

CALTRANS
ENVIRONMENTAL HANDBOOK
VOLUME 3
BIOLOGICAL RESOURCES

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CHAPTER 1

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CHAPTER 1

GENERAL INFORMATION

1-1 INTRODUCTION

Caltrans must comply with Federal and State environmental laws and regulations designed to protect biological resources in all phases of project planning and development, construction, permitting, and maintenance.

1-1.1 Use

This volume provides guidance to identify and evaluate biological resources, process biological resource documents, and implement all biologically related construction, maintenance, and encroachment activities.

Situations in biological resource management that are not covered in Volume 3 should be handled on a case-by-case basis. Districts are encouraged to consult with Headquarters staff members at any time, especially when unusual situations occur. Communication between Districts is also highly recommended for the purpose of sharing similar experiences.

Volume 3 of the Environmental Handbook should be used with other project planning and development guides and references including Volume 1 of the Environmental Handbook and the Project Development Procedures Manual.

1-1.2 Purpose

This handbook:

- presents Caltrans policies and procedures regarding biological resources;
- details procedures and activities required by law, regulation, and Executive Order pertaining to biological resources;
- sets forth biological resource management roles and responsibilities; and
- sets forth guidelines to promote consistency, uniformity, and effective handling of biological resources in the conduct of Caltrans' activities.

1-1.3 Transportation and Biological Resources

Caltrans is required to comply with Federal and State biological resource laws and regulations. The following is a summary of the evolution of these laws and Caltrans' involvement in managing biological resources under its jurisdiction.

In the mid-1960s, increased public concern and support for protection of the natural environment resulted in stronger and more comprehensive Federal and State laws. The National Environmental Policy Act of 1969 (NEPA) and the California Environmental Quality Act of 1970 (CEQA) established environmental policy specifically addressing the impacts of human activities on the natural and human environment. These laws require public agencies to be responsive to the effects of their actions on the environment, including biological resources.

In 1973, Congress passed the Federal Endangered Species Act (FESA). A similar California Endangered Species Act (CESA) was passed in 1985.

In response to public concern over the loss of wetlands, in the mid-1970s the Army Corps of Engineers (ACOE) expanded its jurisdiction over fill materials in traditional navigable waters to cover essentially all water bodies, including wetlands. In 1977, a Federal Executive Order was issued which directed Federal agencies to avoid impacts to wetlands whenever there was a practicable alternative.

The 1973 legislation that created Caltrans from the Division of Highways emphasized consideration of the environment and required that "environmental impacts of transportation should be taken into consideration." The Director's Environmental Policy (1992) states that "Caltrans protects and enhances the environment..." and "evaluates the environmental benefits and consequences of its activities and implements practices that minimize environmental impacts."

1-2 LAWS AND REGULATIONS

1-2.1 Federal Laws and Regulations

National Environmental Policy Act (42 U.S.C. 4321 et seq.). NEPA declares a continuing Federal policy "to use all practicable means and measures...to create and maintain conditions under which man and nature can exist in productive harmony, and fulfill the social, economic, and other requirements of present and future generations." NEPA directs "a systematic, interdisciplinary approach" to planning and decision making and requires environmental statements for "major Federal actions significantly affecting the quality of the human environment." [Implementing regulations by the Council on Environmental Quality \(CEQ\) \(40 CFR Parts 1500-1508\)](#) requires Federal agencies to identify and assess reasonable alternatives to proposed actions that will restore and enhance the quality of the human environment and avoid or minimize adverse environmental impacts. Federal agencies are further directed to emphasize significant environmental issues in project planning and to integrate impact studies required by other environmental laws and Executive Orders into the NEPA process. The NEPA process should therefore be seen as an overall framework for the environmental evaluation of Federal actions.

Endangered Species Act of 1973 (16 U.S.C. 1531-1543). This act and subsequent amendments provide guidance for the conservation of endangered and threatened species and the ecosystems upon which they depend.

