights of this treatment. This method can be less aggressive in nature than partial dismantling, but is not effective in all settings, such as where bats are roosting in crevices, rather than exposed cavities, rooms, ceilings, attics, etc.

Consumer-grade acoustic bat deterrent devices have been shown to have little to no efficacy, however, research has been conducted with large, very loud, and costly ultrasonic amplified deterrent speakers to deter bats from wind generators, bridges, and buildings. These devices have limited effective range, so multiples are needed for separate rooms and large buildings, and some must be connected to computers, increasing cost and complexity. It is unlikely they would be effective where bats are roosting in crevices, rather than exposed cavities, rooms, ceilings, attics, etc.

Because non-volant young may be present during maternity season (except in the case of bachelor roosts), and adult and juvenile bats may be present during winter months, removal of confirmed or presumed-occupied bat roost habitat, including humane eviction from or partial dismantling of structures (or two-step removal of bat habitat trees in project where they occur), must be conducted only during seasonal periods of bat activity. In the project region, the following dates comprises two seasonal periods of bat activity that includes and protects all bat species that would occur in the area:

1) between about March 1 (or after evening temperatures 1-2 hours before sunset rise above 45F and/or no more than 1/2" of rainfall occurs 24 hours before or after planned habitat removal), and April 15, or;

2) between September 1 and about October 15, but only when evening temperatures 1-2 hours before sunset are above 45F and/or no more than 1/2" of rainfall occurs 24 hours before or after planned habitat removal**.**

Note that rain periods during these seasonal periods of bat activity will delay humane eviction/partial dismantling/2-step tree removal, but that these activities may resume when suitable conditions are met, until the end of the seasonal period of bat activity. Also, seasonal periods may be different for other locations, based on elevation, latitude, or other factors.

DISCUSSION

Analysis of Survey Results

Bat activity was observed in three buildings - **Pump House (SUB BF2), SUB FL.2, and Filter/Softener Tank Building**. Evidence suggests roosts are not used during winter months when bats are in seasonal torpor. The likelihood of maternity roost usage appears to be minimal but could not be confirmed by the results of this winter season survey. The amount and distribution of bat fecal pellets, fur staining at roosts and openings, and urine staining, do not support the conclusion that large numbers of bats have been using the structures, nor is there any indication that the only two SSC bat species, *C. townsendii* and *A. pallidus*, have been roosting in any of the structures. The evidence suggests the roosts are used as night roosts, or daytime roosts for males and non-reproductive females, however, there is always a possibility that small maternity colonies may have occurred in the past or could do so in the future.

Bat species in those three buildings appear to be limited to either *M. lucifugus* or *M. yumanensis*, based on the type of roosting surfaces and spaces selected, and urine and fecal pellet evidence. These are the two most likely species that have been roosting inside the buildings on the project site, based on the evidence observed. Either species can form roost colonies ranging from dozens to many hundreds of individuals, although *M. yumanensis* can form larger maternity colonies of a few thousand (Tatarian, pers. obs.). Long-eared Myotis (*Myotis evotis*), although included in the table of species in the Biological Resources Report (GHD 2020), is unlikely to occur in the project site, preferring brush, woodland and forest habitats which are not present (Harvey, M.J., J.S. Altenbach and T.L. Best 1999). In addition, *M. evotis* forms small colonies, and would not be likely to leave the volume of fecal pellets observed.

In many of the structures, no signs of bat use were present, but suitable potential habitat exists. These include the upper room on the smaller structure attached to the 12-story Boiler Building; the Filter/Softener Tank support structure; Structure (concrete), Structure 2 (concrete) and; Warehouse. the upper room on the smaller structure attached to the 12-story Boiler Building; the Filter/Softener Tank support structure; Structure (concrete), Structure 2 (concrete) and; Warehouse. These buildings appear to provide the suitable potential shelter from light and airflow, and in the case of the concrete structures, the most thermal stability, which is highly preferred by bats during the maternity season. As a result, bats evicted or deterred from using the three known roost buildings could begin to use the currently unoccupied structures that contain suitable potential habitat for limited night-roosting activity if they are left in place prior to removal of the three known occupied buildings.

There are several structures with no evidence of bat activity and that have very low, or no habitat suitability. These include the 12-story Boiler Building; Machine Building; Existing Offices; Brick Silos (tanks), 3-story Boiler Building; Concrete Foundations, Structures and Footings and; water tanks. Seasonal timing of removal of these structures is less critical than with those containing suitable potential habitat, but noise and

vibration from demolition may cause adult female bats that could be roosting during maternity season or winter months in the three known occupied buildings to abandon the roost, leading to mortality of non-volant young.

Effective Strategies to Prevent Direct Mortality of Bats

Follow-up surveys should be conducted during early and mid-maternity season to determine whether the three previously occupied structures (Pump House (SUB BF2), SUB FL.2, and Filter/Softener Tank Building) contain maternity colonies, bachelor (or non-reproductive female) colonies, or night roost only colonies. If none of the roosts are occupied by maternity colonies, partial dismantling and deterrence measures of those structures could occur during maternity season because all bats would be volant and able to abandon the roosts. If maternity colonies are present, this work would be restricted to seasonal periods of bat activity as previously described, with a larger buffer between occupied structures and demolition activities (e.g., 500' vs. 300'), and use of explosives would be restricted to seasonal periods of bat activity only. If roosts are only occupied at night, restrictions on demolition could potentially be reduced or eliminated since bats would not be present during the day when demolition is conducted.

It is not possible to predict with accuracy the demolition activity tolerance level of bats that may be present in the three known occupied buildings, however, the project site is large, with many structures located between 310' and 505' from the Building SUB FL.2, between 461' and 720' from the Pump House, and between 554' and 664' from the Filter/Softener Tank Building (Google Earth distance measurements).

Excluding the Smokestack and 12-story Boiler Building that will be demolished with explosives (Schwarz, pers. comm.), most of the remaining buildings except for previously occupied roost structures and the Concrete Foundations and Structures which are within a noise and vibration disturbance distance from those structures would be removed without explosives prior to partial dismantling and deterrence measures to cause bats to abandon the three known roost buildings in order to prevent bats from relocating to previously no used by bats. Specific recommendations for each structure follow below.

Use of Mitigation Roost Habitat

Replacement roost habitat is sometimes warranted when loss of significant amounts of roost habitat are removed. Replacement habitat can include properly designed bat houses large enough to support several hundred individuals in different locations around a project site, and in sufficient quantity to support the existing population or more, or concrete panel structures added to an appropriate building or other structure, or made to be free-standing. For example, large concrete roost features are often added to or built into bridges to provide on-site mitigation habitat. Off-site mitigation habitat poses several challenges; it is unlikely to support habitat for the bat colony that is actually displaced, and off-site property is rarely available for mitigation bat habitat. My own studies show that if replacement habitat is placed more than about 75' from an existing roost, the rate of occupancy of the replacement roost is reduced to the same rate as that of a roost placed at greater, random distances.

Additionally, only a few species of bats will occupy bat houses, and the bat house or roost feature must be designed to accommodate the target species. Fortunately, both *M. yumanensis* and *M. lucifugus* will readily adopt properly-designed and build artificial replacement roost habitat. Bat houses are not occupied by *C. townsendii*, but *A. pallidus* readily occupy properly designed and built bat houses. However, there is no indication that either SSC species *C. townsendii* or *A. pallidus* have been roosting on the project site.

If follow-up surveys indicate maternity colonies totaling greater than 1,000 individuals of a non-SSC bat such as either *M. yumanensis* or *M. lucifugus* are present in any of the previously occupied structures, this could be considered a significant local nursery site under CEQA, and installation of artificial roost habitat designed to support these species and population should be installed within the boundaries of the project site,

preferably away from structures and tanks that will be later installed, along the southern boundary of the project site.

PROJECT-SPECIFIC RECOMMENDATIONS

Based on the results of this survey, it is reasonable to presume presence of bats during maternity season and potentially during winter months in the Pump House (SUB BF2), SUB FL.2, and Filter/Softener Tank Building, and to conduct partial dismantling and/or deterrence measures to cause bats to abandon the roosts during seasonal periods of bat activity when there are no non-volant young during maternity season, or non-volant bats of any age class during winter torpor.

Also, structures on the site should be removed in a sequence that will first remove those structures with no suitable habitat and those with suitable potential, unoccupied habitat, after which the Pump House (SUB BF2), SUB FL.2, and Filter/Softener Tank Building and Concrete Foundations, Structures and Footings would occur only during seasonal periods of bat activity, and only after partial dismantling and/or deterrence measures have caused bats to abandon the buildings.

Additionally, specific measures to avoid direct mortality of bats can differ depending on whether the three previously occupied roosts provide either; maternity roost habitat (occupied day and night), bachelor (and/or non-reproductive female) roost habitat (occupied day and night), or night roost habitat only.

Two additional surveys of the interiors of the three previously occupied structures should be conducted by a qualified bat biologist; one in late April or early May when likely occupied by females just before or after parturition, and one in mid-June when pups would be present.

If maternity colonies are present, demolition activities should first be conducted on structures located furthest from the occupied structures (>500’ – e.g. Machine Building) and limited to mechanical removal only (no explosives) until after young are self-sufficiently volant. After that time and after non-occupied structures are removed, specific measures to cause bats to safely abandon the occupied roosts would be conducted between September 1 and about October 15, or between about March 1 and April 15, at which time explosives could be used for demolition.

If day roosts are occupied only by males or by non-reproductive females, demolition of structures further than 300’ should first be conducted since no non-volant bats would be present, but the distance would reduce likelihood of the potential of stress-related mortality. After non-occupied structures are removed, specific measures to cause bats to safely abandon the occupied roosts would be conducted between September 1 and about October 15, or between about March 1 and April 15.

The use of explosives to demolish the Smokestack and 12-story Boiler Building would be very likely to cause roost abandonment despite their distance from the Pump House (SUB BF2), SUB FL.2, or Filter/Softener Tank Building, and could result in direct or indirect mortality of non-volant young if maternity colonies are present, so these structures should be removed only during seasonal periods of bat activity unless follow-up surveys by a qualified bat biologist establish that no maternity or winter colonies are present. For the same reason, the Concrete Foundations and Structures are close to the Pump House (SUB BF2), SUB FL.2, and Filter/Softener Tank Building, so should be removed only during seasonal periods of bat activity detailed previously in this report, at the same time or after bats have abandoned the three known roost structures. More specific recommendations follow below.

As stated previously, humane eviction and exclusion using blockage and one-way exits from Pump House (SUB BF2), SUB FL.2, and Filter/Softener Tank Building is not feasible due to the size and condition of the structures. Instead, a combination of partial dismantling (including opening doors and windows) and

deterrent measures consisting of use of 2,000 or greater-Lumen LED work lights and large circulating fans are recommended. This work must be conducted during seasonal periods of bat activity as detailed previously in this report.

Table 1 provides detailed recommendations for the sequence of actions for each structure, along with seasonal guidelines. The three structures with bat activity noted in pink shading in Table 1 as well as nearby Foundations, Structures, and Footings require specific actions during seasonal periods of bat activity only; many other structures should be removed first during any seasonal period to enable progress with demolition as well as create noise and vibration that will help reduce habitat suitability of the other structures.

Please refer to Figure 1 for names and locations of structures, Figure 2 showing bat occupied structures, as well as subsequent Figures showing other relevant structures.

Additional Partial Dismantling Details:

1) Remove structures shown in Table 1, rows 1 – 9 first using conventional demolition.
2) After all structures shown in Rows 1-9 in Table 1 below have been demolished, remove Smokestack (Row 10), 12-Story Boiler Building (Row 11) (using explosives/conventional demolition), Concrete Foundations Structures and Footings (Row 12), and Pump House (SUB BF2), SUB FL.2, and Filter/Softener Tank Building (Rows 13-15) *only*:
    a. During seasonal periods of bat activity:
        i. Between about March 1 (or after evening temperatures 1-2 hours before sunset rise above 45F and/or no more than 1/2" of rainfall occurs 24 hours before or after planned habitat removal), and April 15, or;
        ii. Between September 1 and about October 15, but only when evening temperatures 1-2 hours before sunset are above 45F and/or no more than 1/2" of rainfall occurs 24 hours before or after planned habitat removal.

    b. Following these procedures for Pump House (SUB BF2), SUB FL.2, and Filter/Softener Tank Building:
        i. Open all doors.
        ii. Remove louvered vents if present and any window covers.
        iii. Install LED work lights aimed toward ceiling throughout building in quantity noted for each building in Table 1; operate only during nighttime hours, switching off each morning.
        iv. Install large (24" – 36" diameter) air circulating fans aimed towards ceilings (1 for each enclosed space); operate only during nighttime hours, switching off each morning.
3) Conduct a follow-up survey 4-7 nights after steps a-c above;
        i. If bats are present, a qualified bat biologist will recommend additional actions to cause bats to abandon the roosts.
        ii. If no bats are present, begin demolition of buildings within 7 days.

Please let me know if you have any questions, concerns, or clarifications.

Sincerely,

Greg Tatarian

TABLE 1.

