

# CALIFORNIA DEPARTMENT OF TRANSPORTATION

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## Chapter 2 - Natural Environment Study

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## Summary

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The Summary of Findings and Conclusions includes the results of the impact analysis, findings of the supporting technical reports, and a summary of the general biological studies. The negative and positive impacts, as well as the agreed upon mitigation measures and permits that will be required are included in this section.

- Brief, introductory, description of project purpose and need.
- Summarized quantity of habitat impacted; permanent, temporary, direct, indirect and cumulative impacts.
- Summarized quality of special status species impacted, permanent, temporary, direct, indirect and cumulative impacts.
- Permits required.
- Presence of invasive species.
- Positive/Beneficial impacts.
- Description of mitigation agreements.
- The term “significant” should not be used in biological technical documents. Impacts/effects should be described and quantified in the technical documents. The determination of significance will be addressed in the California Environmental Quality Act (CEQA) and/or National Environmental Policy Act (NEPA) document.
- At the conclusion of the technical study, an abstract for the environmental document and a transmittal memo is prepared and submitted to the Environmental Planner/Generalist.
  - Transmittal memo will include:
    - Summary of technical study
    - Discussion of potentially significant impacts
    - Summary of mitigation measures

## 2-1 Introduction

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A [Natural Environment Study](#) (NES) describes the existing biological environment and how the project alternatives affect that environment. A [NES or NES Minimal Impact \(MI\)](#) is prepared for all projects and serves as the technical basis for statements made in the environmental document, concerning plants, animals, and natural communities occurring in the biological study area. The NES summarizes technical documents such as focused species studies, wetland assessments, and biological assessments related to effects on biological resources in the Biological Study Area (BSA)

for use in the environmental document.

### 2-1.1 PROJECT PURPOSE AND NEED

- Clear statement describing the project purpose
- Clear statement describing why the action is necessary
- Consistence with purpose and need developed for the environmental document (obtained from the Environmental Planner/Generalist)

### 2-1.2 PROJECT DESCRIPTION

- Project Description - county, route, post mile
  - Clear and complete description of each of the project alternatives under consideration (obtained from the Environmental Planner/Generalist)
- Figure 1 Project Location Map (with project impact area)
- Figure 2 Project Impact Area
  - Detailed project impact area with project footprint, barrow, disposal, staging, access, utilities, detours, etc.
  - Temporary and permanent impacts
- Clear statement of how the action will be accomplished
- Clear description of when the action will occur

## 2-2 Study Methods

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The Study Methods discussion should explain what studies were conducted, why, how, and when they were conducted.

### 2-2.1 REGULATORY REQUIREMENTS (AS FOUND IN THE [NES](#))

- Discussion of regulatory requirements, e.g., 1600, 401, 404, 4f, Coastal Development Permit, etc. SER Volume 1, Chapters 1 and 2.

Here are some examples with suggested language. These should be specific to the project:

#### Clean Water Act

Provides guidance for the restoration and maintenance of the chemical, physical, and biological integrity of the nation's waters.

Section 404: U.S. Army Corps of Engineers (USACE) jurisdiction over fill materials in essentially all water bodies, including wetlands. All federal agencies are to avoid impacts to wetlands whenever there is a practicable alternative. Section 404 established a permit program administered by USACE regulating the discharge of dredged or fill material into waters of the U.S. (including wetlands).

Section 401: Requires that an applicant for a federal license or permit that allows activities resulting in a discharge to waters of the U.S. must obtain a state certification that the discharge complies with other

provisions of CWA. The Regional Water Quality Control Boards administer the certification program in California.

The guidelines allow the discharge of dredged or fill material into the aquatic system only if there is no practicable alternative that would have less adverse impacts. [Will the project affect waters of the US? If so, describe how waters will be affected, and the area of each type of water affected (including wetlands), temporary and permanent impacts. Include wetland delineation reports and information prepared for the USACE.]

### **Rivers and Harbors Act**

Requires permits in navigable waters of the U. S. for all structures such as riprap and activities such as dredging. Navigable waters are defined as those subject to the ebb and flow of the tide and susceptible to use in their natural condition or by reasonable improvements as means to transport interstate or foreign commerce. The USACE grants or denies permits based on the effects on navigation. [Will the project include actions within navigable waters? If so, describe the actions that will affect navigable waters and the area of navigable waters that will be affected.]

### **Migratory Bird Treaty Act**

This treaty with Canada, Mexico and Japan makes it unlawful at any time, by any means or in any manner, to pursue, hunt, take, capture, or kill migratory birds. The law applies to the removal of nests (such as swallow nests on bridges) occupied by migratory birds during the breeding season. California Fish and Game Code also protects resident and migratory birds.

[Is there potential for nesting birds to occur within the project area during construction? If so identify the level of potential and how the adverse affects listed above will be avoided by proposing avoidance and minimization measures.]

### **Executive Order (E.O.) 11990 - Protection of Wetlands**

The executive order established a national policy to avoid adverse impacts on wetlands whenever there is a practicable alternative. The U. S. Department of Transportation (USDOT) promulgated DOT Order 5660.1A in 1978 to comply with this direction. On federally funded projects, impacts to wetlands must be identified. Alternatives that avoid wetlands must be considered. If wetland impacts cannot be avoided, then all practicable measures to minimize harm must be included.

This must be documented in a specific Wetlands Only Practicable Alternative Finding.

An additional requirement is to provide early public involvement in projects affecting wetlands. The Federal Highway Administration's (FHWA) Technical Advisory 6640.8A provides more information on this topic.

### **Executive Order 13112 – Invasive Species**

Purpose is to prevent introduction or spread of invasive species and provide for their control and to minimize economic, ecological, and human health impacts that invasive species cause.

Directs federal agencies to expand and coordinate their efforts to combat the introduction and spread of plants and animals not native to the United States. The FHWA has developed guidance to implement the E.O., which provides a framework for preventing the introduction of and controlling the spread of invasive plant species on highway rights-of way.

Under the E.O., federal agencies cannot authorize, fund, or carry out actions that it believes are likely to cause or promote the introduction or spread of invasive species in the United States or elsewhere unless all reasonable measures to minimize risk of harm have been analyzed and considered.