- **Section 7** requires Federal agencies, in consultation with, and with the assistance of the Secretary of the Interior or the Secretary of Commerce, as appropriate, to insure that actions they authorize, fund, or carry out are not likely to jeopardize the continued existence of threatened or endangered species or result in the destruction or adverse modification of critical habitat for these species. The U. S. Fish and Wildlife Service (FWS) and National Marine Fisheries Service (NMFS) share responsibilities for administering the Act. Regulations governing interagency cooperation under Section 7 are found at [50 CFR Part 402](#). The opinion issued at the conclusion of consultation will include a statement authorizing take that may occur incidental to an otherwise legal activity.
- **Section 9** lists those actions that are prohibited under the Act. Take of a species listed in accordance with the Act is prohibited. There are two processes whereby take is allowed when it is incidental to an otherwise legal activity.
- **Section 10** provides a means whereby a non-Federal action with a potential to result in the take of a listed species could be allowed under an incidental take permit. Application procedures are found at [50 CFR Parts 13 and 17](#) for species under the jurisdiction of FWS and [50 CFR Parts 217, 220 and 222](#) for species under the jurisdiction of NMFS.

Migratory Bird Treaty Act (16 U.S.C. 703-711). 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.

Clean Water Act (33 U.S.C. 1251-1376). The Clean Water Act (CWA) provides guidance for the restoration and maintenance of the chemical, physical, and biological integrity of the nation's waters.

- **Section 401** requires that an applicant for a Federal license or permit that allows activities resulting in a discharge to waters of the United States, must obtain a state certification that the discharge complies with other provisions of CWA. The Regional Water Quality Boards administer the certification program in California.
- **Section 402** establishes a permitting system for the discharge of any pollutant (except dredge or fill material) into waters of the United States.
- **Section 404** establishes a permit program administered by ACOE regulating the discharge of dredged or fill material into waters of the United States (including wetlands). Implementing regulations by ACOE are found at [33 CFR Parts 320-330](#). Guidelines for implementation are referred to as the Section 404 (b)(1) Guidelines and were developed by the Environmental Protection Agency (EPA) in conjunction with ACOE ([40 CFR Parts 230](#)). 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.

Section 10 of the Rivers and Harbors Act (33 U.S.C. 401 et seq.). Section 10 of the Rivers and Harbors Act is administered by ACOE. This section 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 ACOE grants or denies permits based on the effects on navigation. Most activities covered under this act are also covered under Section 404 of CWA.

Fish and Wildlife Coordination Act (16 U.S.C. 661-666). This act applies to any Federal project where the waters of any stream or other body of water are impounded, diverted, deepened, or otherwise modified. Project proponents are required to consult with FWS and the appropriate state wildlife agency. These agencies prepare reports and recommendations that document project effects on wildlife and identify measures that may be adopted to prevent loss or damage to wildlife resources. The term "wildlife" includes both animals and plants. Provisions of the Act are implemented through the NEPA process and Section 404 permit process.

National Wild and Scenic Rivers Act (16 U.S.C. 1271-1287). This act is administered by a variety of State and Federal agencies. Designated river segments flowing through Federally managed lands are administered by the land managing agency (e.g., U. S. Forest Service, Bureau of Land Management, and the National Park Service). River segments flowing through private lands are administered by the Resources Agency in conjunction with local government agencies. The Act prohibits Federal agencies from activities that would adversely affect the values for which the river was designated. Caltrans consults with the managing agencies during the NEPA process on projects that affect designated rivers or their immediate environments. This early consultation reduces potential conflicts with wild and scenic river values that are protected by the Act.

Executive Order 11988 Floodplain Management (May 24, 1977). This order directs all Federal agencies to avoid the long-term and short-term adverse impacts associated with floodplain modification and to avoid direct or indirect support of floodplain development whenever there is a practicable alternative.

Executive Order 11990 Protection of Wetlands (May 24, 1977). This order establishes a National policy to avoid adverse impacts on wetlands whenever there is a practicable alternative. The U. S. Department of

Transportation (DOT) promulgated DOT Order 5660.1A in 1978 to comply with this direction. On Federally funded projects, impacts on wetlands must be identified in the environmental document. 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 in the final environmental document. An additional requirement is to provide early public involvement in projects affecting wetlands. The Federal Highway Administration (FHWA) provides technical assistance in meeting these criteria (FHWA Technical Advisory 6640.8A) and reviews environmental documents for compliance.