DETAILED RECOMMENDED ACTIONS AND TIMING FOR EACH STRUCTURE

ORDER OF ACTIONS	STRUCTURE NAME (Figure 1)	RECOMMENDED TIMING OF ACTIONS	DETAILED ACTIONS
1	Machine Building	Any time prior to partial dismantling and demolition of potentially occupied structures 13, 14, and 15.	Demolish and remove
2	Warehouse	Any time prior to partial dismantling and demolition of potentially occupied structures 13, 14, and 15.	Demolish and remove
3	Existing Offices	Any time prior to partial dismantling and demolition of potentially occupied structures 13, 14, and 15.	Demolish and remove
4	Brick Silos (all)	Any time prior to partial dismantling and demolition of potentially occupied structures 13, 14, and 15.	Demolish and remove
5	Structure (concrete)	Any time prior to partial dismantling and demolition of potentially occupied structures 13, 14, and 15.	Demolish and remove
6	Structure 2 (concrete)	Any time prior to partial dismantling and demolition of potentially occupied structures 13, 14, and 15.	Demolish and remove
8	3-Story Boiler Building	Any time prior to partial dismantling and demolition of potentially occupied structures 13, 14, and 15.	Demolish and remove
9	2-Story Building Near Smokestack	Any time prior to partial dismantling and demolition of potentially occupied structures 13, 14, and 15.	Demolish and remove
9	Elevated Water Tanks	Any time prior to partial dismantling and demolition of potentially occupied structures 13, 14, and 15.	Demolish and remove
10	Smokestack	A) If maternity colonies are present in *any* Structure 13, 14, or 15: *Actions at right only March 1 – April 15, or September 1 – October 15.* B) If only bachelor/non-reproductive colonies are present in *all* Structures 13, 14, 15: *Actions at right only March 1 – October 15.* C) If *only* night roost colonies are present in *all* structures 13, 14, and 15: *Demolish any date, only during day.*	Demolish and remove
11	12-Story Boiler Building and attached structure	A) If maternity colonies are present in *any* Structure 13, 14, or 15: *Actions at right only March 1 – April 15, or September 1 – October 15.* B) If only bachelor/non-reproductive colonies are present in *all* Structures 13, 14, 15: *Actions at right only March 1 – October 15.* C) If *only* night roost colonies are present in *all* structures 13, 14, and 15: *Demolish any date, only during day.*	Demolish and remove

12	Foundations & Structures, Footings	A) If maternity colonies are present in *any* Structure 13, 14, or 15: *Actions at right only March 1 – April 15, or September 1 – October 15.* B) If only bachelor/non-reproductive colonies are present in *all* Structures 13, 14, 15: *Actions at right only March 1 – October 15.* C) If *only* night roost colonies are present in *all* structures 13, 14, and 15: *Demolish any date, only during day.*	Demolish and remove
13	Pump House (SUB BF2),	A) If maternity colonies are present in *any* Structure 13, 14, or 15: *Actions at right only March 1 – April 15, or September 1 – October 15.* B) If only bachelor/non-reproductive colonies are present in *all* Structures 13, 14, 15: *Actions at right only March 1 – October 15.* C) If *only* night roost colonies are present in *all* structures 13, 14, and 15: *Demolish any date, only during day.*	1. Open all doors 2. Remove louvered vents 3. Install 4 LED work lights aimed toward ceiling throughout building 4. If a follow-up survey shows no bats are present after 7 nights, demolish building
14	SUB FL.2	A) If maternity colonies are present in *any* Structure 13, 14, or 15: *Actions at right only March 1 – April 15, or September 1 – October 15.* B) If only bachelor/non-reproductive colonies are present in *all* Structures 13, 14, 15: *Actions at right only March 1 – October 15.* C) If *only* night roost colonies are present in *all* structures 13, 14, and 15: *Demolish any date, only during day.*	1. Open all doors 2. Remove louvered vents 3. Install 6-8 LED work lights aimed toward ceiling throughout building 4. If a follow-up survey shows no bats are present after 7 nights, demolish building
15	Filter/Softener Tank Building	A) If maternity colonies are present in *any* Structure 13, 14, or 15: *Actions at right only March 1 – April 15, or September 1 – October 15.* B) If only bachelor/non-reproductive colonies are present in *all* Structures 13, 14, 15: *Actions at right only March 1 – October 15.* C) If *only* night roost colonies are present in *all* structures 13, 14, and 15: *Demolish any date, only during day.*	1. Open all doors 2. Install 4 LED work lights aimed toward ceiling throughout building, as well as 4 LED work lights aimed toward ceiling in J-shaped support building for Filter and Softener Tanks. 3. If a follow-up survey shows no bats are present after 7 nights, demolish building

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Figure 1. Structure names referenced in this report. White labels and arrows, GHD; white labels and green arrows, Wildlife Research Associates.

Figure 2. Three buildings with evidence of roosting bats.

Figure 3. Pump House. Bat activity noted throughout. Remove only during seasonal periods of bat activity after conducting partial dismantling/deterrence measures as detailed in text.

Figure 4. Interior of Pump House. Bat activity noted throughout. Remove only during seasonal periods of bat activity after conducting partial dismantling/deterrence measures as detailed in text.

Figure 5. Bat fecal pellets noted in several locations throughout Pump House.

Figure 6. Bat fecal pellets noted in several locations throughout Pump House.

Figure 7. Building SUB FL.2. Bat activity noted in several interior locations.

Figure 8. Building SUB FL.2. Bat activity noted in several interior locations.

Figure 9. Building SUB FL.2. Bat activity noted in several interior locations.

Figure 10. Building SUB FL.2. Bat activity noted in several interior locations.

Figure 11. Filter/Softener Tank Building (left) and attached Tank Support Building (right)

Figure 12. Interior of Filter/Softener Tank Building. Evidence of use by bats inside this structure, but not present in the attached, J-shaped Tank Support Building.

Figure 13. Bat fecal pellets observed in Filter/Softener Building. Some rodent activity also noted.

Figure 14. Interior of J-shaped Tank Support Building attached to Filter/Softener Tank Building. No signs of use by bats, but suitable potential habitat.

Figure 15. West-facing portion of 12-Story Boiler Building and attached structure. No signs of past or present use by bats around exterior or interior.

Figure 16. East- facing portion of 12-Story Boiler Building and attached structure. No signs of past or present use by bats.

Figure 17. Interior of 12-Story Boiler Building. Large amounts of light and in some locations, airflow, not conducive to bat roosting activity. No signs of past or present use found.

Figure 18. Interior of 12-Story Boiler Building. Large amounts of light and in some locations, airflow, not conducive to bat roosting activity. No signs of past or present use found.

Figure 19. Interior of 12-Story Boiler Building. Large amounts of light and in some locations, airflow, not conducive to bat roosting activity. No signs of past or present use found.


Figure 20. Interior of 12-Story Boiler Building. Large amounts of light and in some locations, airflow, not conducive to bat roosting activity. No signs of past or present use found.

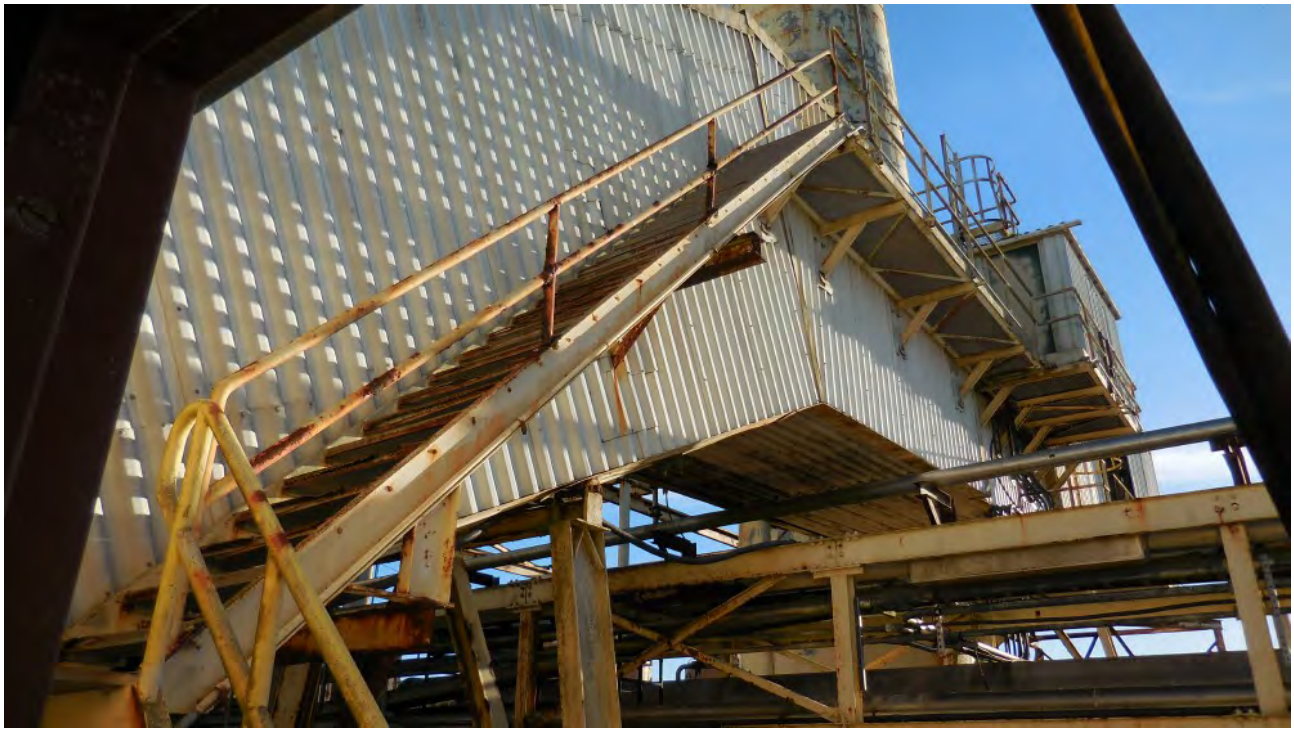

Figure 21. No signs of past or present bat activity in connected structure.

Figure 22. No signs of past or present bat activity in connected structure.

Figure 23. 2-Story Building near Smokestack and 12-Story Boiler Building. No signs of use by bats around exterior or interior.

Figure 24. Smokestack, middle and top portion.

Figure 25. Open mouth of Smokestack – Unmanned Aerial Vehicle (UAV) photo by Nordic Aquafarms.

Figure 26. Interior lower portion of Smokestack. No signs of roosting bats.

Figure 27. Open mouth of Smokestack – Unmanned Aerial Vehicle (UAV) photo by Nordic Aquafarms.

Figure 28. South-facing portion of 3-Story Boiler Building just east of 12-Story Boiler Building. No signs of bat activity, exterior or interior.

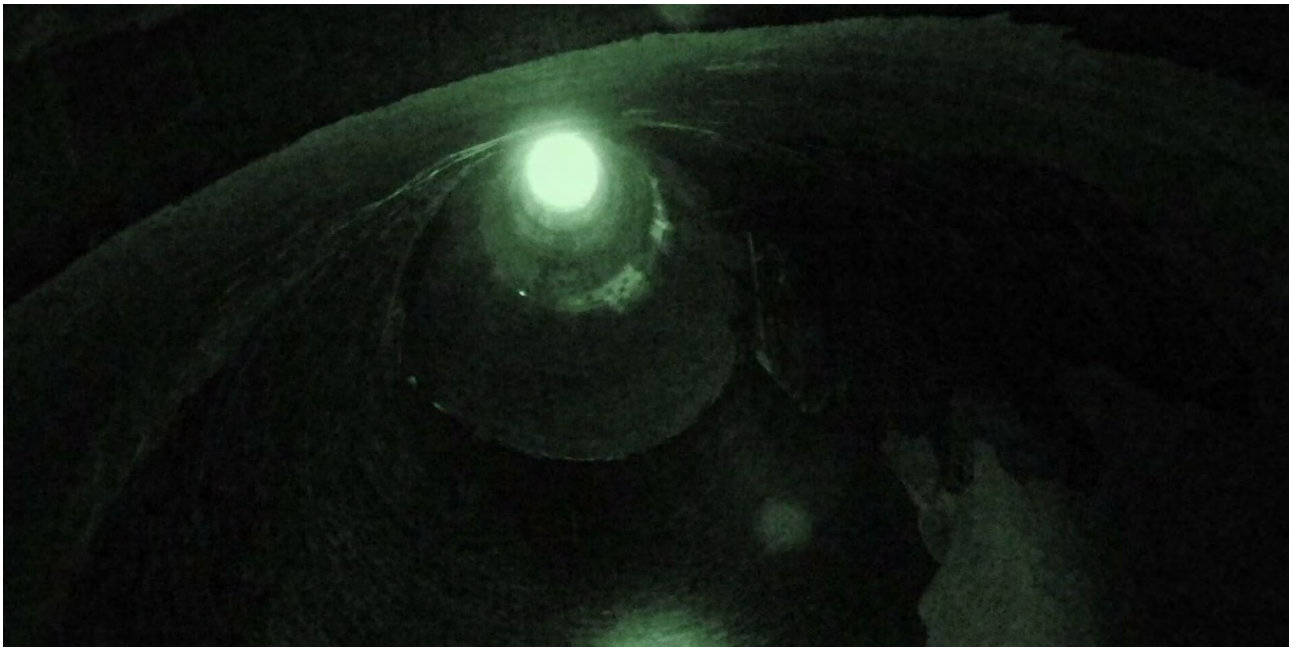

Figure 29. Open mouth of Smokestack – Unmanned Aerial Vehicle (UAV) photo by Nordic Aquafarms.

Figure 30. South-facing portion of 3-Story Boiler Building just east of 12-Story Boiler Building. No signs of bat activity, exterior or interior.

Figure 31. West-facing portion of 3-Story Boiler Building just east of 12-Story Boiler Building. No signs of bat activity, exterior or interior.