This means that Federal-aid and Federal Highway Program funds cannot be used for construction, revegetation, landscaping, or mitigation activities that will introduce or spread known invasive species.

[Identify invasive plants and animals present in the project impact area and the measures being undertaken to prevent the introduction and spread of those species during construction and revegetation efforts.]

### **National Wild and Scenic Rivers Act**

Prohibits federal agencies from activities that would adversely affect the values for which a river was designated. The FHWA, or Caltrans as assigned, consults with the managing agencies during NEPA process on projects that affect designated rivers or their immediate environments to reduce potential conflicts with wild and scenic river values that are protected by the Act.

[Is the project on a river with a Wild and Scenic River designation? Is the project within the designated section of the river? Quantify the amount of the designated area that will be affected and propose measures to avoid or minimize adverse effects of the project.]

### **Essential Fish Habitat**

The Magnuson-Stevens Fishery Conservation and Management Act established guidelines to assist the Regional Fishery Management Councils and the Secretary of Commerce (Secretary) in the description and identification of Essential Fish Habitat (EFH) in fishery management plans, the identification of adverse effects to EFH, and the identification of actions required to conserve and enhance EFH. The regulations detail procedures the Secretary (acting through the National Marine Fisheries Service [NMFS]), other federal agencies, and the Councils will use to coordinate, consult, or provide recommendations on federal and state actions that may adversely affect EFH. The intended effect of the rule is to promote the protection, conservation, and enhancement of EFH. EFH are habitats necessary to a species for spawning, breeding, feeding, or growth to maturity.

[Are any fish species present in the project area covered under a fish management plan and will the project adversely affect essential fish habitat as identified in the management plan?]

### **Marine Mammal Protection Act**

The Marine Mammal Protection Act (MMPA) establishes a federal responsibility to conserve marine mammals, with management vested in the Department of Commerce [NMFS] for cetaceans and pinnipeds other than walrus. The Department of the Interior (US Fish and Wildlife Service) is responsible for all other marine mammals, including sea otter, walrus, polar bear, dugong and manatee. The Act generally assigns identical responsibilities to the Secretaries of the two departments.

The MMPA is the main regulatory vehicle that protects marine mammal species and their habitats in an effort to maintain sustainable populations. In doing so, the statute outlines prohibitions, required permits, criminal and civil penalties, and international aspects in addressing marine mammals. The Act requires consultation on any action that may adversely affect marine mammals and provides a mechanism for an "incidental" take of species not listed under the federal Endangered Species Act.

[Does the project have the potential to affect marine mammals? If so, list the species that may be affected, describe the potential effects, and all avoidance and minimization efforts to be implemented.]

## **2-2.2 STUDIES REQUIRED**

### **Literature Search**

To gather information on the biological resources in the BSA, the District Biologist must review the proposed project description and materials, be familiar with the BSA, consider comments received during the project scoping process, and review existing sources of information known about the BSA.

An initial site visit to observe the type of natural communities and their condition in the BSA will help focus the collection of background information. Background information is used to plan the extent of biological studies needed prior to conducting field investigations. This planning step is necessary to ensure that studies address resources of concern that may be affected by the project while at the same time avoiding lengthy discussions of the local or regional biota. Biological resources addressed in the NES are limited to those pertaining to the BSA and those likely to be effected by the project. The BSA limits are determined in coordination with the Project Development Team (PDT) (refer to section 2-3.3).

The District Biologist reviews substantive resource issues identified during the project scoping process before initiating biological studies. From the information obtained in the background research and the

comments received during the scoping process, the District Biologist develops a list of sensitive species and habitats that may be present within the BSA, as well as records of any additional biological considerations, such as the presence of invasive species.

Information about biological resources in the BSA is available from a myriad of sources. Some of the common sources of biological information include:

- [Endangered Species Program](#) provides special status species information.
- [Threatened and Endangered Species Database \(TESS\)](#) provides species lists and information.
- [National Wetlands Inventory Map](#) allows you to view wetlands maps using a mapping interface.
- [Survey Protocols and Other Guidelines Sacramento Fish and Wildlife Office](#)
- [Survey Protocols Ventura Fish and Wildlife Office](#)
- [National Wildlife Refuge System](#)
- [USFWS Critical Habitat Portal](#)
- [National Marine Fisheries Service \(NMFS\)](#)
- [Listed Pacific Salmon](#)
- [Listed Marine Mammals](#)
- [Essential Fish Habitat](#)
- [Endangered Species Act Salmon Regulations and Permits](#)
- [Endangered Species 4\(d\) Rules \(Protective Regulations\)](#)
- [California Department of Fish and Wildlife \(CDFW\)](#)
- [California Natural Diversity Database \(CNDDDB\)](#) is a program that inventories the status and locations of rare plants and animals in California
- [Vegetation Classification and Mapping Program \(VegCAMP\)](#) develops and maintains maps and the classification of all vegetation and habitats in the state.
- [BIOS: Biogeographic Information and Observation System online mapping tool](#)
- [Geographic Information Systems \(GIS\)](#) assists with the collection, documentation, analysis, and distribution of spatial data.
- [Native Plant Program](#) coordinates conservation activities for the State's listed plants, including listing, plant collecting, and research.
- [Survey and Monitoring Protocols and Guidelines](#)
- [Wildlife Information Programs](#) provides various collections of wildlife information.
- [Status of Rare, Threatened, and Endangered Plants and Animals of California 2000-2004](#)

- [Protocols for Surveying and Evaluating Impacts to Special Status Native Plant Populations and Natural Communities](#)
- [Survey and Monitoring Protocols and Guidelines](#) contains specified survey protocols for plants, invertebrates, amphibians, reptiles, birds, and mammals.
- [Areas of Conservation Emphasis - ACE-II](#): provides statewide spatial information on California's biological richness, including species diversity, rarity, and sensitive habitats.
- [California Wildlife Habitat Relationships \(CWHR\)](#) contains life history, geographic range, habitat relationships, and management information on 694 species of amphibians, reptiles, birds, and mammals.
- [Wildlife Species Matrix](#) provides the ability to query for species listings by species status, taxonomic group, habitat type and geographic region.
- [IPaC - Information, Planning, and Conservation System](#)