1-2.2 State Laws and Regulations

California Environmental Quality Act (P.R.C. 21000 et seq.). CEQA establishes State policy to prevent significant, avoidable damage to the environment by requiring changes in projects through the use of alternatives or mitigation measures. CEQA applies to actions directly undertaken, financed, or permitted by State lead agencies. Regulations for implementation are found in the State [CEQA Guidelines](#) published by the Resources Agency. These guidelines establish an overall process for the environmental evaluation of projects that is similar to that promulgated under NEPA. The Guidelines make provisions for joint NEPA/CEQA documents.

California Endangered Species Act (Fish and Game Code 2050 et seq.). This act establishes the policy of the State to conserve, protect, restore, and enhance threatened or endangered species and their habitats. CESA mandates that State agencies should not approve projects that would jeopardize the continued existence of threatened or endangered species if reasonable and prudent alternatives are available that would avoid jeopardy. There are no state agency consultation procedures under CESA. For projects that affect both a state and federal listed species, compliance with the Federal Endangered Species Act (FESA) will satisfy CESA if the Department of Fish and Game (DFG) determines that the federal incidental take authorization is "consistent" with CESA under F&G Code Section 2080.1. For projects that will result in a take of a state only listed species, Caltrans must apply for a take permit under section 2081(b).

Native Plant Protection Act (Fish and Game Code 1900-1913). California's Native Plant Protection Act (NPPA) requires all State agencies to utilize their authority to carry out programs to conserve endangered and rare native plants. Provisions of NPPA prohibit the taking of listed plants from the wild and require notification of the DFG at least 10 days in advance of any change in land use. This allows DFG to salvage listed plant species that would otherwise be destroyed. Caltrans is required to conduct botanical inventories and consult with DFG during project planning to comply with the provisions of this act and sections of CEQA that apply to rare or endangered plants.

California Wild and Scenic Rivers Act (P.R.C. 5093.50 et seq.) This act preserves certain designated rivers in their free-flowing state. These rivers must possess extraordinary scenic, recreational, fishery, or wildlife values. The Resources Agency is responsible for coordinating activities of State agencies that may affect these designated rivers.

Sections 1601-1603 of the Fish and Game Code. Under these sections of the Fish and Game Code, Caltrans and other agencies are required to notify DFG prior to any project that would divert, obstruct or change the natural flow, bed, channel, or bank of any river, stream, or lake. Preliminary notification and project review generally occur during the environmental process. When an existing fish or wildlife resource may be substantially adversely affected, DFG is required to propose reasonable project changes to protect the resource. These modifications are formalized in a Streambed Alteration Agreement that becomes part of the plans, specifications and bid documents for the project.

1-2.3 Agreements and Understandings

Memorandum of Understanding (MOU) with Fish and Wildlife Service (November 1988). This MOU establishes procedures for the early and continuous coordination of transportation project development activities between Caltrans and FWS.

MOU with the Department of Fish and Game (December 1990). This MOU ensures that State transportation projects are planned, designed, constructed and maintained to protect fish and wildlife resources in conformance with CEQA and CESA.

Memorandum of Agreement (MOA) between FHWA, ACOE, EPA, FWS, DFG, and Caltrans (May 1991), Early Mitigation Planning for Transportation Improvements in California. This MOA establishes a process to identify and evaluate valuable natural resources and habitat at the earliest stages of transportation improvement planning. It provides a framework to implement coordinated mitigation planning at the beginning of the project development process leading to an agreement on mitigation strategy for guidance during project design.

Planning Guidelines for Standard Approaches to Mitigation Site Monitoring and Maintenance - under November 1988 MOU with Sacramento Office of FWS (November 1991). This MOU provides planning guidelines to improve the success of project mitigation within the jurisdiction of Caltrans and FWS.