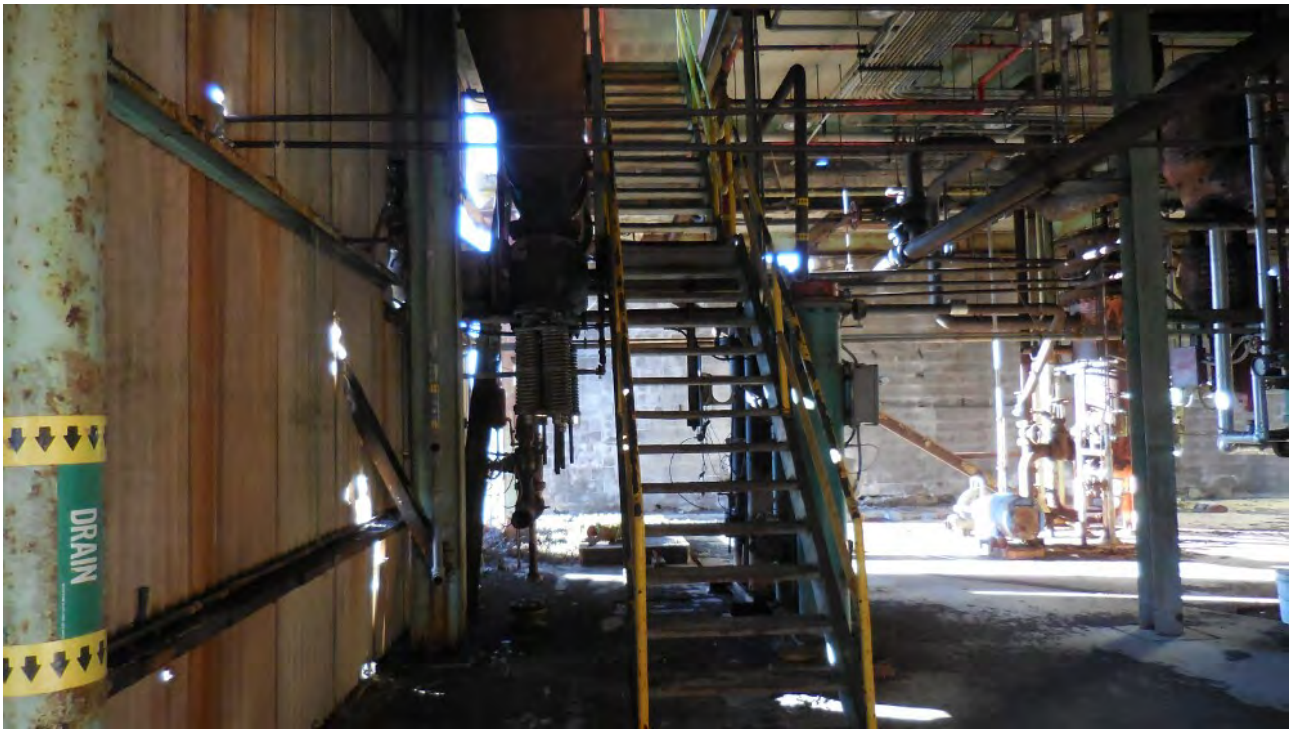

Figure 32. Interior, 3-Story Boiler Building lower floor.

Figure 33. Interior, 3-Story Boiler Building.

Figure 34. Interior, 3-Story Boiler Building.

Figure 35. Brick Silos (tanks) located at north-central portion of site. Structure 2 is visible in foreground. No signs of past or present use by bats in Structure 2, tanks not safe to survey interiors, but 2 have open tops, no suitable habitat; remainder have no suitable openings for bats.

Figure 36. Interior – Structure 2. No signs of bats, but suitable habitat present in upper floor.

Figure 37. Steel tanks in interior of site. No suitable bat habitat.

Figure 38. Elevated water tank, north portion of site just outside boundary, but may be removed. No suitable bat habitat.

Figure 39. Unmarked building outside north boundary – no signs of use by bats.

Figure 40. Portable building outside north boundary – no signs of use by bats, no suitable entry points.

Figure 41. Structure – 2-story building in foreground, Existing offices at left side of large structure, Warehouse and Shared Spaces in central part of building behind Structure, and Machine Building and Silo at right.

Figure 42. Existing Offices at left, Silo (tank), Warehouse and Shared Spaces in middle portion of large structure, and Structure (2-story, concrete) in foreground at right. No signs of past or present use by bats in any of these structures.

Figure 43. Existing Offices (leased to tenants), and entry to Warehouse and Shared Spaces.


Figure 44. Wall at entry to Warehouse and Shared Spaces.

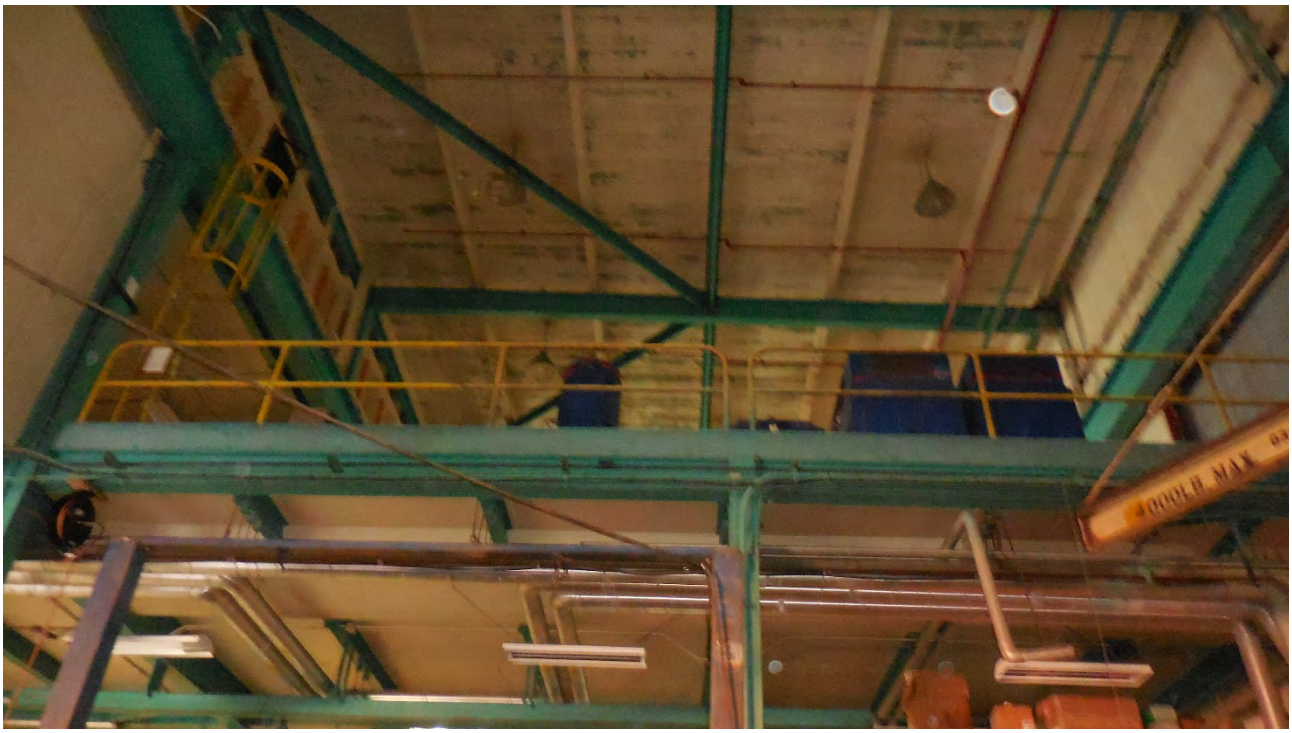

Figure 45. Warehouse and Shared Spaces structure.

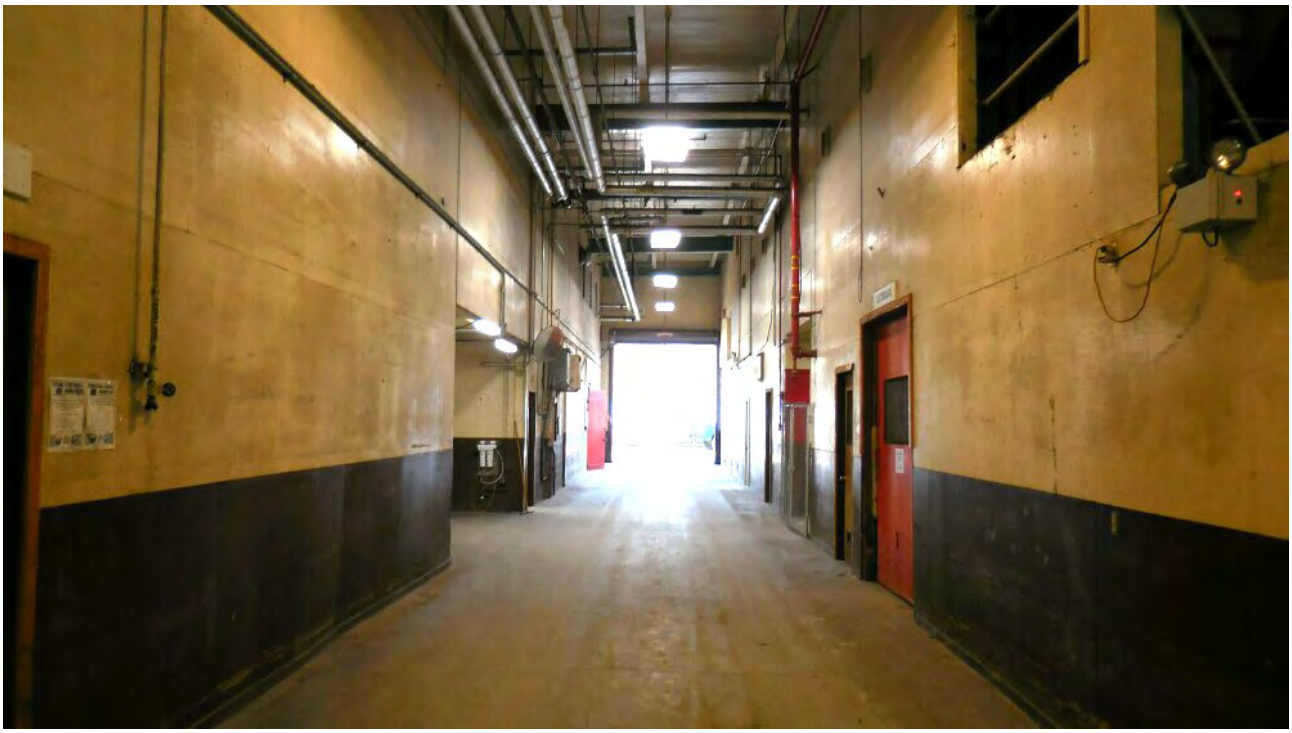

Figure 46. Warehouse and Shared Spaces structure.

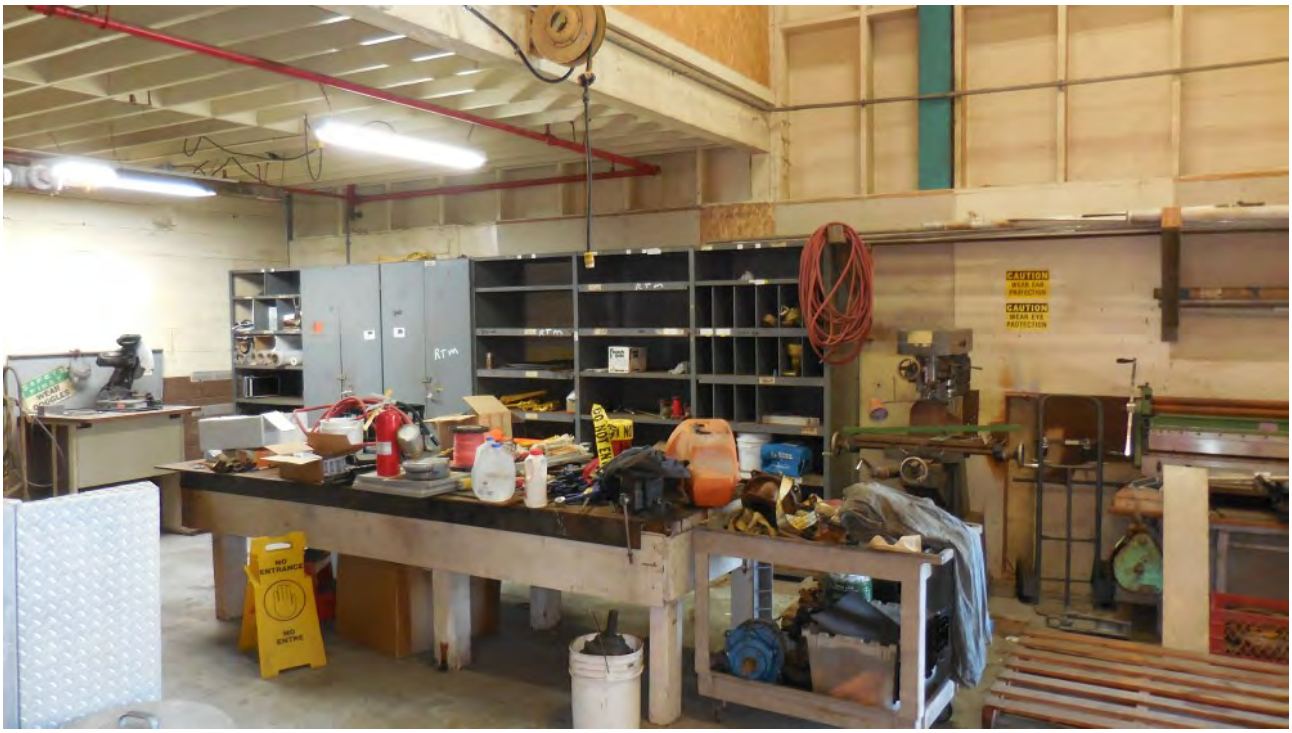

Figure 47. Interior, Shared Spaces structure.


Figure 48. Interior of 2-story Structure near Machine Building and Warehouse.

Figure 49. T-beam ceiling girders provide good suitable habitat for bats, although no signs of use were present. However, Structure and Structure 2, identical in construction, should be removed prior to removal of bat-occupied structures to prevent bats abandoning those buildings from moving into these structures.