### **Caltrans Guidance**

- [Standard Environmental Reference \(SER\)](#) helps State and local agency staff plan, prepare, submit, and evaluate environmental documents for transportation projects.
- [Biological Resources](#) (SER, Volume 3) is designed for biological specialists and includes:
  - [Chapter 1, General Information](#) provides environmental laws, regulations, as well as the roles and responsibilities of Caltrans Biologists.
  - Chapter 2, Natural Environment Study summarizes technical documents such as focused species studies, wetland assessments, and biological assessments.
  - [Chapter 3, Waters of the U.S. and the State](#) provides general procedures that should be implemented by the Biologist when dealing with effects to waters/wetlands.
  - [Chapter 4, Federal and State Endangered Species Act Procedures](#) provides an overview of laws, regulations, policies, and procedures.
  - [Chapter 5, Biological Mitigation](#) assists the Biologist in developing project goals and objectives, preparing detailed plans, constructing, and monitoring the project.
- [SER, Volume 1, Chapter 14, "Biological Resources"](#) discusses the framework within which biological resources are considered during project planning, development, and implementation.
- [SER, Volume 1, Chapter 15, "Waters of the U.S. and the State"](#) discusses waters of the U.S. and the state, including wetlands, lakes, rivers, and streams.
- [Caltrans BA Template](#)
- [Caltrans EIS \(NEPA only\) Annotated Outline](#)
- [Caltrans EIR/EIS Annotated Outline](#)
- [General Biological Technical Document Format FAQs](#)
- [Environmental Commitments Record](#), Richard D. Land, (June 10, 2005). This memo requires each District to create and maintain an Environmental Commitments Record.

### **Federal Endangered Species Act (FESA) Guidance**

- [Clarification Regarding Federal Endangered Species List Validity](#), Jay Norvell, (June 22, 2011).
- [Dispute Resolution Process Flowchart and Elevation Ladder with FWS for Section 7](#), (November 21, 2006). This guidance is for the dispute resolution process flowchart and elevation ladder when consulting with the USFWS.
- [Inferred Presence of Federally Listed Species](#) (FHWA - California Division)
- [Programmatic biological opinion based on the FHWA's minor transportation projects](#) (USFWS)
- [Guidance for Combined Essential Fish Habitat and Endangered Species Act Consultation Process](#), Gary R. Winters, (September 20, 2004). This memo intends to clarify the responsibilities of FHWA and Caltrans for the implementation of combined Federal Endangered Species Act (FESA) and Essential Fish Habitat (EFH) consultation process.
- [Essential Fish Habitat Delegation Authority](#), Gary R. Winters, (June 7, 2004). Announces the receipt of a letter received from the FHWA that identifies Caltrans as its non-Federal representative to consult with

NMFS on Essential Fish Habitat issues (EFH). The FHWA letter describes also under which circumstances Caltrans will consult with NMFS on EFH.

### Additional Resources

- [California Native Plant Society's \(CNPS\) Inventory of Rare and Endangered Vascular Plants of California](#) provide information on the distribution and habitat requirements of sensitive plant taxa.
- [California Native Plant Society's \(CNPS\) A Manual of California Vegetation](#) has been adopted as the standard vegetation classification system used by state and federal agencies.
- [Natural Resources Conservation Service \(NRCS\)](#) provides a listing of soil surveys and maps.
- [California Department of Food and Agriculture \(USDA\)](#) provides a state noxious weed list.
- [California Invasive Plant Council \(CalIPC\)](#) protects California wildlands from invasive plants through restoration, research, education, and maps the distribution of invasive plant populations.
- [California Environmental Resources Evaluation System \(CERES\)](#): Access a variety of electronic data describing California's rich and diverse environments.
- [Code of Federal Regulations \(CFR\)](#) is the codification of the general and permanent rules published in the Federal Register by the departments and agencies of the federal government.

Environmental documents prepared for nearby projects and documents prepared by resource agencies concerning species potentially found in the study area are also helpful informational resources. A 10-mile radius from the project site normally provides a useful frame of reference for developing a list of sensitive taxa to be considered during project studies. As a rule, the biologist considers all species whose range includes the BSA and whose life requirements may be met by the habitat and vegetation that is present within the survey area.

### 2-2.3 FIELD REVIEWS

- Describe the office or drive-by review here, plus other field reviews that may have taken place.

### 2-2.4 SURVEY METHODS

Prior to conducting field surveys, the District Biologist compiles lists of potential sensitive resources as well as other biological considerations, such as invasive species, likely to occur within the vicinity of the BSA. The limits of the project are known and delineated on project plans and/or aerial photos. If possible, the area is surveyed and delineated with survey markers or flagging.

Biological field surveys are conducted to obtain information needed to determine the project's level of effects, including consideration of long-term and short-term effects, and the cumulative effects of the project on the biota in the area. Prior to collecting biological data, the District Biologist formulates questions and issues that need to be investigated during the field surveys. Pertinent questions include:

- What is the significance of the effected resources on a local or regional scale?
- What is the rarity or abundance of the resource in the region and elsewhere?
- What is the resilience of the resource?
- Are there invasive species currently in the BSA and will the action promote the spread of invasive species?

In some cases, where species require a specific survey method protocol or survey permit, it will be necessary to coordinate with resource agencies to obtain approval of the field survey methodology.

The District Biologist walks the project study area to develop an accurate description of the BSA, determines the presence of sensitive habitats and species notes any invasive species present, and evaluates the effects of the proposed project on the BSA. All field surveys to determine the presence of special status species (any species of fish, wildlife, or plant that is officially listed as rare, threatened, endangered, or candidate for rare, threatened, or endangered species listing under the state or federal Endangered Species Acts, or of local importance) are conducted at the appropriate blooming or active period for each resource. A determination of the presence of some sensitive resources may require sampling over more than one season. Some listed species require handling in order to determine their presence in the project vicinity. The District Biologist must obtain the required permits for handling these species or hire a qualified consultant who possesses the required permits prior to conducting the field surveys.