MOU - NEPA and Clean Water Act Section 404 Integration Process (March 3, 1994). This MOU ensures the earliest possible consideration of environmental concerns pertaining to waters of the U. S., including wetlands, at the transportation project planning, programming, and project development stages by integrating section 404 into the NEPA process.

1-2.4 Caltrans' Policies

Caltrans' purpose and vision is to promote the State's economic vitality and enhance the quality of life for the people of California by providing for mobility of people, goods, services, and information while protecting the environment and addressing social needs.

Transportation projects are planned and constructed to avoid or minimize impacts to biological resources whenever practicable.

Caltrans evaluates and plans for mitigation of adverse impacts to natural resources during the early stages of transportation planning and decision making.

Caltrans works closely with resource agencies and FHWA in the development and implementation of mitigation for project impacts necessary to satisfy State and Federal laws while ensuring that mitigation necessitated by impacts to sensitive resources is a reasonable expenditure of highway funds.

If impact avoidance is not possible, the first consideration is to minimize impacts on-site.

If mitigation on-site is not practical, off-site compensation may be required. Off-site mitigation may include land acquisition and habitat improvement. The following is to be considered:

- avoid purchasing or improving habitat on small isolated sites;
- if possible, achieve compensation in advance of project impacts;
- develop mitigation banks when appropriate opportunities exist; and
- consider Conservation Easements before considering right of way purchase.

Caltrans provides for monitoring and sustained maintenance and operation of mitigation sites.

When possible, Caltrans turns over mitigation sites to responsible public or private resource organizations for long-term management.

Caltrans maintains a mitigation site inventory providing information on costs and performance success.

1-3 ROLES AND RESPONSIBILITIES

Caltrans' environmental policies encourage coordination among the responsible units. The following section describes the organization and functions of the unit responsible for biological resource management within Caltrans, and identifies the roles and responsibilities of biological staff.

The responsibility for managing biological resources under Caltrans' jurisdiction is placed with the Environmental Offices at the district level and the Environmental Program at Headquarters.

1-3.1 District Roles And Responsibilities

The District Environmental Offices independently administer and perform all biological functions for the District, with assistance or review by the Environmental Program on request.

District Environmental Offices have the ultimate responsibility for the quality and timeliness of all biological studies, regardless of who prepares the studies.

Initial Planning Stage. The biologist provides the project planners with information on biological resources that potentially exist in the project area. The biologist uses a literature search and field visits to provide information on biological resources that might be affected by proposed actions. The biologist may do additional studies to better advise the planners if the potential exists for impacts to resources which are sufficiently serious to stop or severely delay a project. In addition, biologists may be requested to develop study schedules that estimate the time needed to complete biological surveys, coordinate with resource agencies, and write reports. The biologist may also be requested to provide an estimate of what mitigation may be required if a certain action is carried out.

Project Development Stage. Once project alternatives are selected for further study, the biologist is responsible to determine the potential biological resource impacts. When there is a potential for adverse impacts, the biologist works with the Project Manager and project team to determine if the project can be modified to avoid the impacts. After making necessary project adjustments, if there are still impacts that require mitigation, the biologist works with the project team to develop feasible mitigation. Affected functional units, such as construction and maintenance, should be consulted if they are not currently active members of the project team. Personnel from the resource agencies may also be a part of these discussions because of the status of the resources.

Some projects may require permits or agreements. The groundwork for these documents should be developed during the initial stages of the environmental document. Caltrans and the appropriate resource agency should reach an agreement on the requirements to obtain those permits or agreements. These conditions can then be incorporated into the environmental document and become an integral part of the project.

The biologist prepares the Natural Environment Study (NES). The NES details all of the biological studies, impact analyses, and agreed to mitigation measures. The biologist uses the NES to complete the Biological Section of the environmental document. If consultation for endangered species is required, the biologist may need to develop a Biological Assessment that focuses only on those studies and impact analyses required for listed, proposed, and candidate endangered and threatened species.