Figure 50. Machine Building. Extremely large structure has many large openings in walls and roof. No signs of past or present use by bats observed around exterior, or in interior large open spaces or enclosed rooms.

Figure 51. Continued view of Machine Building. Extremely large structure has many large openings in walls and roof. No signs of past or present use by bats observed around exterior, or in interior large open spaces or enclosed rooms.

Figure 52. Interior of Machine Building – large amounts of light and airflow, not conducive to bat roosting activity.

Figure 53. Interior of Machine Building – large amounts of light and airflow, not conducive to bat roosting activity.

Figure 54. Interior of Machine Building – large amounts of light and airflow, not conducive to bat roosting activity, even in more protected locations such as this concrete wall and girder ceiling area.

Figure 55. Interior of Machine Building – large amounts of light and airflow, not conducive to bat roosting activity, even in more protected locations such as this concrete wall and girder ceiling area.

Figure 56. Enclosed and partially-enclosed rooms inside Machine Building – no signs of past or present use by bats.

APPENDIX A.

LAWS AND REGULATIONS PERTAINING TO BATS

Bats are afforded various levels of protection under State Law (Appendix 1). Of the 25 bat species that occur within California, 12 are identified as Species of Special Concern (CDFW 2019). In addition, non-SSC species are also afforded consideration under the California Environmental Quality Act (CEQA), primarily when significant local breeding populations may be impacted. All bats in California are protected under various codes and regulations (see Appendix 1), and additional attention is paid to SSC bats and other taxa, impacts to which often are sufficient to trigger CEQA review and/or documentation, and in some cases, CDFW permitting (e.g., Lake and Streambed Alteration Agreement, when appropriate). Appendix II provides a list of laws and regulations pertaining to bats.

Bats are afforded protection under the laws and regulations below:

- **California Fish and Game Code**
    - Section 86 defining "Take"
    - SECTION 1600 – LAKE AND STREAMBED ALTERATION PROGRAM
    - Section 2000 – Unlawful taking…
    - Section 2014 – State Policy: Conservation of natural resources…
    - Section 3007 – License or permit; necessity of
    - Section 4150 – Nongame mammals
    - **California public resources code, division 14, section 21000 et seq. (CEQA statute)**
    - **California code of regulations, title 14: including but not limited to:**
        - Section 251.1 – harassment of animals
        - CEQA Regulations (Section 15000 et seq.)
            - Section 15380 – Endangered, Rare or Threatened Species
            - Section 15382 – Significant Effect on the Environment
            - Appendix G – Environmental Checklist
    - **Caltrans environmental policy**
    - **Caltrans Environmental Procedures**
    - **Federal Highway Administration (FHWA) Environmental Policy**
    - **FHWA Environmental Procedures**

Appendix C3
Building Bat Roost Survey

Wildlife Research Associates

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5/12/2021

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RE: MAY, 2021 BUILDING BAT ROOST SURVEY – SAMOA PENINSULA LAND-BASED AQUACULTURE PROJECT – SAMOA, CA

Hello Mr. Schwarz,

The following are the results of my survey of five structures at the former LP Samoa Pulp Mill in the unincorporated community of Samoa, CA. Three of the five buildings contained signs of bat activity during my surveys of all structures on the site on January 19 and 20, 2021 (Wildlife Research Associates 2021). In addition, I surveyed two other buildings that appeared to provide suitable potential habitat but did not contain signs of use by bats. Please refer to our February 4, 2021 report for details about our previous surveys, results, and recommendations.

METHODS

I met with Robert Provolt, Harbor District Maintenance Worker at 0810 on Tuesday, May 11, 2021, who provided access to the five buildings discussed in this report. No additional structures were re-surveyed, based on lack of signs of past or present use by bats and roost suitability of those structures noted during my January 2021 surveys.

An exterior survey of each structure was conducted to determine whether conditions had changed since my initial surveys. Following that, I conducted visual surveys of the complete interiors of each structure using a 700-Lumen LED flashlight and a 550-Lumen LED spotlight.

RESULTS

No bats were present in any of the three structures that during previous surveys contained signs of use by bats (fecal pellets, urine staining, staining on roost surfaces) – the Pump House (SUB BF2), SUB FL.2, and Filter/Softener Tank Building. In addition, no bats or signs of bats were present in the two concrete, 2-story structures located towards the north portion of the project site. Those two structures seem to

contain suitable potential habitat features (concrete girders), however temperatures and/or other factors appear to limit habitat suitability.

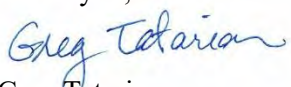
The table below lists each building, along with results.

BUILDING NAME	RESULTS/OBSERVATIONS
Pump House (SUB BF2)	No bats present (however many active swallow nests)
SUB FL.2	No bats present (however many active swallow nests)
Filter/Softener Tank Building	No bats present (however many active swallow nests)
Structure (Concrete)	No bats present, no signs of use
Structure 2 (Concrete)	No bats present, no signs of use, however barn owl present upper floor

CONCLUSION

Although no bats were found during this survey on May 11, 2021, bats could potentially begin to form maternity colonies soon. However, based on my previous observations in January and subsequently in mid-May, this potential appears to be extremely low. To confirm this, I will be conducting a second maternity-season survey in July, which will definitively answer whether any of these buildings are being used as a maternity roost by bats.

Thank you,



Greg Tatarian

REFERENCES:

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Appendix C4
Maternity Season Bat Roost Survey

Wildlife Research Associates

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7/12/2021

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RE: JULY 2021 MATERNITY SEASON BAT ROOST SURVEY – SAMOA PENINSULA LAND-BASED AQUACULTURE PROJECT – SAMOA, CA

Hello Mr. Schwarz,

The following are the results of my July 2021 maternity season survey for presence of day-roosting bats in five structures at the former LP Samoa Pulp Mill in the unincorporated community of Samoa, CA (hereafter Project Site). This was a follow-up to my survey of the same structures in May 2021, when bats would have been expected to have begun occupying the structures in preparation for parturition and pup-rearing.

Although no live or dead bats were found in any of the structures on the Project Site, three of the five buildings contained signs of bat activity during my surveys of all structures on the site on January 19 and 20, 2021 (Wildlife Research Associates 2021a) and May 2021 (Wildlife Research Associates 2021b). During my May and July 2021 surveys, I surveyed two additional buildings that appeared to provide suitable potential habitat but did not contain signs of use by bats. All five structures are listed and described in Table 1. Please refer to our February 4, 2021, and May 14, reports for details about our previous surveys, results, and recommendations.

METHODS

I began my survey at the previously unlocked SUB FL.2 building at 0730 on Wednesday, July 7, 2021, and then met just before 0800 with Scott Fuller, Harbor District Maintenance Worker, who provided access to the remaining buildings discussed in this report. I was joined at 0800 by Elizabeth Meisman, GHD Wildlife Biologist, who accompanied me for the remainder of the survey. No additional structures were re-surveyed, based on lack of signs of past or present use by bats and roost suitability of those structures noted during my January 2021 surveys.

An exterior survey of each structure was conducted to determine whether those conditions had changed since my initial surveys. Following that, I conducted visual surveys of the complete interiors of each structure using a 700-Lumen LED flashlight and a 550-Lumen LED spotlight.

RESULTS

As with my January and May 2021 surveys, no bats were present during the July survey in any of the three structures that previously contained signs of use by bats (fecal pellets, urine staining, staining on roost surfaces) – the Pump House (SUB BF2), SUB FL.2, and Filter/Softener Tank Building. Interior conditions during the July survey were almost identical to those observed in May, and signs of use (fresh fecal pellets, urine staining, etc.) appeared mostly unchanged from May, except in the Pump House, where some fresh fecal pellets were present in the small enclosed concrete room inside the structure.

In addition, no bats or signs of bats were present in the two concrete, 2-story structures located towards the north portion of the Project Site. As stated in my previous reports, those two structures seem to contain suitable potential habitat features (concrete girders), however temperatures and/or other factors appear to limit habitat suitability.

Table 1 below lists each building, along with results.

TABLE 1

Survey Results – July 7, 2021

BUILDING NAME	RESULTS/OBSERVATIONS
Pump House (SUB BF2)	No bats present (however many previously active swallow nests)
SUB FL.2	No bats present (however many previously active swallow nests)
Filter/Softener Tank Building	No bats present (however many previously active swallow nests)
Structure (Concrete)	No bats present, no signs of use
Structure 2 (Concrete)	No bats present, no signs of use, however barn owl present upper floor in May; did not choose to re-survey upper floor to avoid disturbing owls

DISCUSSION

Surveys conducted in January, May, and July 2021 indicate that bats are night roosting only in the Pump House (SUB BF2), SUB FL.2, and Filter/Softener Tank Building. No bats were found during my daytime surveys on May 11, 2021, a time when day-roosting bats would have been likely to begin occupying the roosts and forming maternity colonies. The follow-up survey in July occurred during a time when day-roosting bats in maternity roosts would be observed, with volant pups and adult females being present. The absence of day-roosting bats during these surveys supports my initial assessment that these structures provide only night-roosting habitat. The minimal increase in fecal pellet accumulations observed suggest that night-roosting activity is currently either sporadic, populations are small, or both, but has been occurring for years. Night-roosting activity on-site is occurring during the maternity season and potentially before and after, including during winter months.

Recommendations detailed in my February 2021 report were based on the potential for day-roosting bats to be present in some or all of the five buildings discussed in this report, prior to follow-up surveys in May and July to determine presence or absence during the 2021 maternity season. As a result, phasing of building removal was a key component in those recommendations to prevent bats evicted from occupied structures from moving to previously unoccupied structures from which it would be more difficult and complicated to evict bats or cause them to abandon those roosts.

Although all current evidence indicates that the occupied buildings are only being used as night roosts, I still recommend that the order of building removal initially discussed in my February 2021 report and specified in Table 1 of that report be followed to prevent a change of roost usage in previously unoccupied buildings resulting from removal of currently occupied structures which could require changes to the methods and seasonal timing of removal. In short, it is best to remove non-habitat buildings prior to occupied and potential habitat buildings.

Please see below, the modified (updated) recommendations and table showing the order and detailed actions of structure removal based on the results of maternity season surveys showing absence of day-roosting bats.

MODIFIED (UPDATED) PROJECT-SPECIFIC RECOMMENDATIONS

Based on the analysis of all survey results as discussed above, it is no longer necessary to conduct partial dismantling and/or deterrence measures to cause bats to abandon the roosts prior to demolition since neither day maternity roosts or other day-roosting individuals are present in the structures. However, all structures on the site – including the Pump House (SUB BF2), SUB FL.2, and Filter/Softener Tank Building and Concrete Foundations, Structures and Footings – should be removed only during daylight hours to prevent potential direct mortality of night-roosting bats.

No day-roosting bats were present during the January 2021, yet evidence of recent night-roosting activity was observed (relatively fresh fecal pellets, urine staining), suggesting that some degree of bat activity occurs during winter months at the site. It is reasonable to conclude therefore, that bats are not overwintering in torpor in these structures, since they would be observed during the daytime surveys in that case.

Based on these observations, and if conditions and roost activity do not change between these surveys and demolition of the structures (e.g., if the project is delayed one or more years), it is no longer necessary to restrict demolition of structures to seasonal periods of bat activity to prevent direct mortality of day-roosting bats that could be seasonally inactive (e.g., pups, torpid bats), since bats are not present during the day in these structures.

However, to prevent night-roosting bats moving from current night-roost structures to currently unoccupied structures on the Project Site, which would potentially result in the need for more complicated measures to prevent direct mortality, all structures on-site should be removed in a sequence that will first remove those structures with no suitable habitat and those with suitable potential but unoccupied habitat, after which the Pump House (SUB BF2), SUB FL.2, and Filter/Softener Tank Building and Concrete Foundations, Structures and Footings would occur. See Table 2.

Please refer to our February 2021 report for names, locations, and photos of all structures, including those structures with bat activity.

TABLE 2

UPDATED DETAILED RECOMMENDED ACTIONS AND TIMING FOR EACH STRUCTURE

ORDER OF ACTIONS	STRUCTURE NAME	RECOMMENDED TIMING OF ACTIONS	DETAILED ACTIONS
1	Machine Building	During daylight hours only, any date prior to demolition of bat night-roost structures 13, 14, and 15.	Demolish and remove
2	Warehouse	During daylight hours only, any date prior to demolition of bat night-roost structures 13, 14, and 15.	Demolish and remove
3	Existing Offices	During daylight hours only, any date prior to demolition of bat night-roost structures 13, 14, and 15.	Demolish and remove
4	Brick Silos (all)	During daylight hours only, any date prior to demolition of bat night-roost structures 13, 14, and 15.	Demolish and remove
5	Structure (concrete)	During daylight hours only, any date prior to demolition of bat night-roost structures 13, 14, and 15.	Demolish and remove
6	Structure 2 (concrete)	During daylight hours only, any date prior to demolition of bat night-roost structures 13, 14, and 15.	Demolish and remove
8	3-Story Boiler Building	During daylight hours only, any date prior to demolition of bat night-roost structures 13, 14, and 15.	Demolish and remove
9	2-Story Building Near Smokestack	During daylight hours only, any date prior to demolition of bat night-roost structures 13, 14, and 15.	Demolish and remove
9	Elevated Water Tanks	During daylight hours only, any date prior to demolition of bat night-roost structures 13, 14, and 15.	Demolish and remove
10	Smokestack	During daylight hours only, any date prior to demolition of bat night-roost structures 13, 14, and 15.	Demolish and remove
11	12-Story Boiler Building and attached structure	During daylight hours only, any date prior to demolition of bat night-roost structures 13, 14, and 15.	Demolish and remove
12	Foundations & Structures, Footings	During daylight hours only, any date prior to demolition of bat night-roost structures 13, 14, and 15.	Demolish and remove
13	Pump House (SUB BF2),	Any date after removal of Structures 1-12, demolish this structure only during daylight hours.	Demolish and remove

ORDER OF ACTIONS	STRUCTURE NAME	RECOMMENDED TIMING OF ACTIONS	DETAILED ACTIONS
14	SUB FL.2	Any date after removal of Structures 1-12, demolish this structure only during daylight hours.	Demolish and remove
15	Filter/Softener Tank Building	Any date after removal of Structures 1-12, demolish this structure only during daylight hours.	Demolish and remove

Thank you,

Greg Tatarian

REFERENCES:

WILDLIFE RESEARCH ASSOCIATES. 2021A. BAT HABITAT ASSESSMENT, REPORT, RECOMMENDATIONS – SAMOA PENINSULA LAND-BASED AQUACULTURE PROJECT – SAMOA, CA. FEBRUARY 4.