If the BSA is too large to adequately survey, the District Biologist will use aerial photos and maps to investigate the total area. The biologist then conducts meandering transects that traverse the BSA, being sure to investigate areas of potential sensitivity found from the pre-survey information search and aerial photo interpretation.

Field safety is extremely important when conducting field surveys. It is the responsibility of the District Biologist to become familiar with Caltrans' [Safety Manual](#) and [Surveys Manual](#). For example, as discussed in the Surveys Manual biologists must use the buddy system during field surveys, as well as provide a trip itinerary or study plan to their supervisor, wear appropriate clothing, and consider other safety precautions.

Guidelines were set forth May 22, 2002, in a memorandum signed by Caltrans' Right of Way (ROW), Environmental and Legal programs which describe the responsibilities Right of Way and Environmental Planning & Engineering have in obtaining permission to enter upon property (see Policy Related Memos; [Right of Entry Guidelines for Environmental Work](#)). The guidelines require written permission from the property owner in situations where the work performed could be considered to cause substantial interference or be invasive or damaging in nature, i.e., boring, trenching, digging with hand tools, cutting vegetation, or any activities affecting any site improvements. However, an informational letter may be sent to the property owner in those situations where entry does not interfere with the property owner's use, or is clearly non-invasive in nature, such as walk-on visual inspections, taking photographs, etc. The letter will inform the owner or lessee of the purpose and effect of such entry together with the approximate time of the entry and further advise the property owner or lessee to contact an identified person only if they have objections to such entry or have specific instructions they wish to have observed during such entry (personal contact before entering, closing livestock gates, instructions concerning dogs, etc.). It is important that the District Biologist coordinate with the District ROW Unit for assistance to determine any actions that might be necessary prior to survey work on private property. Obtaining Rights of Entry (ROE) could be a time consuming process and it is important that requests for ROE be coordinated in the initial planning phases of the project. Environmental and Right of Way staff are members encouraged to work together to make this process successful.

### Plant Survey Techniques

Botanical surveys are conducted to determine effects of a proposed project on rare, threatened, and endangered plants, natural communities, as well as risks for invasive species. Caltrans follows the [Protocols for Surveying and Evaluating Impacts to Special Status Native Plant Populations and Natural Communities](#).

The purpose of these protocols is to facilitate a consistent and systematic approach to the survey and assessment of special status native plants and natural communities so that reliable information is produced and the potential of locating a special status plant species or natural community is maximized. This universal understanding of the quality and methods is accepted broadly by experts and resource agency reviewers.

## Wildlife Survey Techniques

Given the variety and number of wildlife species and types of habitats found in California, it is impossible to present all of the techniques for surveying each species and type of habitat. As mentioned previously, all wildlife surveys are conducted during a species active period, such as nesting or migration. In cases when surveys must be conducted at times that animals are less likely to be observed, a thorough investigation of the animal's potential habitat should be made. Investigations and careful record keeping should report the presence (e.g., tracks, scat, nests or dens, trails, or any other indicators) that are specific to the animal. The surveys for wildlife must be commensurate with the magnitude of the project and the importance of potential effects to the expected resource. Specialized surveys are usually reserved for those instances where a sensitive resource is expected in the BSA. Surveys for many of the species listed as threatened or endangered must follow a specified protocol established by CDFW or USFWS and may require a permit (e.g., California red-legged frog survey protocol by USFWS).

The CDFW [Survey and Monitoring Protocols and Guidelines](#) contains specified survey protocols for plants, invertebrates, amphibians, reptiles, birds, and mammals. The protocols and guidelines available are from various sources and are recommended as tested and reviewed methods for their intended purposes. These purposes include determining the presence or support for a negative finding (e.g., habitat not suitable) for a particular species or its local status. In some cases, these protocols and guidelines represent what CDFW believes to be the best available methodology. The USFWS has issued [Survey Protocols and Other Guidelines](#) for federally-listed, threatened, and endangered species. USFWS also maintains a list of plants and animals native to the United States that are candidates or proposed for possible addition to the federal list, as well as other guidance concerning wildlife survey techniques.

A [California Native Species Field Survey Form](#) should be completed and sent to CNDDDB when sensitive species are located. The information requested in the survey form includes the location of the species (e.g., county, landowner, GPS location), habitat description (e.g., plant communities, dominants, associates, substrates/soils, aspects/slope), site information (e.g., overall site, occurrence quality/viability, etc.), animal information (e.g., number of adults, juveniles, larvae, etc.), and plant information (e.g., phenology).

A sampling of references that describe wildlife survey techniques is presented. However, this is not an exhaustive list. Protocols for conducting wildlife surveys must be chosen carefully to ensure the results are appropriate for the circumstances. Each biologist must select the methods with which they feel most comfortable.

Brookhout, T. A., editor. 1994. Research and Management Techniques for Wildlife and Habitats. The Wildlife Society, Bethesda, MD. 740 pp.

Cooperrider, A. Y., R. J. Boyd, and H. R. Stuart, editors. 1986. Inventory and Monitoring of Wildlife Habitat. U.S. Department of Interior, Bureau of Land Management, Service Center. Denver, CO., 858 pp.

Davis, D. E. 1990. CRC Handbook of Census Methods for Terrestrial Vertebrates. CRC Press. 375 pp.

Hays, R. L., C. Summers, and W. Seitz. 1981. Estimating Wildlife Habitat Variables. FWS Report FWS/OBS-81/47. 111 pp.

Leedy, D. L. and L. W. Adams. 1982. Wildlife Considerations in Planning and Managing Highway Corridors. FHWA Report. FHWA-TS-82-212. 93 pp.

Nathanson, J. A., M. Lanzafama, and P. Kissam. 2006. Surveying Fundamentals and Practices, 5/E. Prentice Hall. 512 pp.

Ralph, C. J., G.R. Geupel, P. Pyle, T.E. Martin, and D.F. DeSante. 1993. Handbook of Field Methods for Monitoring Land Birds. Pacific Southwest Research Station Report. PSW-GTR-144. 41 pp.

## 2-2.5 WATERWAYS, WETLANDS, AND JURISDICTIONAL AREAS

Caltrans biologists identify, delineate, and discuss effects to riparian and aquatic communities, including rivers, streams, lakes, wetlands, and other waters of the United States to satisfy the requirements of:

→ [NEPA](#)

- [Executive Order 11990](#)
- [Section 10 of the Rivers and Harbors Act \(33 USC 401 et seq.\)](#)
- [Section 404 and Section 401 of the Clean Water Act \(33 USC 1251-1376\)](#)
- [National Wild and Scenic Rivers Act \(16 USC 1271-1287\)](#)
- [CEQA](#)
- [Sections 1601-1603 of the Fish and Game Code](#)
- [California Wild and Scenic Rivers Act \(PRC 5093.50 et seq.\)](#)

### **Streams, Rivers, and Lakes**

Caltrans is required to notify DFW prior to any project that would divert, obstruct, or change the natural flow, bed, channel, or bank of any river, stream, or lake under Sections 1602 of the Fish and Wildlife Code. Preliminary notification and project review generally occurs during the environmental process. When an existing fish or wildlife resource may be adversely affected, DFW is required to propose reasonable project changes to protect the resource. These modifications are formalized in a [Streambed Alteration Agreement](#) (e.g. 1602 agreement). The District Biologist must identify in the NES those areas that may pertain to Section 1602 of the Fish and Game Code.

### **Wetlands and Other Waters of the US**

As discussed in greater detail in Chapter 3 of Volume 3, "Waters of the U.S. and the State", to determine the presence of a wetland, the District Biologist uses the USACE and U.S. Environmental Protection Agency (U.S.EPA) joint definition: "Those areas that are inundated or saturated by surface or ground water 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." Wetlands generally include swamps, marshes, bogs, and similar areas.

A District Biologist will use the procedures described in the [USACE Wetlands Delineation Manual \(January 1987\)](#) to make the wetland determination. The wetland determination requires the identification of three criteria:

1. Presence of wetland hydrology;
2. Hydric soils; and
3. A prevalence of hydrophytic vegetation. An in-depth discussion of wetland identification and report format is included in Chapter 3 of Volume 3, "Wetlands".

When wetlands occur in the BSA, the NES will include a Wetland Assessment. The purpose of the assessment is to map the wetland area and discuss the functions, values, and potential effects on wetlands. For most projects, the discussion of wetland issues is included entirely within the NES. In cases where the discussion of wetland issues is lengthy and/or project effects are significant, a separate Wetland Assessment will be prepared, summarized within the NES, and included in the NES as a technical appendix.

Federally funded projects must abide by [Federal Executive Order 11990](#), - Protection of Wetlands (May 24, 1977), which directs "all Federal agencies to refrain from assisting in or giving financial support to projects which encroach upon public or private wetlands unless the agency determines there are no practicable alternatives to such construction and that the proposed action includes all practicable measures to minimize harm." In accordance with Executive Order 11990, federally funded projects must provide an opportunity for early public involvement for all actions involving wetlands. For actions requiring a Finding of No Significant Impact (FONSI) or an Environmental Impact Statement (EIS), notices for a public hearing and notices of availability must indicate whether alternatives are located in wetlands. A Wetlands Finding is necessary for

actions requiring a FONSI or EIS. [Federal Highway Technical Advisory T 6640.8A](#) (October 30, 1987) provides guidance for addressing wetland effects. Guidelines for compliance with these requirements are discussed in Chapter 3 of Volume 3, "Waters of the U.S. and State".

## 2-2.6 METHOD TO ESTABLISH BIOLOGICAL STUDY AREA

- Describe methods used to define the Biological Study Area (BSA)
  - The BSA should include all areas that could potentially be impacted by the project plus a buffer to accommodate any changes to project limits and project design that may occur during project development.
- Map of BSA

## 2-2.7 PERSONNEL AND SURVEY DATES

Identify personnel used to gather biological data, their qualifications, and dates surveys were conducted. For projects requiring multiple survey dates and personnel a table might be useful.

## 2-2.8 AGENCY COORDINATION AND PROFESSIONAL CONTACTS

Throughout the development of the NES, the District Biologist contacts individuals and agencies for information or negotiation purposes. A section within the NES discusses the coordination that has taken place and agreements that have been made. Contacts are made primarily to gather information or to negotiate modifications in the project design.

- **Information.** As needed, the District Biologist will interview individuals who are familiar with the biological resources of the BSA, including local agency and academic personnel who are experts on the biota of the study area. These experts may provide additional, unpublished information regarding the distribution and importance of resources within the BSA. A District Biologist should attend the project's public information meetings and workshops to establish contacts with property owners. Property owners can supply knowledge of prior and current land uses and the ecological character of the area.
- **Negotiation.** These contacts are established for the purpose of project modification to avoid or lessen an effect on biological resources. These negotiations typically involve local, state, and federal agencies. The Project Manager is responsible for determining any project obligations. Negotiation meetings are frequently followed with a letter confirming the final agreements. This process is referred to as consultation when threatened or endangered species are involved. Chapter 4 in Volume 3, "Endangered Species Act Procedure", discusses this process in detail.

## 2-2.9 LIMITATIONS THAT MAY INFLUENCE RESULTS

- Limitations and constraints, if any, are discussed.
- Identify appropriate timing of surveys, atypical weather, seasonal opportunities or limitations, access issues, accelerated schedules, sequencing issues, etc.
- Were standard protocols (i.e., USFWS protocols) used? If not, why? Why does this protocol meet the survey need?
- [Recommend using a menu driven html-like list in an appendix as a glossary of general terms.]

## 2-3 Environmental Setting

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The Environmental Setting describes the region in which the project will occur. A clear description of the setting helps to explain the context and intensity of impacts. The setting discussion gives the reader a concise description of the area's topography, soils, habitat, watercourses and level of human or natural disturbance.