WILDLIFE RESEARCH ASSOCIATES. 2021B. MAY 2021 BUILDING BAT ROOST SURVEY – SAMOA PENINSULA LAND-BASED AQUACULTURE PROJECT – SAMOA, CA. MAY 12.

Appendix C5
Updated Natural Diversity Database Searches

Appendix C5, Table 1. Samoa Peninsula Land-based Aquaculture Project – 7-Quad Database Search of CDFW CNDDB centered on Project quad (Eureka) on 07.28.2021. Quads included Tyee City, Arcata North, Arcata South, McWhinney Creek, Fields Landing, and Cannibal Island.

SciName	ComName	Taxon Group	FedList	CalList	GRank	SRank	Rplant Rank	OthrStatus	Habitats	GenHab	MicroHab
Abronia umbellata var. breviflora	pink sand-verbena	Dicots	None	None	G4G5T2	S2	1B.1	BLM_S-Sensitive | SB_CalBG/RSABG-California/Rancho Santa Ana Botanic Garden	Coastal dunes	Coastal dunes and coastal strand.	Foredunes and interdunes with sparse cover. A. umbellata var. breviflora is usually the plant closest to the ocean. 0-75 m.
Accipiter striatus	sharp-shinned hawk	Birds	None	None	G5	S4		CDFW_WL-Watch List | IUCN_LC-Least Concern	Cismontane woodland | Lower montane coniferous forest | Riparian forest | Riparian woodland	Ponderosa pine, black oak, riparian deciduous, mixed conifer, and Jeffrey pine habitats. Prefers riparian areas.	North-facing slopes with plucking perches are critical requirements. Nests usually within 275 ft of water.

Acipenser medirostris	green sturgeon	Fish	Threatened	None	G3	S2		AFS_VU-Vulnerable | CDFW_SSC-Species of Special Concern | IUCN_NT-Near Threatened | NMFS_SC-Species of Concern	Aquatic | Klamath/North coast flowing waters | Sacramento/San Joaquin flowing waters	These are the most marine species of sturgeon. Abundance increases northward of Point Conception. Spawns in the Sacramento, Klamath, & Trinity Rivers.	Spawns at temps between 8-14 C. Preferred spawning substrate is large cobble, but can range from clean sand to bedrock.
Anodonta californiensis	California floater	Mollusks	None	None	G3Q	S2?		USFS_S-Sensitive	Aquatic	Freshwater lakes and slow-moving streams and rivers. Taxonomy under review by specialists.	Generally in shallow water.

Aplodontia rufa humboldtiana	Humboldt mountain beaver	Mammals	None	None	G5TNR	SNR			Coastal scrub | Redwood | Riparian forest	Coast Range in southwestern Del Norte County and northwestern Humboldt County.	Variety of coastal habitats, including coastal scrub, riparian forests, typically with open canopy and thickly vegetated understory.
Arborimus albipes	white-footed vole	Mammals	None	None	G3G4	S2		CDFW_SSC-Species of Special Concern | IUCN_LC-Least Concern	North coast coniferous forest | Redwood | Riparian forest	Mature coastal forests in Humboldt and Del Norte counties. Prefers areas near small, clear streams with dense alder and shrubs.	Occupies the habitat from the ground surface to the canopy. Feeds in all layers and nests on the ground under logs or rock.

Arborimus pomo	Sonoma tree vole	Mammals	None	None	G3	S3		CDFW_SSC-Species of Special Concern | IUCN_NT-Near Threatened	North coast coniferous forest | Oldgrowth | Redwood	North coast fog belt from Oregon border to Somona County. In Douglas-fir, redwood & montane hardwood-conifer forests.	Feeds almost exclusively on Douglas-fir needles. Will occasionaly take needles of grand fir, hemlock or spruce.
Ardea alba	great egret	Birds	None	None	G5	S4		CDF_S-Sensitive | IUCN_LC-Least Concern	Brackish marsh | Estuary | Freshwater marsh | Marsh & swamp | Riparian forest | Wetland	Colonial nester in large trees.	Rookery sites located near marshes, tide-flats, irrigated pastures, and margins of rivers and lakes.
Ardea herodias	great blue heron	Birds	None	None	G5	S4		CDF_S-Sensitive | IUCN_LC-Least Concern	Brackish marsh | Estuary | Freshwater marsh | Marsh & swamp | Riparian forest | Wetland	Colonial nester in tall trees, cliffsides, and sequestered spots on marshes.	Rookery sites in close proximity to foraging areas: marshes, lake margins, tide-flats, rivers and streams, wet meadows.

Ascaphus truei	Pacific tailed frog	Amphibians	None	None	G4	S3S4		CDFW_SSC-Species of Special Concern | IUCN_LC-Least Concern	Aquatic | Klamath/North coast flowing waters | Lower montane coniferous forest | North coast coniferous forest | Redwood | Riparian forest	Occurs in montane hardwood-conifer, redwood, Douglas-fir & ponderosa pine habitats.	Restricted to perennial montane streams. Tadpoles require water below 15 degrees C.
Astragalus pycnostachyus var. pycnostachyus	coastal marsh milk-vetch	Dicots	None	None	G2T2	S2	1B.2	BLM_S-Sensitive | SB_CalBG/RSABG-California/Rancho Santa Ana Botanic Garden | SB_SBBG-Santa Barbara Botanic Garden | SB_UCBG-UC Botanical Garden at Berkeley	Coastal dunes | Coastal scrub | Marsh & swamp | Wetland	Coastal dunes,marshes and swamps, coastal scrub.	Mesic sites in dunes or along streams or coastal salt marshes. 0-155 m.

Bombus caliginosus	obscure bumble bee	Insects	None	None	G4?	S1S2		IUCN_VU-Vulnerable		Coastal areas from Santa Barabara county to north to Washington state.	Food plant genera include Baccharis, Cirsium, Lupinus, Lotus, Grindelia and Phacelia.
Bombus crotchii	Crotch bumble bee	Insects	None	Candidate Endangered	G3G4	S1S2				Coastal California east to the Sierra-Cascade crest and south into Mexico.	Food plant genera include Antirrhinum, Phacelia, Clarkia, Dendromecon, Eschscholzia, and Eriogonum.
Bombus occidentalis	western bumble bee	Insects	None	Candidate Endangered	G2G3	S1		USFS_S-Sensitive		Once common & widespread, species has declined precipitously from central CA to southern B.C., perhaps from disease.	

Brachyramphus marmoratus	marbled murrelet	Birds	Threatened	Endangered	G3	S2		CDF_S-Sensitive | IUCN_EN-Endangered | NABCI_RWL-Red Watch List	Lower montane coniferous forest | Oldgrowth | Redwood	Feeds near-shore; nests inland along coast from Eureka to Oregon border and from Half Moon Bay to Santa Cruz.	Nests in old-growth redwood-dominated forests, up to six miles inland, often in Douglas-fir.
Cardamine angulata	seaside bittercress	Dicots	None	None	G4G5	S3	2B.1		Lower montane coniferous forest | North coast coniferous forest | Wetland	North coast coniferous forest, lower montane coniferous forest.	Wet areas, streambanks. 5-515 m.
Carex arcta	northern clustered sedge	Monocots	None	None	G5	S1	2B.2	IUCN_LC-Least Concern	Bog & fen | North coast coniferous forest | Wetland	Bogs and fens, north coast coniferous forest.	Mesic sites. 60-1405 m.
Carex leptalea	bristle-stalked sedge	Monocots	None	None	G5	S1	2B.2	IUCN_LC-Least Concern	Bog & fen | Freshwater marsh | Marsh & swamp | Meadow & seep | Wetland	Bogs and fens, meadows and seeps, marshes and swamps.	Mostly known from bogs and wet meadows. 3-1395 m.

Carex lyngbyei	Lyngbye's sedge	Monocots	None	None	G5	S3	2B.2	IUCN_LC-Least Concern	Marsh & swamp | Wetland	Marshes and swamps (brackish or freshwater) .	0-200 m.
Carex praticola	northern meadow sedge	Monocots	None	None	G5	S2	2B.2		Meadow & seep | Wetland	Meadows and seeps.	Moist to wet meadows. 15-3200 m.
Castilleja ambigua var. humboldtiensis	Humboldt Bay owl's-clover	Dicots	None	None	G4T2	S2	1B.2	BLM_S-Sensitive	Marsh & swamp | Salt marsh | Wetland	Marshes and swamps.	In coastal saltmarsh with Spartina, Distichlis, Salicornia, Jaumea. 0-20 m.
Castilleja litoralis	Oregon coast paintbrush	Dicots	None	None	G3	S3	2B.2		Coastal bluff scrub | Coastal dunes | Coastal scrub	Coastal bluff scrub, coastal dunes, coastal scrub.	Sandy sites. 5-255 m.

Charadrius montanus	mountain plover	Birds	None	None	G3	S2S3		BLM_S-Sensitive | CDFW_SSC-Species of Special Concern | IUCN_NT-Near Threatened | NABCI_RWL-Red Watch List | USFWS_BCC-Birds of Conservation Concern	Chenopod scrub | Valley & foothill grassland	Short grasslands, freshly plowed fields, newly sprouting grain fields, & sometimes sod farms.	Short vegetation, bare ground, and flat topography. Prefers grazed areas and areas with burrowing rodents.
Charadrius nivosus nivosus	western snowy plover	Birds	Threatened	None	G3T3	S2		CDFW_SSC-Species of Special Concern | NABCI_RWL-Red Watch List | USFWS_BCC-Birds of Conservation Concern	Great Basin standing waters | Sand shore | Wetland	Sandy beaches, salt pond levees & shores of large alkali lakes.	Needs sandy, gravelly or friable soils for nesting.

Chloropyron maritimum ssp. palustre	Point Reyes salty bird's-beak	Dicots	None	None	G4?T2	S2	1B.2	BLM_S-Sensitive	Marsh & swamp | Salt marsh | Wetland	Coastal salt marsh.	Usually in coastal salt marsh with Salicornia, Distichlis, Jaumea, Spartina, etc. 0-115 m.
Cicindela hirticollis gravida	sandy beach tiger beetle	Insects	None	None	G5T2	S2			Coastal dunes	Inhabits areas adjacent to non-brackish water along the coast of California from San Francisco Bay to northern Mexico.	Clean, dry, light-colored sand in the upper zone. Subterranean larvae prefer moist sand not affected by wave action.
Circus hudsonius	northern harrier	Birds	None	None	G5	S3		CDFW_SSC-Species of Special Concern | IUCN_LC-Least Concern	Coastal scrub | Great Basin grassland | Marsh & swamp | Riparian scrub | Valley & foothill grassland | Wetland	Coastal salt & freshwater marsh. Nest and forage in grasslands, from salt grass in desert sink to mountain cienagas.	Nests on ground in shrubby vegetation, usually at marsh edge; nest built of a large mound of sticks in wet areas.
Coastal Terrace Prairie	Coastal Terrace Prairie	Herbaceous	None	None	G2	S2.1			Coastal prairie		

Collinsia corymbosa	round-headed Chinese-houses	Dicots	None	None	G1	S1	1B.2		Coastal dunes	Coastal dunes.	0-30 m.
Corynorhinus townsendii	Townsend's big-eared bat	Mammals	None	None	G4	S2		BLM_S-Sensitive | CDFW_SSC-Species of Special Concern | IUCN_LC-Least Concern | USFS_S-Sensitive | WBWG_H-High Priority	Broadleaved upland forest | Chaparral | Chenopod scrub | Great Basin grassland | Great Basin scrub | Joshua tree woodland | Lower montane coniferous forest | Meadow & seep | Mojavean desert scrub | Riparian forest | Riparian woodland | Sonoran desert scrub | Sonoran thorn	Throughout California in a wide variety of habitats. Most common in mesic sites.	Roosts in the open, hanging from walls and ceilings. Roosting sites limiting. Extremely sensitive to human disturbance.

Coturnicops noveboracensis	yellow rail	Birds	None	None	G4	S1S2		CDFW_SSC-Species of Special Concern | IUCN_LC-Least Concern | NABCI_RWL-Red Watch List | USFS_S-Sensitive | USFWS_BCC-Birds of Conservation Concern	Freshwater marsh | Meadow & seep	Summer resident in eastern Sierra Nevada in Mono County.	Freshwater marshlands.
Egretta thula	snowy egret	Birds	None	None	G5	S4		IUCN_LC-Least Concern	Marsh & swamp | Meadow & seep | Riparian forest | Riparian woodland | Wetland	Colonial nester, with nest sites situated in protected beds of dense tules.	Rookery sites situated close to foraging areas: marshes, tidal-flats, streams, wet meadows, and borders of lakes.

Elanus leucurus	white-tailed kite	Birds	None	None	G5	S3S4		BLM_S-Sensitive | CDFW_FP-Fully Protected | IUCN_LC-Least Concern	Cismontane woodland | Marsh & swamp | Riparian woodland | Valley & foothill grassland | Wetland	Rolling foothills and valley margins with scattered oaks & river bottomlands or marshes next to deciduous woodland.	Open grasslands, meadows, or marshes for foraging close to isolated, dense-topped trees for nesting and perching.