### 2-3.1 DESCRIPTION OF THE EXISTING BIOLOGICAL AND PHYSICAL CONDITIONS

#### Study Area

The District Biologist maps the survey area as early as possible during field investigations to provide base maps for subsequent biological work and a preliminary assessment of effects. Mapping should be at a scale large enough to show vegetation types and important biological features such as habitat for sensitive species, wetlands, unique plant assemblages, and the presence of state listed noxious species. Vegetation community map units must be selected on the basis of a recognized classification system and referenced appropriately in the NES. The current standard for vegetation classification is "[A Manual of California Vegetation](#)" published by the California Native Plant Society in conjunction with CDFW. This manual should be used as a basis for the habitat descriptions and the vegetation map. If another vegetation classification system is used, the report must reference the system and provide the justification for its use.

District Biologists should use a combination of aerial photo interpretation and ground truthing to delineate vegetation types. Descriptive information for each mapping unit includes the distribution of the unit within the study area, an estimate of total acreage, the dominant plant species, and the relative sensitivity of the vegetation type. All plant and animal taxa encountered during site visits should be listed by vegetation type in an appendix to the NES. The biologist will identify each species observed to the extent necessary to determine whether it is threatened or endangered. In addition to identifying species, the biologist will identify natural communities whose status is being tracked by the CNDDDB.

There may be times when it is appropriate for a biologist to do more than map and calculate the area of the vegetation communities in a BSA. A biologist may need to develop a detailed discussion of communities in the BSA when communities of state or local significance, such as oak woodlands or wetlands, will be affected. Information on the degree of canopy cover, tree density, species frequency, and functions and values of specific habitats may be necessary in order to evaluate and develop mitigation. Collecting a greater level of detail will assist the biologist in developing mitigation that appropriately offsets the project effects. By discussing effects to these vegetation communities in greater detail within the NES, any associated mitigation costs or project scheduling adjustments can be included in the early planning stages of the project. Investigation of specific habitat or community characteristics will help ensure that proposed mitigation matches project effects.

Biological Study Area and Project Impact Area(include both on project map or maps)

- Land Use – private or public lands. (Not details of parcels or specific ownership).
- Aerial photos of the project area (if many, put in appendix).

### 2-3.2 PHYSICAL CONDITIONS

- Description of the topographical features.
- Topographical map of the project area.
- Map and/or text description of soil and geologic information if pertinent.
- Description of the hydrological resources.

### 2-3.3 BIOLOGICAL CONDITIONS IN THE BIOLOGICAL STUDY AREA

- Description of the natural communities. (Describe each community in a separate section).
  - Description of vegetation communities.

- Descriptions of the dominant plant species.
  - Descriptions of the common animal species.
  - Description of aquatic resources.
  - Description of invasive species.
  - Mapping as appropriate.
- Habitat Connectivity.
- Describe dispersal/migration corridors.
  - Describe home ranges.
  - Fish passage issues.

## 2-4 Regional Species and Habitats and Natural Communities of Concern

- Regional Sensitive Species list – including common names, scientific names, description of habitat requirements, status and potential to occur in project area.
- Federal and state listed species, Survey and Managed Species, Fully-Protected Species, etc. are discussed here.
- Recommend using a table format to identify species. Follow up with text if necessary. Document which species require additional studies. Provide a general, regional comparison of habitat requirements per species and compare project specific habitats to determine what species are likely to occur in the project area. The next section provides the survey specific results.

**Table X: Listed and Proposed Species, Natural Communities, and Critical Habitat Potentially Occurring or Known to Occur in the Project Area.**

Common Name	Scientific Name	Status	General Habitat Description	Habitat Present/Absent	Rationale
				P	
				A	
				CH	

Absent [A] - no habitat present and no further work needed. Habitat Present [HP] -habitat is, or may be present. The species may be present. Present [P] - the species is present. Critical Habitat [CH] - project footprint is located within a designated critical habitat unit, but does not necessarily mean that appropriate habitat is present. Status: Federal Endangered (FE); Federal Threatened (FT); Federal Proposed (FP, FPE, FPT); Federal Candidate (FC), State Endangered (SE); State Threatened (ST); Fully Protected (FP); State Rare (SR); State Species of Special Concern (SSC); California Native Plant Society (CNPS), etc.

## 2-5 Results: Biological Resources, Discussion of Impacts and Mitigation

Technical documents do not include the “determinations of significance,” rather the District Biologist evaluates the effects of the project on the biotic resources in the BSA and reports them in the technical documents. This evaluation of the direct and indirect effects, the long-term and/or short-term effects, and the cumulative effects resulting from the

project are used by the PDT in the determination of significance.

## 2-5.1 HABITATS AND NATURAL COMMUNITIES OF SPECIAL CONCERN

- Explanation of Natural Communities Status - Habitats are considered to be of special concern based on (1) federal, state, or local laws regulating their development; (2) limited distributions; and/or (3) the habitat requirements of special-status plants or animals occurring on site. [Insert name(s)] habitat(s) was found to be present within the BSA. This natural community is shown in the Biological Resources Map in Appendix X. Wetlands and waters of the U.S. are also considered sensitive by both federal and state agencies, but are discussed in more detail in Section 5.3 and within the Wetland Delineation Report.
- Examples: Riverine, Riparian, Connectivity (fish/wildlife corridors), San Francisco Bay Conservation and Development Commission (BCDC) jurisdiction, Coastal Wetlands, Coastal Environmental Sensitive Habitat Areas (ESHA), Area of Specialized Biological Significance, critical habitat for a habitat type (e.g. coastal sage scrub), wetlands, Essential Fish Habitat (EFH), etc. Natural Communities of Special Concern; special areas within the project area that could be local or regional issues, that don't fit under "species" discussions can be addressed here. In the [NES](#), present each community individually. For example, if the first natural community is natural community "X" and the second natural community is natural community "Y," then natural community "X" and natural community "Y" should have a separate discussion. Incorporate information from the Jurisdiction Delineation Report and any other relevant reports that address natural communities and critical habitat.

## 2-5.2 DISCUSSION OF NATURAL COMMUNITY "X"

- Present each community individually

### Survey Results

- Discuss/describe natural communities of special concern as listed above.
- A table may be useful for quantifying survey results.

### Project Impacts

- Discuss and quantify the potential direct and indirect, permanent and temporary, impacts of each of the project alternatives on the natural communities. A table may be useful for presenting this information.
- Discuss the impact in terms of context and intensity to the resource.
- Impact examples include but are not limited to: vegetation/habitat removal/modifications, water quality, dredge/fill, connectivity/migration, and staging/storage, bioacoustic impacts.