Emys marmorata	western pond turtle	Reptiles	None	None	G3G4	S3		BLM_S-Sensitive | CDFW_SSC-Species of Special Concern | IUCN_VU-Vulnerable | USFS_S-Sensitive	Aquatic | Artificial flowing waters | Klamath/North coast flowing waters | Klamath/North coast standing waters | Marsh & swamp | Sacramento/San Joaquin flowing waters | Sacramento/San Joaquin standing waters | South coast flowing waters | South coast standing waters |	A thoroughly aquatic turtle of ponds, marshes, rivers, streams and irrigation ditches, usually with aquatic vegetation, below 6000 ft elevation.	Needs basking sites and suitable (sandy banks or grassy open fields) upland habitat up to 0.5 km from water for egg-laying.

Entosphenus tridentatus	Pacific lamprey	Fish	None	None	G4	S4		AFS_VU-Vulnerable | BLM_S-Sensitive | CDFW_SSC-Species of Special Concern | USFS_S-Sensitive	Aquatic | Klamath/North coast flowing waters | Sacramento/San Joaquin flowing waters | South coast flowing waters	Found in Pacific Coast streams north of San Luis Obispo County, however regular runs in Santa Clara River. Size of runs is declining.	Swift-current gravel-bottomed areas for spawning with water temps between 12-18 C. Ammocoetes need soft sand or mud.
Erethizon dorsatum	North American porcupine	Mammals	None	None	G5	S3		IUCN_LC-Least Concern	Broadleaved upland forest | Cismontane woodland | Closed-cone coniferous forest | Lower montane coniferous forest | North coast coniferous forest | Upper montane coniferous forest	Forested habitats in the Sierra Nevada, Cascade, and Coast ranges, with scattered observations from forested areas in the Transverse Ranges.	Wide variety of coniferous and mixed woodland habitat.

Erysimum menziesii	Menzies' wallflower	Dicots	Endangered	Endangered	G1	S1	1B.1	SB_CalBG/RSABG-California/Rancho Santa Ana Botanic Garden | SB_UCBG-UC Botanical Garden at Berkeley	Coastal dunes	Coastal dunes.	Localized on dunes and coastal strand. 1-25 m.
Erythronium revolutum	coast fawn lily	Monocots	None	None	G4G5	S3	2B.2		Bog & fen | Broadleaved upland forest | North coast coniferous forest | Wetland	Bogs and fens, broadleafed upland forest, north coast coniferous forest.	Mesic sites; streambanks. 60-1405 m.
Eucyclogobius newberryi	tidewater goby	Fish	Endangered	None	G3	S3		AFS_EN-Endangered | IUCN_VU-Vulnerable	Aquatic | Klamath/North coast flowing waters | Sacramento/San Joaquin flowing waters | South coast flowing waters	Brackish water habitats along the California coast from Agua Hedionda Lagoon, San Diego County to the mouth of the Smith River.	Found in shallow lagoons and lower stream reaches, they need fairly still but not stagnant water and high oxygen levels.

Fissidens pauperculus	minute pocket moss	Bryophytes	None	None	G3?	S2	1B.2	USFS_S-Sensitive	North coast coniferous forest | Redwood	North coast coniferous forest.	Moss growing on damp soil along the coast. In dry streambeds and on stream banks. 30-1025 m.
Gilia capitata ssp. pacifica	Pacific gilia	Dicots	None	None	G5T3	S2	1B.2		Chaparral | Coastal bluff scrub | Coastal prairie | Valley & foothill grassland	Coastal bluff scrub, chaparral, coastal prairie, valley and foothill grassland.	5-1345 m.
Gilia millefoliata	dark-eyed gilia	Dicots	None	None	G2	S2	1B.2	BLM_S-Sensitive	Coastal dunes	Coastal dunes.	1-60 m.
Haliaeetus leucocephalus	bald eagle	Birds	Delisted	Endangered	G5	S3		BLM_S-Sensitive | CDF_S-Sensitive | CDFW_FP-Fully Protected | IUCN_LC-Least Concern | USFS_S-Sensitive | USFWS_BCC-Birds of Conservation Concern	Lower montane coniferous forest | Oldgrowth	Ocean shore, lake margins, and rivers for both nesting and wintering. Most nests within 1 mile of water.	Nests in large, old-growth, or dominant live tree with open branches, especially ponderosa pine. Roosts communally in winter.

Hesperevax sparsiflora var. brevifolia	short-leaved evax	Dicots	None	None	G4T3	S3	1B.2	BLM_S-Sensitive	Coastal bluff scrub | Coastal dunes | Coastal prairie	Coastal bluff scrub, coastal dunes, coastal prairie.	Sandy bluffs and flats. 0-640 m.
Lampetra richardsoni	western brook lamprey	Fish	None	None	G4G5	S3S4		CDFW_SSC-Species of Special Concern | USFS_S-Sensitive			
Lasthenia californica ssp. macrantha	perennial goldfields	Dicots	None	None	G3T2	S2	1B.2	BLM_S-Sensitive	Coastal bluff scrub | Coastal dunes | Coastal scrub	Coastal bluff scrub, coastal dunes, coastal scrub.	5-185 m.
Lathyrus japonicus	seaside pea	Dicots	None	None	G5	S2	2B.1	IUCN_LC-Least Concern	Coastal dunes	Coastal dunes.	3-65 m.
Lathyrus palustris	marsh pea	Dicots	None	None	G5	S2	2B.2		Bog & fen | Coastal prairie | Coastal scrub | Lower montane coniferous forest | Marsh & swamp | North coast coniferous forest | Wetland	Bogs & fens, lower montane coniferous forest, marshes and swamps, north coast coniferous forest, coastal prairie, coastal scrub.	Moist coastal areas. 2-140 m.

Layia carnosa	beach layia	Dicots	Endangered	Endangered	G2	S2	1B.1	SB_CalBG/RSABG-California/Rancho Santa Ana Botanic Garden | SB_SBBG-Santa Barbara Botanic Garden	Coastal dunes | Coastal scrub	Coastal dunes, coastal scrub.	On sparsely vegetated, semi-stabilized dunes, usually behind foredunes. 3-30 m.
Lilium occidentale	western lily	Monocots	Endangered	Endangered	G1	S1	1B.1	SB_BerrySB-Berry Seed Bank	Bog & fen | Coastal bluff scrub | Coastal prairie | Coastal scrub | Freshwater marsh | Marsh & swamp | North coast coniferous forest | Wetland	Coastal scrub, freshwater marsh, bogs and fens, coastal bluff scrub, coastal prairie, north coast coniferous forest, marshes and swamps.	Well-drained, old beach washes overlain with wind-blown alluvium and organic topsoil; usually near margins of Sitka spruce. 3-110 m.
Lycopodium clavatum	running-pine	Ferns	None	None	G5	S3	4.1		Lower montane coniferous forest | Marsh & swamp | North coast coniferous forest | Wetland	Lower montane coniferous forest, north coast coniferous forest, marshes and swamps.	Forest understory, edges, openings, roadsides; mesic sites with partial shade and light. 45-1225 m.

Margaritifera falcata	western pearlshell	Mollusks	None	None	G4G5	S1S2			Aquatic	Aquatic.	Prefers lower velocity waters.
Martes caurina humboldtensis	Humboldt marten	Mammals	Threatened	Endangered	G4G5T1	S1		CDFW_SSC-Species of Special Concern | USFS_S-Sensitive	North coast coniferous forest | Oldgrowth | Redwood	Occurs only in the coastal redwood zone from the Oregon border south to Sonoma County.	Associated with late-successional coniferous forests, prefer forests with low, overhead cover.
Mitellastra caulescens	leafy-stemmed mitrewort	Dicots	None	None	G5	S4	4.2		Broadleaved upland forest | Lower montane coniferous forest | Meadow & seep | North coast coniferous forest	Broadleafed upland forest, lower montane coniferous forest, meadows and seeps, north coast coniferous forest.	Mesic sites. 5-1700 m.
Monotropa uniflora	ghost-pipe	Dicots	None	None	G5	S2	2B.2		Broadleaved upland forest | North coast coniferous forest	Broadleafed upland forest, north coast coniferous forest.	Often under redwoods or western hemlock. 15-855 m.

Montia howellii	Howell's montia	Dicots	None	None	G3G4	S2	2B.2		Meadow & seep | North coast coniferous forest | Vernal pool | Wetland	Meadows and seeps, north coast coniferous forest, vernal pools.	Vernally wet sites; often on compacted soil. 10-1215 m.
Myotis evotis	long-eared myotis	Mammals	None	None	G5	S3		BLM_S-Sensitive | IUCN_LC-Least Concern | WBWG_M-Medium Priority		Found in all brush, woodland and forest habitats from sea level to about 9000 ft. Prefers coniferous woodlands and forests.	Nursery colonies in buildings, crevices, spaces under bark, and snags. Caves used primarily as night roosts.
Northern Coastal Salt Marsh	Northern Coastal Salt Marsh	Marsh	None	None	G3	S3.2			Marsh & swamp | Wetland		
Northern Foredune Grassland	Northern Foredune Grassland	Dune	None	None	G1	S1.1			Coastal dunes		
Nycticorax nycticorax	black-crowned night heron	Birds	None	None	G5	S4		IUCN_LC-Least Concern	Marsh & swamp | Riparian forest | Riparian woodland | Wetland	Colonial nester, usually in trees, occasionally in tule patches.	Rookery sites located adjacent to foraging areas: lake margins, mud-bordered bays, marshy spots.

Oenothera wolfii	Wolf's evening-primrose	Dicots	None	None	G2	S1	1B.1	SB_BerrySB-Berry Seed Bank	Coastal bluff scrub | Coastal dunes | Coastal prairie	Coastal bluff scrub, coastal dunes, coastal prairie, lower montane coniferous forest.	Sandy substrates; usually mesic sites. 0-125 m.
Oncorhynchus clarkii clarkii	coast cutthroat trout	Fish	None	None	G5T4	S3		AFS_VU-Vulnerable | CDFW_SSC-Species of Special Concern | USFS_S-Sensitive	Aquatic | Klamath/North coast flowing waters	Small coastal streams from the Eel River to the Oregon border.	Small, low gradient coastal streams and estuaries. Needs shaded streams with water temperatures <18C, and small gravel for spawning.
Oncorhynchus kisutch pop. 2	coho salmon - southern Oregon / northern California ESU	Fish	Threatened	Threatened	G5T2Q	S2		AFS_TH-Threatened	Aquatic | Klamath/North coast flowing waters | Sacramento/San Joaquin flowing waters	Federal listing refers to populations between Cape Blanco, Oregon and Punta Gorda, Humboldt County, California.	State listing refers to populations between the Oregon border and Punta Gorda, California.

Oncorhynchus mykiss irideus pop. 16	steelhead - northern California DPS	Fish	Threatened	None	G5T2T3Q	S2S3		AFS_TH-Threatened	Aquatic | Sacramento/San Joaquin flowing waters	Coastal basins from Redwood Creek south to the Gualala River, inclusive. Does not include summer-run steelhead.	
Pandion haliaetus	osprey	Birds	None	None	G5	S4		CDF_S-Sensitive | CDFW_WL-Watch List | IUCN_LC-Least Concern	Riparian forest	Ocean shore, bays, freshwater lakes, and larger streams.	Large nests built in tree-tops within 15 miles of a good fish-producing body of water.
Pekania pennanti	Fisher	Mammals	None	None	G5	S2S3		BLM_S-Sensitive | CDFW_SSC-Species of Special Concern | USFS_S-Sensitive	North coast coniferous forest | Oldgrowth | Riparian forest	Intermediate to large-tree stages of coniferous forests and deciduous-riparian areas with high percent canopy closure.	Uses cavities, snags, logs and rocky areas for cover and denning. Needs large areas of mature, dense forest.

Phalacrocorax auritus	double-crested cormorant	Birds	None	None	G5	S4		CDFW_WL-Watch List | IUCN_LC-Least Concern	Riparian forest | Riparian scrub | Riparian woodland	Colonial nester on coastal cliffs, offshore islands, and along lake margins in the interior of the state.	Nests along coast on sequestered islets, usually on ground with sloping surface, or in tall trees along lake margins.
Puccinellia pumila	dwarf alkali grass	Monocots	None	None	G4?	SH	2B.2		Marsh & swamp | Wetland	Marshes and swamps.	Mineral spring meadows and coastal salt marshes. 1-10 m.
Rallus obsoletus obsoletus	California Ridgway's rail	Birds	Endangered	Endangered	G3T1	S1		CDFW_FP-Fully Protected | NABCI_RWL-Red Watch List	Brackish marsh | Marsh & swamp | Salt marsh | Wetland	Salt water and brackish marshes traversed by tidal sloughs in the vicinity of San Francisco Bay.	Associated with abundant growths of pickleweed, but feeds away from cover on invertebrates from mud-bottomed sloughs.

Rana aurora	northern red-legged frog	Amphibians	None	None	G4	S3		CDFW_SSC-Species of Special Concern | IUCN_LC-Least Concern | USFS_S-Sensitive	Klamath/North coast flowing waters | Riparian forest | Riparian woodland	Humid forests, woodlands, grasslands, and streamsides in northwestern California, usually near dense riparian cover.	Generally near permanent water, but can be found far from water, in damp woods and meadows, during non-breeding season.