### Avoidance and Minimization Effects

- Discuss the steps taken to avoid or minimize impacts to natural resources during project development including modified or rejected alternatives and design exceptions, work windows, ESA fencing, equipment inspection, biological monitoring, pre-construction surveys (protocol, bat, nesting birds, acoustic surveys. Etc.).
- Avoidance and minimization measures can be numbered for further reference to reduce redundancy.

### Compensatory Mitigation

Only those mitigation measures that have been approved by PDT and/or Caltrans management will be discussed in this section. Document the approval of each measure by the PDT and/or Caltrans management. A table may be useful to convey this information. For example: bank credit purchase, in-lieu fee, Habitat Conservation Plan (HCP) fees, endowments, project specific restoration, structural modifications—bat habitat, median barrier breaks, fish ladders.

See [SER Vol. 3 Ch. 5](#) for more detail.

### Cumulative Impacts

- Discuss the current, future and reasonably foreseeable actions that are currently threatening the subject natural communities/species. Identify the cumulative impacts area under discussion.
- [SER Guidance on Cumulative Impact Analysis](#). This guidance is for CEQA and NEPA only. FESAs definition of cumulative impacts is different and needs to be discussed in appropriate terms to that definition.
- A table may be used
- [FESA Cumulative Impacts](#)

### 2-5.3 SPECIAL STATUS PLANT SPECIES

- The plants listed are considered to be of special concern based on (1) federal, state, or local laws regulating their development; (2) limited distributions; and/or (3) the presence of habitat required by the special-status plants occurring on site. [Insert Name(s)] plant(s) was/were found to be present within the BSA. This occurrence is shown in the Biological Resources Map in Appendix X.

### 2-5.4 DISCUSSION OF PLANT SPECIES "X"

- Present and discuss each species individually. For example, if the first plant species is species "X" and the (second of many is species) is "Y", then species "X" and species "Y" should have a separate discussion.
- Incorporate information from the biological assessment, and any other relevant reports that address special status plant species, including discussion of critical habitat and primary constituent elements.

### Survey Results

- Discuss/describe special status plant species or species group that occur or have a potential to occur in the project area and the studies conducted to determine their presence or absence. Include a discussion of the habitat conditions that were found that would support any species of concern that were not discovered during the surveys.
- Identify the particular species, it's specific habitat requirements, closest known population, results of field surveys [presence/absence], and an analysis of the habitat condition when the species was not found, discuss the potential for the species to be present but not found.
- Critical Habitat—discuss whether designated critical habitat exists within the project area.

### Avoidance and Minimization Effects

- Discuss the steps taken to avoid or minimize impacts to natural resources during project development including modified or rejected alternatives and design exceptions.
- Critical habitat—discuss any avoidance and minimization related to designated critical habitat.

### Project Impacts

- State the status of the resource and discuss population trends. Describe the quality and quantity of the resource. A table may be useful to convey this information.
- Discuss and quantify the potential direct and indirect, permanent and temporary, impacts of each of the project alternatives on the sensitive botanical resources.
- Discuss the impacts in the context of the resource base.
- Critical Habitat—discuss potential effects to designated critical habitat

### Compensatory Mitigation

- Only those mitigation measures that have been approved by PDT and/or Caltrans management will be discussed in this section. Document the approval of each measure by the PDT and/or Caltrans management. A table may be useful to convey this information. For example: bank credit purchase, in-lieu fee, Habitat Conservation Plan (HCP) fees, endowments, project specific restoration, etc.
- Critical Habitat—discuss conservation measures related to designated critical habitat.

### Cumulative Impacts

- Discuss the current, future and reasonably foreseeable actions that are currently threatening the subject natural communities/species. Identify the cumulative impacts area under discussion.
- [SER Guidance on Cumulative Impact Analysis](#)
- A table may be used
- [FESA Cumulative Impacts](#)

## 2-5.5 SPECIAL STATUS ANIMAL SPECIES OCCURRENCES

- Animals are considered to be of special concern based on (1) federal, state, or local laws regulating their development; (2) limited distributions; and/or (3) the habitat requirements of special-status animals occurring on site. [Insert Name(s)] animal(s) was found to be present within the BSA. This occurrence is shown in the Biological Resources Map in Appendix X.
- Present each species or species group individually. For example, if the first animal species is species “X” and the (second of many is species) is “Y,” then species “X” and species “Y” should have a separate discussion. >
- Incorporate information from the biological assessment, and any other relevant reports that address special

status animal species.

## 2-5.6 DISCUSSION OF ANIMAL SPECIES "X"

- Animals are considered to be of special concern based on (1) federal, state, or local laws regulating their development; (2) limited distributions; and/or (3) the habitat requirements of special-status animals occurring on site. [Insert Name(s)] animal(s) was found to be present within the BSA. This occurrence is shown in the Biological Resources Map in Appendix X.
- Present each species or species group individually. For example, if the first animal species is species "X" and the (second of many is species) is "Y," then species "X" and species "Y" should have a separate discussion. >
- Incorporate information from the biological assessment, and any other relevant reports that address special status animal species.

### Survey Results

- Identify the particular species or species group, its specific habitat requirements, closest known population, results of field surveys [presence/absence], and an analysis of the habitat condition when the species was not found. Discuss the potential for the species to be present but not found.

### Avoidance and Minimization Efforts

- Discuss the steps taken to avoid or minimize impacts to natural resources during project development including modified or rejected alternatives and design exceptions.

### Project Impacts

- State the status of the resource and discuss population trends. Describe the quality and quantity of the resource. A table may be useful to convey this information.
- Discuss and quantify the potential direct and indirect, permanent and temporary, impacts of each of the project alternatives on sensitive wildlife resources.
- Discuss the impacts in the context of the resource base.
- Critical Habitat – discuss potential effects to designated critical habitat

### Compensatory Mitigation

- Only those mitigation measures that have been approved by PDT and/or Caltrans management will be discussed in this section. Document the approval of each measure by the PDT and/or Caltrans management. A table may be useful to convey this information. For example: bank credit purchase, in-lieu fee, Habitat Conservation Plan (HCP) fees, endowments, project specific restoration, structural modifications—bat habitat, median barrier breaks, fish ladders.

### Cumulative Impacts

- Discuss the current, future and reasonably foreseeable actions that are currently threatening the subject natural communities/species. Identify the cumulative impacts area under discussion.
- [SER Guidance on Cumulative Impact Analysis](#)
- A table may be used
- [FESA Cumulative Impacts](#)

## 2-6 CONCLUSIONS AND REGULATORY DETERMINATIONS

### 2-6.1 FEDERAL ENDANGERED SPECIES ACT CONSULTATION SUMMARY

- Insert a summary of the FESA Section 7 consultation to date with the USFWS and the NMFS with findings. For Draft Environmental Document (DED), a determination for each species and alternative is made at the no effect or may affect level. As the lead federal agency (FHWA representative), the level of determination is made by Caltrans (for delegated projects and FHWA for non-delegated) and presented to Services during the formal Section 7 Consultation process. If the Services don't agree with our determination, then that is negotiated between DED and Final Environmental Document (FED) and reflected in the Biological Opinion (BO) included in the FED.
- Include a statement when the species list was received from USFWS or NOAA Fisheries. The discussion will include the listed species and any critical habitat associated with the project. A determination for each listed species and critical habitat should be included, either no effect; may affect, not likely to adversely affect (NLAA); or may affect, likely to adversely affect (LAA). A no effect determination must include supporting documentation in the Results section. For Supplemental NES documents supporting FED, indicate the Section 7 determinations (NLAA or LAA) and the dates that consultation was initiated and completed. Required: attach a copy of the Biological Letter of Concurrence for a NLAA or BO for a LAA as an appendix.

### 2-6.2 ESSENTIAL FISH HABITAT CONSULTATION SUMMARY

- Insert a summary of the Essential Fish Habitat consultation with the NOAA Fisheries with findings. This may be a statement that no EFH is present within the project limits or the EFH consultation was completed as part of the Section 7 consultation for listed anadromous fish or completed separately from the Section 7 consultation. If EFH is present include one of three determinations, no adverse effect, will not adversely affect, or may adversely affect and include the dates of the consultation and determination. Reference the Letter of Concurrence or BO if the EFH determination is included [Guidance for Combined Essential Fish Habitat and Endangered Species Consultation Process and Essential Fish Habitat Delegation Authority](#).

### 2-6.3 CALIFORNIA ENDANGERED SPECIES ACT CONSULTATION SUMMARY

- Insert a summary of the California endangered species consultation with the CDFW with findings. Include either a statement that no state-listed species occur on the project, that no take of state-listed species is anticipated, or a list of the state-listed species that occur on the project. If a take may occur of state-listed species, the discussion will include that either a consistency determination (Section 2080.1 of the Fish and Game Code) will be required if the species are also federally listed or that an Incidental Take Permit (ITP) will be required (Section 2081) if a state-listed only species. (Note: depending on the situation an ITP may be required for dual listed species not just a consistency determination).

### 2-6.4 WETLANDS AND OTHER WATERS COORDINATION SUMMARY

- Insert a summary of the wetlands and other waters coordination with USACE, CDFW, Coastal Commission,

RWQCB, BCDC, Executive Order 11990, etc., as appropriate. Include a discussion of the amount of wetlands and other waters on the project, whether a preliminary or approved Jurisdictional Determination was acquired and the date received from the USACE, and a list of the permits that will be required including, but not limited to, 1602, 401 certification, 404 permit, state or local Coastal Commission, Waste Discharge Requirements, National Pollution Discharge Elimination System (NPDES), Tahoe Regional Planning Agency (TRPA), BCDC, etc. Reference the Delineation, Functional Assessment, and Impact Analysis of the Wetlands and Other Waters report as appropriate.

- Federally funded projects must abide by [Federal Executive Order 11990, Protection of Wetlands](#) (May 24, 1977), which directs "all Federal agencies to refrain from assisting in or giving financial support to projects which encroach upon public or private wetlands unless the agency determines there are no practicable alternatives to such construction and that the proposed action includes all practicable measures to minimize harm." In accordance with E.O. 11990, federally funded projects must provide an opportunity for early public involvement for all actions involving wetlands. For actions requiring a FONSI or an EIS, notices for a public hearing and notices of availability must indicate whether alternatives are located in wetlands. A Wetlands Finding is necessary for actions requiring a FONSI or EIS. [Federal Highway Technical Advisory T 6640.8A](#) (October 30, 1987) provides guidance for addressing wetland effects. Guidelines for compliance with these requirements are discussed in Chapter 3 of Volume 3, "Waters of the U.S. and State."

## 2-6.5 INVASIVE SPECIES

- [Invasive Species \(Executive Order 13112\)](#). On February 3, 1999, President Clinton signed E.O. 13112 requiring federal agencies to combat the introduction or spread of invasive species in the United States. The order defines invasive species as "any species, including its seeds, eggs, spores, or other biological material capable of propagating that species, that is not native to that ecosystem whose introduction does or is likely to cause economic or environmental harm or harm to human health." Include a discussion of the invasive species present within the project limits, their status, and measures taken to prevent the spread or infestation of invasive species. The FHWA guidance issued August 10, 1999 directs the use of the state's invasive species list, currently maintained by the [California Invasive Species Council](#) to define the invasive plants that must be considered as part of the NEPA analysis for a proposed project.

## 2-6.6 OTHER

- Insert other information as necessary such as:
- [SB 857: Section 5901 of the Fish and Game Code, Article 3.5](#) (commencing with Section 156) to Chapter 1 of Division 1 of the Streets and Highways Code, relating to fish passage.
- Include a discussion of the results of the reconnaissance assessment and whether additional work is required. Required: Include a copy of the reconnaissance assessment and photos as an appendix.
- [Migratory Bird Treaty Act](#). Include a summary of the migratory birds present and measures taken to avoid impacts to nesting birds.
- [Wild and Scenic Rivers](#) and [California Wild and Scenic Rivers](#)
- Include consultation information