Rana boylii	foothill yellow-legged frog	Amphibians	None	Endangered	G3	S3		BLM_S-Sensitive | CDFW_SSC-Species of Special Concern | IUCN_NT-Near Threatened | USFS_S-Sensitive	Aquatic | Chaparral | Cismontane woodland | Coastal scrub | Klamath/North coast flowing waters | Lower montane coniferous forest | Meadow & seep | Riparian forest | Riparian woodland | Sacramento/San Joaquin flowing waters	Partly-shaded, shallow streams and riffles with a rocky substrate in a variety of habitats.	Needs at least some cobble-sized substrate for egg-laying. Needs at least 15 weeks to attain metamorphosis.

Rhyacotriton variegatus	southern torrent salamander	Amphibians	None	None	G3G4	S2S3		CDFW_SSC-Species of Special Concern | IUCN_LC-Least Concern | USFS_S-Sensitive	Lower montane coniferous forest | Oldgrowth | Redwood | Riparian forest	Coastal redwood, Douglas-fir, mixed conifer, montane riparian, and montane hardwood-conifer habitats. Old growth forest.	Cold, well-shaded, permanent streams and seepages, or within splash zone or on moss-covered rocks within trickling water.
Riparia riparia	bank swallow	Birds	None	Threatened	G5	S2		BLM_S-Sensitive | IUCN_LC-Least Concern	Riparian scrub | Riparian woodland	Colonial nester; nests primarily in riparian and other lowland habitats west of the desert.	Requires vertical banks/cliffs with fine-textured/sandy soils near streams, rivers, lakes, ocean to dig nesting hole.
Scaphinotus behrensi	Behrens' snail-eating beetle	Insects	None	None	G2G4	S2S4			North coast coniferous forest	Found in extreme NW CA along the coast.	

Sidalcea malachroides	maple-leaved checkerbloom	Dicots	None	None	G3	S3	4.2		Broadleaved upland forest | Coastal prairie | Coastal scrub | North coast coniferous forest | Riparian forest	Broadleafed upland forest, coastal prairie, coastal scrub, north coast coniferous forest, riparian forest.	Woodlands and clearings near coast; often in disturbed areas. 4-765 m.
Sidalcea malviflora ssp. patula	Siskiyou checkerbloom	Dicots	None	None	G5T2	S2	1B.2		Coastal bluff scrub | Coastal prairie | North coast coniferous forest	Coastal bluff scrub, coastal prairie, north coast coniferous forest.	Open coastal forest; roadcuts. 5-1255 m.
Sidalcea oregana ssp. eximia	coast checkerbloom	Dicots	None	None	G5T1	S1	1B.2		Lower montane coniferous forest | Meadow & seep | North coast coniferous forest | Wetland	Meadows and seeps, north coast coniferous forest, lower montane coniferous forest.	Near meadows, in gravelly soil. 5-1805 m.
Silene scouleri ssp. scouleri	Scouler's catchfly	Dicots	None	None	G5T4T5	S2S3	2B.2		Coastal bluff scrub | Coastal prairie | Valley & foothill grassland	Coastal bluff scrub, coastal prairie, valley and foothill grassland.	5-315 m.

Sitka Spruce Forest	Sitka Spruce Forest	Forest	None	None	G1	S1.1					
Spergularia canadensis var. occidentalis	western sand-spurrey	Dicots	None	None	G5T4	S1	2B.1		Marsh & swamp | Wetland	Marshes and swamps (coastal salt marshes).	0-3 m.
Spirinchus thaleichthys	longfin smelt	Fish	Candidate	Threatened	G5	S1			Aquatic | Estuary	Euryhaline, nektonic & anadromous. Found in open waters of estuaries, mostly in middle or bottom of water column.	Prefer salinities of 15-30 ppt, but can be found in completely freshwater to almost pure seawater.
Sulcaria spiralifera	twisted horsehair lichen	Lichens	None	None	G3G4	S2	1B.2	BLM_S-Sensitive	Coastal dunes | North coast coniferous forest	North Coast coniferous forest (immediate coast), coastal dunes.	Usually on conifers. 0-90 m.

Thaleichthys pacificus	eulachon	Fish	Threatened	None	G5	S2			Aquatic | Klamath/North coast flowing waters	Found in Klamath River, Mad River, Redwood Creek, and in small numbers in Smith River and Humboldt Bay tributaries.	Spawn in lower reaches of coastal rivers with moderate water velocities and bottom of pea-sized gravel, sand, and woody debris.
Trichodon cylindricus	cylindrical trichodon	Bryophytes	None	None	G4G5	S2	2B.2		Broadleaved upland forest | Meadow & seep | Upper montane coniferous forest	Broadleafed upland forest, upper montane coniferous forest, meadows and seeps.	Moss growing in openings on sandy or clay soils on roadsides, stream banks, trails or in fields. 35-2005 m.

Usnea longissima	Methuselah's beard lichen	Lichens	None	None	G4	S4	4.2	BLM_S-Sensitive	Broadleaved upland forest | North coast coniferous forest | Oldgrowth | Redwood	North coast coniferous forest, broadleafed upland forest.	Grows in the "redwood zone" on tree branches of a variety of trees, including big leaf maple, oaks, ash, Douglas-fir, and bay. 45-1465 m in California.
Viola palustris	alpine marsh violet	Dicots	None	None	G5	S1S2	2B.2		Bog & fen | Coastal scrub | Wetland	Coastal scrub, bogs and fens.	Swampy, shrubby places in coastal scrub or coastal bogs. 0-150 m.

Appendix C5, Table 2. Samoa Peninsula Land-based Aquaculture Project – 7-Quad Database Search of CNPS Rare Plant Inventory centered on Project quad (Eureka) on 07.28.2021. Quads included Tyee City, Arcata North, Arcata South, McWhinney Creek, Fields Landing, and Cannibal Island.

Scientific Name	CommonName	Family	Lifeform	CRPR	GRank	SRank	CESA	FESA	Blooming Period	Habitat	MicroHabitat
Abronia umbellata var. breviflora	pink sand-verbena	Nyctaginaceae	perennial herb	1B.1	G4G5T2	S2	None	None	Jun-Oct	Coastal dunes	
Carex praticola	northern meadow sedge	Cyperaceae	perennial herb	2B.2	G5	S2	None	None	May-Jul	Meadows and seeps	
Chloropyron maritimum ssp. palustre	Point Reyes salty bird's-beak	Orobanchaceae	annual herb (hemiparasitic)	1B.2	G4?T2	S2	None	None	Jun-Oct	Marshes and swamps	
Astragalus rattanii var. rattanii	Rattan's milk-vetch	Fabaceae	perennial herb	4.3	G4T4	S4	None	None	Apr-Jul	Chaparral, Cismontane woodland, Lower montane coniferous forest	
Eleocharis parvula	small spikerush	Cyperaceae	perennial herb	4.3	G5	S3	None	None	(Apr)Jun-Aug(Sep)	Marshes and swamps	
Monotropa uniflora	ghost-pipe	Ericaceae	perennial herb (achlorophyllous)	2B.2	G5	S2	None	None	Jun-Aug(Sep)	Broadleafed upland forest, North Coast coniferous forest	

Lathyrus glandulosus	sticky pea	Fabaceae	perennial rhizomatous herb	4.3	G3	S3	None	None	Apr-Jun	Cismontane woodland	
Layia carnosa	beach layia	Asteraceae	annual herb	1B.1	G2	S2	CE	FE	Mar-Jul	Coastal dunes, Coastal scrub	
Lilium occidentale	western lily	Liliaceae	perennial bulbiferous herb	1B.1	G1	S1	CE	FE	Jun-Jul	Bogs and fens, Coastal bluff scrub, Coastal prairie, Coastal scrub, Marshes and swamps, North Coast coniferous forest	
Listera cordata	heart-leaved twayblade	Orchidaceae	perennial herb	4.2	G5	S4	None	None	Feb-Jul	Bogs and fens, Lower montane coniferous forest, North Coast coniferous forest	

Lycopodium clavatum	running-pine	Lycopodiaceae	perennial rhizomatous herb	4.1	G5	S3	None	None	Jun-Aug(Sep)	Lower montane coniferous forest, Marshes and swamps, North Coast coniferous forest	
Oenothera wolfii	Wolf's evening-primrose	Onagraceae	perennial herb	1B.1	G2	S1	None	None	May-Oct	Coastal bluff scrub, Coastal dunes, Coastal prairie, Lower montane coniferous forest	
Castilleja ambigua var. humboldtiensis	Humboldt Bay owl's-clover	Orobanchaceae	annual herb (hemiparasitic)	1B.2	G4T2	S2	None	None	Apr-Aug	Marshes and swamps	
Angelica lucida	sea-watch	Apiaceae	perennial herb	4.2	G5	S3	None	None	Apr-Sep	Coastal bluff scrub, Coastal dunes, Coastal scrub, Marshes and swamps	

Lasthenia californica ssp. macrantha	perennial goldfields	Asteraceae	perennial herb	1B.2	G3T2	S2	None	None	Jan-Nov	Coastal bluff scrub, Coastal dunes, Coastal scrub	
Lathyrus japonicus	seaside pea	Fabaceae	perennial rhizomatous herb	2B.1	G5	S2	None	None	May-Aug	Coastal dunes	
Erythronium revolutum	coast fawn lily	Liliaceae	perennial bulbiferous herb	2B.2	G4G5	S3	None	None	Mar-Jul(Aug)	Bogs and fens, Broadleaf ed upland forest, North Coast coniferous forest	
Pityopus californicus	California pinefoot	Ericaceae	perennial herb (achlorophyllous)	4.2	G4G5	S4	None	None	(Mar-Apr)May-Aug	Broadleaf ed upland forest, Lower montane coniferous forest, North Coast coniferous forest, Upper montane coniferous forest	

Pleuropogon refractus	nodding semaphore grass	Poaceae	perennial rhizomatous herb	4.2	G4	S4	None	None	(Mar)Apr-Aug	Lower montane coniferous forest, Meadows and seeps, North Coast coniferous forest, Riparian forest	
Puccinellia pumila	dwarf alkali grass	Poaceae	perennial herb	2B.2	G4?	SH	None	None	Jul	Marshes and swamps	
Ribes laxiflorum	trailing black currant	Grossulariaceae	perennial deciduous shrub	4.3	G5?	S3	None	None	Mar-Jul(Aug)	North Coast coniferous forest	
Carex leptalea	bristle-stalked sedge	Cyperaceae	perennial rhizomatous herb	2B.2	G5	S1	None	None	Mar-Jul	Bogs and fens, Marshes and swamps, Meadows and seeps	
Collinsia corymbosa	round-headed Chinese-houses	Plantaginaceae	annual herb	1B.2	G1	S1	None	None	Apr-Jun	Coastal dunes	
Hesperevax sparsiflora var. brevifolia	short-leaved evax	Asteraceae	annual herb	1B.2	G4T3	S3	None	None	Mar-Jun	Coastal bluff scrub, Coastal dunes, Coastal prairie	

Lathyrus palustris	marsh pea	Fabaceae	perennial herb	2B.2	G5	S2	None	None	Mar-Aug	Bogs and fens, Coastal prairie, Coastal scrub, Lower montane coniferous forest, Marshes and swamps, North Coast coniferous forest	
Lilium kelloggii	Kellogg's lily	Liliaceae	perennial bulbiferous herb	4.3	G3	S3	None	None	May-Aug	Lower montane coniferous forest, North Coast coniferous forest	
Montia howellii	Howell's montia	Montiaceae	annual herb	2B.2	G3G4	S2	None	None	(Feb)Mar-May	Meadows and seeps, North Coast coniferous forest, Vernal pools	

Sidalcea malachroides	maple-leaved checkerbloom	Malvaceae	perennial herb	4.2	G3	S3	None	None	(Mar)Apr-Aug	Broadleafed upland forest, Coastal prairie, Coastal scrub, North Coast coniferous forest, Riparian woodland	
Sidalcea malviflora ssp. patula	Siskiyou checkerbloom	Malvaceae	perennial rhizomatous herb	1B.2	G5T2	S2	None	None	May-Aug	Coastal bluff scrub, Coastal prairie, North Coast coniferous forest	
Sidalcea oregana ssp. eximia	coast checkerbloom	Malvaceae	perennial herb	1B.2	G5T1	S1	None	None	Jun-Aug	Lower montane coniferous forest, Meadows and seeps, North Coast coniferous forest	
Viola palustris	alpine marsh violet	Violaceae	perennial rhizomatous herb	2B.2	G5	S1S2	None	None	Mar-Aug	Bogs and fens, Coastal scrub	

Astragalus pycnostachyus var. pycnostachyus	coastal marsh milk-vetch	Fabaceae	perennial herb	1B.2	G2T2	S2	None	None	(Apr)Jun-Oct	Coastal dunes, Coastal scrub, Marshes and swamps	
Carex arcta	northern clustered sedge	Cyperaceae	perennial herb	2B.2	G5	S1	None	None	Jun-Sep	Bogs and fens, North Coast coniferous forest	
Carex lyngbyei	Lyngbye's sedge	Cyperaceae	perennial rhizomatous herb	2B.2	G5	S3	None	None	Apr-Aug	Marshes and swamps	
Castilleja litoralis	Oregon coast paintbrush	Orobanchaceae	perennial herb (hemiparasitic)	2B.2	G3	S3	None	None	Jun	Coastal bluff scrub, Coastal dunes, Coastal scrub	
Gilia capitata ssp. pacifica	Pacific gilia	Polemoniaceae	annual herb	1B.2	G5T3	S2	None	None	Apr-Aug	Chaparral, Coastal bluff scrub, Coastal prairie, Valley and foothill grassland	
Gilia millefoliata	dark-eyed gilia	Polemoniaceae	annual herb	1B.2	G2	S2	None	None	Apr-Jul	Coastal dunes	
Glehnia littoralis ssp. leiocarpa	American glehnia	Apiaceae	perennial herb	4.2	G5T5	S2S3	None	None	May-Aug	Coastal dunes	

Mitellastra caulescens	leafy-stemmed mitrewort	Saxifragaceae	perennial rhizomatous herb	4.2	G5	S4	None	None	(Mar)Apr-Oct	Broadleafed upland forest, Lower montane coniferous forest, Meadows and seeps, North Coast coniferous forest	
Spergularia canadensis var. occidentalis	western sand-spurrey	Caryophyllaceae	annual herb	2B.1	G5T4	S1	None	None	Jun-Aug	Marshes and swamps	
Fissidens pauperculus	minute pocket moss	Fissidentaceae	moss	1B.2	G3?	S2	None	None		North Coast coniferous forest	
Trichodon cylindricus	cylindrical trichodon	Ditrichaceae	moss	2B.2	G4G5	S2	None	None		Broadleafed upland forest, Meadows and seeps, Upper montane coniferous forest	

Hosackia gracilis	harlequin lotus	Fabaceae	perennial rhizomatous herb	4.2	G3G4	S3	None	None	Mar-Jul	Broadleaved upland forest, Cismontane woodland, Closed-cone coniferous forest, Coastal bluff scrub, Coastal prairie, Coastal scrub, Marshes and swamps, Meadows and seeps, North Coast coniferous forest, Valley and foothill grassland	
Cardamine angulata	seaside bittercress	Brassicaceae	perennial herb	2B.2	G4G5	S3	None	None	(Jan)Mar-Jul	Lower montane coniferous forest, North Coast coniferous forest	

Erysimum menziesii	Menzies' wallflower	Brassicaceae	perennial herb	1B.1	G1	S1	CE	FE	Mar-Sep	Coastal dunes	
Sulcaria spiralifera	twisted horsehair lichen	Parmeliaceae	fruticose lichen (epiphytic)	1B.2	G3	S1S2	None	None		Coastal dunes, North Coast coniferous forest	
Usnea longissima	Methusela h's beard lichen	Parmeliaceae	fruticose lichen (epiphytic)	4.2	G4	S4	None	None		Broadleaf ed upland forest, North Coast coniferous forest	
Chrysosplenium glechomifolium	Pacific golden saxifrage	Saxifragaceae	perennial herb	4.3	G5?	S3	None	None	Feb-Jun	North Coast coniferous forest, Riparian forest	
Silene scouleri ssp. scouleri	Scouler's catchfly	Caryophyllaceae	perennial herb	2B.2	G5T4T5	S2S3	None	None	(Mar-May)Jun-Aug(Sep)	Coastal bluff scrub, Coastal prairie, Valley and foothill grassland	

Appendix C5, Table 3. Samoa Peninsula Land-based Aquaculture Project – 7-Quad Database Search of NOAA Fisheries West Coast Region California Species List Tool centered on Project quad (Eureka) on 07.28.2021. Quads included Tyee City, Arcata North, Arcata South, McWhinney Creek, Fields Landing, and Cannibal Island.							
Quad Name	**Eureka**	**Tyee City**	**Arcata North**	**Arcata South**	**McWhinney Creek**	**Fields Landing**	**Cannibal Island**
Quad Number	**40124-G2**	**40124-H2**	**40124-H1**	**40124-G1**	**40124-F1**	**40124-F2**	**40124-F3**
ESA Anadromous Fish							
SONCC Coho ESU (T) -	**X**	**X**	**X**	**X**	**X**	**X**	**X**
CCC Coho ESU (E) -							
CC Chinook Salmon ESU (T) -	**X**	**X**	**X**	**X**	**X**	**X**	**X**
CVSR Chinook Salmon ESU (T) -							
SRWR Chinook Salmon ESU (E) -							
NC Steelhead DPS (T) -	**X**	**X**	**X**	**X**	**X**	**X**	**X**
CCC Steelhead DPS (T) -							
SCCC Steelhead DPS (T) -							
SC Steelhead DPS (E) -							
CCV Steelhead DPS (T) -							
Eulachon (T) -		**X**	**X**	**X**			
sDPS Green Sturgeon (T) -	**X**	**X**	**X**	**X**		**X**	**X**

ESA Anadromous Fish Critical Habitat							
SONCC Coho Critical Habitat -	X	X	X	X	X	X	X
CCC Coho Critical Habitat -							
CC Chinook Salmon Critical Habitat -	X	X	X	X	X	X	X
CVSR Chinook Salmon Critical Habitat -							
SRWR Chinook Salmon Critical Habitat -							
NC Steelhead Critical Habitat -	X	X	X	X	X	X	X
CCC Steelhead Critical Habitat -							
SCCC Steelhead Critical Habitat -							
SC Steelhead Critical Habitat -							
CCV Steelhead Critical Habitat -							
Eulachon Critical Habitat -		X	X	X			
sDPS Green Sturgeon Critical Habitat -	X	X	X	X		X	X
ESA Marine Invertebrates							
Range Black Abalone (E) -							
Range White Abalone (E) -							

ESA Marine Invertebrates Critical Habitat							
Black Abalone Critical Habitat -							
ESA Sea Turtles							
East Pacific Green Sea Turtle (T) -	X	X	X			X	X
Olive Ridley Sea Turtle (T/E) -	X	X	X			X	X
Leatherback Sea Turtle (E) -	X	X	X			X	X
North Pacific Loggerhead Sea Turtle (E) -							
ESA Whales							
Blue Whale (E) -	X	X	X			X	X
Fin Whale (E) -	X	X	X			X	X
Humpback Whale (E) -	X	X	X			X	X
Southern Resident Killer Whale (E) -	X	X	X			X	X
North Pacific Right Whale (E) -	X	X	X			X	X
Sei Whale (E) -	X	X	X			X	X
Sperm Whale (E) -	X	X	X			X	X
ESA Pinnipeds							
Guadalupe Fur Seal (T) -							

Steller Sea Lion Critical Habitat -							
Essential Fish Habitat							
Coho EFH -	X	X	X	X	X	X	X
Chinook Salmon EFH -	X	X	X	X	X	X	X
Groundfish EFH -	X	X	X	X		X	X
Coastal Pelagics EFH -	X	X	X	X		X	X
Highly Migratory Species EFH -							
MMPA Species (See list at left)							
ESA and MMPA Cetaceans/Pinnipeds							
See list at left and consult the NMFS Long Beach office							
562-980-4000							
MMPA Cetaceans -	X	X	X			X	X
MMPA Pinnipeds -	X	X	X	X		X	X

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Arcata Fish And Wildlife Office
1655 Heindon Road
Arcata, CA 95521-4573
Phone: (707) 822-7201 Fax: (707) 822-8411

In Reply Refer To:
Consultation Code: 08EACT00-2021-SLI-0418
Event Code: 08EACT00-2021-E-00980
Project Name: Nordic Aquafarms California

July 27, 2021

Subject: List of threatened and endangered species that may occur in your proposed project location or may be affected by your proposed project

To Whom It May Concern:

The enclosed species list identifies threatened, endangered, proposed and candidate species, as well as proposed and final designated critical habitat, that may occur within the boundary of your proposed project and/or may be affected by your proposed project. The species list fulfills the requirements of the U.S. Fish and Wildlife Service (Service) under section 7(c) of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 *et seq.*).

New information based on updated surveys, changes in the abundance and distribution of species, changed habitat conditions, or other factors could change this list. Please feel free to contact us if you need more current information or assistance regarding the potential impacts to federally proposed, listed, and candidate species and federally designated and proposed critical habitat. Please note that under 50 CFR 402.12(e) of the regulations implementing section 7 of the Act, the accuracy of this species list should be verified after 90 days. This verification can be completed formally or informally as desired. The Service recommends that verification be completed by visiting the ECOS-IPaC website at regular intervals during project planning and implementation for updates to species lists and information. An updated list may be requested through the ECOS-IPaC system by completing the same process used to receive the enclosed list.

The purpose of the Act is to provide a means whereby threatened and endangered species and the ecosystems upon which they depend may be conserved. Under sections 7(a)(1) and 7(a)(2) of the Act and its implementing regulations (50 CFR 402 *et seq.*), Federal agencies are required to utilize their authorities to carry out programs for the conservation of threatened and endangered species and to determine whether projects may affect threatened and endangered species and/or designated critical habitat.

A Biological Assessment is required for construction projects (or other undertakings having similar physical impacts) that are major Federal actions significantly affecting the quality of the human environment as defined in the National Environmental Policy Act (42 U.S.C. 4332(2)

(c)). For projects other than major construction activities, the Service suggests that a biological evaluation similar to a Biological Assessment be prepared to determine whether the project may affect listed or proposed species and/or designated or proposed critical habitat. Recommended contents of a Biological Assessment are described at 50 CFR 402.12.

If a Federal agency determines, based on the Biological Assessment or biological evaluation, that listed species and/or designated critical habitat may be affected by the proposed project, the agency is required to consult with the Service pursuant to 50 CFR 402. In addition, the Service recommends that candidate species, proposed species and proposed critical habitat be addressed within the consultation. More information on the regulations and procedures for section 7 consultation, including the role of permit or license applicants, can be found in the "Endangered Species Consultation Handbook" at:

http://www.fws.gov/endangered/esa-library/pdf/TOC-GLOS.PDF

Please be aware that bald and golden eagles are protected under the Bald and Golden Eagle Protection Act (16 U.S.C. 668 *et seq.*), and projects affecting these species may require development of an eagle conservation plan (http://www.fws.gov/windenergy/eagle_guidance.html). Additionally, wind energy projects should follow the wind energy guidelines (http://www.fws.gov/windenergy/) for minimizing impacts to migratory birds and bats.

Guidance for minimizing impacts to migratory birds for projects including communications towers (e.g., cellular, digital television, radio, and emergency broadcast) can be found at: http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/towers.htm; http://www.towerkill.com; and http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/comtow.html.

We appreciate your concern for threatened and endangered species. The Service encourages Federal agencies to include conservation of threatened and endangered species into their project planning to further the purposes of the Act. Please include the Consultation Tracking Number in the header of this letter with any request for consultation or correspondence about your project that you submit to our office.

Attachment(s):

- Official Species List

Official Species List

This list is provided pursuant to Section 7 of the Endangered Species Act, and fulfills the requirement for Federal agencies to "request of the Secretary of the Interior information whether any species which is listed or proposed to be listed may be present in the area of a proposed action".

This species list is provided by:

Arcata Fish And Wildlife Office
1655 Heindon Road
Arcata, CA 95521-4573
(707) 822-7201

Project Summary

Consultation Code: 08EACT00-2021-SLI-0418
Event Code: 08EACT00-2021-E-00980
Project Name: Nordic Aquafarms California
Project Type: DEVELOPMENT
Project Description: The Project proposes to redevelop the site of the decommissioned Freshwater Tissue Samoa Pulp Mill facility (pulp mill) in order to construct a land-based finfish recirculating aquaculture system facility (aquaculture facility), install a three to five-megawatt photovoltaic solar panel array covering approximately 690,000 square feet of the facility roofs and install two Humboldt Bay water intakes and associated piping. The first two Project components are to be undertaken and permitted by Nordic Aquafarms California, working in collaboration with the Humboldt County Planning Department, the Humboldt Bay Harbor, Recreation and Conservation District, and applicable regulatory agencies.

Project Location:

Approximate location of the project can be viewed in Google Maps: https://www.google.com/maps/@40.8075175,-124.19260697674036,14z

Counties: Humboldt County, California

Endangered Species Act Species

There is a total of 11 threatened, endangered, or candidate species on this species list.

Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species.

IPaC does not display listed species or critical habitats under the sole jurisdiction of NOAA Fisheries[1], as USFWS does not have the authority to speak on behalf of NOAA and the Department of Commerce.

See the "Critical habitats" section below for those critical habitats that lie wholly or partially within your project area under this office's jurisdiction. Please contact the designated FWS office if you have questions.

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1. NOAA Fisheries, also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

Mammals

NAME	STATUS
Pacific Marten, Coastal Distinct Population Segment *Martes caurina* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/9081	Threatened

Birds

NAME	STATUS
Marbled Murrelet *Brachyramphus marmoratus* Population: U.S.A. (CA, OR, WA) There is **final** critical habitat for this species. The location of the critical habitat is not available. Species profile: https://ecos.fws.gov/ecp/species/4467	Threatened
Northern Spotted Owl *Strix occidentalis caurina* There is **final** critical habitat for this species. The location of the critical habitat is not available. Species profile: https://ecos.fws.gov/ecp/species/1123	Threatened
Short-tailed Albatross *Phoebastria (=Diomedea) albatrus* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/433	Endangered
Western Snowy Plover *Charadrius nivosus nivosus* Population: Pacific Coast population DPS-U.S.A. (CA, OR, WA), Mexico (within 50 miles of Pacific coast) There is **final** critical habitat for this species. The location of the critical habitat is not available. Species profile: https://ecos.fws.gov/ecp/species/8035	Threatened
Yellow-billed Cuckoo *Coccyzus americanus* Population: Western U.S. DPS There is **final** critical habitat for this species. The location of the critical habitat is not available. Species profile: https://ecos.fws.gov/ecp/species/3911	Threatened

Reptiles

NAME	STATUS
Green Sea Turtle *Chelonia mydas* Population: East Pacific DPS No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/6199	Threatened

Fishes

NAME	STATUS
Tidewater Goby *Eucyclogobius newberryi* There is **final** critical habitat for this species. The location of the critical habitat is not available. Species profile: https://ecos.fws.gov/ecp/species/57	Endangered

Flowering Plants

NAME	STATUS
Beach Layia *Layia carnosa*	Endangered
No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/6728	
Menzies' Wallflower *Erysimum menziesii*	Endangered
No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/2935	
Western Lily *Lilium occidentale*	Endangered
No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/998	

Critical habitats

THERE ARE NO CRITICAL HABITATS WITHIN YOUR PROJECT AREA UNDER THIS OFFICE'S JURISDICTION.