The biologist insures that the memo from the Environmental Office to the Resident Engineer's (RE) Pending File includes all biological requirements identified during the environmental process. This memo will also alert the RE that the biologist would like to be notified of the pre-job conference. Prior to project

advertisement, the biologist should review the draft Plans, Specifications and Estimate (PS & E) to assure that all biological commitments are included in the contract and there is sufficient funding to accomplish those commitments.

Construction Stage. The biologist is often requested to participate in the pre-job conference to clarify biological issues and constraints for the RE and staff and to ensure the contractor's consideration of biological issues during construction. A major role of the biologist during construction is to be available for consultation. The biologist may be requested to field review a project when a change order that will modify the impacts on resources is being considered, or when there is a resource identified that was overlooked during environmental review.

The responsibilities of the biologist during construction can range from occasional consultation to daily monitoring. A frequent requirement of endangered species consultation is that a qualified biologist be present during a phase of construction that has the potential to harm a species. Permits issued by ACOE and coastal zone permitting agencies may require regular or periodic monitoring of construction activities by a biologist if sensitive resources are involved. In some cases, the biologist may be required to oversee the construction phase of a mitigation site.

The RE has the ultimate responsibility for the construction site and for ensuring the contractor's compliance with applicable laws, permits, and contract plans and specifications. Authority for directing the contractor's work must be delegated to the biologist by the RE.

Post Construction Stage. After construction the biologist is responsible for monitoring the success of any biological mitigation that was a condition of construction. A major component of habitat replacement is annual monitoring of any plantings and recommending corrective measures, if appropriate. This monitoring requirement, generally established in the regulatory permit, may last until the habitat reaches a certain stage, which will vary for different habitats, plantings, and conditions. Annual monitoring requirements will usually be determined in negotiations between Caltrans biologists and resource and regulatory agencies. The monitoring requirements are subject to final approval by the Project Manager.

Agency or Developer Funded Projects. Agency or developer funded projects are not technically Caltrans projects but they ultimately become a part of the highway system. The District Director delegates authority to a Caltrans Project Manager to oversee Caltrans' interest in these types of projects. It is up to the Project Manager to consult with specialists to ensure that the information gathered is pertinent to obtain proper approvals and permits from resource agencies. When FHWA funds or approvals are involved in the project, the Project Manager should ensure that the information gathered will meet the needs of FHWA to complete agency coordination. When there is no FHWA action, the Project Manager should ensure that any agreements the local agency makes toward permits and approvals are achievable and acceptable to Caltrans. The appropriate method to meet these goals is to involve the specialists at all stages of the process. The Project Manager is responsible for accepting or rejecting recommendations made by specialists. The difference between agency or developer funded projects and Caltrans' projects is that the biologist usually has a more active role in the development of Caltrans' projects.

1-3.2 Headquarters Responsibilities

The Environmental Program at Headquarters is responsible to:

- provide assistance and expertise to districts for the development and processing of biological studies;
- develop and maintain natural resource handbooks and manuals;
- prepare and analyze recommendations on proposed legislation;

- develop and propose departmental policy to ensure conformity with laws and regulations and to promote uniformity in addressing biological issues;
- provide liaison and assistance to districts in resolving issues with State and Federal agencies;
- identify, manage, and perform research on environmental topics to produce information for statewide application;
- identify need, develop, and provide or conduct training in technical biological areas;
- identify need, develop methodology, and initiate procedure to capture cost and estimate future resources required for biological measures (e.g., mitigation site monitoring, mitigation banks, endangered species, etc.); and
- develop, gather, and disseminate information, technical data, processes, procedures, etc. which may improve the biological program or assist district biologists.

CHAPTER 2

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CHAPTER 2

NATURAL ENVIRONMENT STUDY

2-1 INTRODUCTION

A Natural Environment Study (NES) describes the existing biological environment and how the project alternatives affect that environment. The NES is the technical backup for statements made in the environmental document concerning plants, animals, and natural communities occurring in the project study area.

2-2 BACKGROUND RESEARCH

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

An initial site visit to observe the type of natural communities and their condition in the project area 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 initial 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 study area and likely to be impacted by the project.

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 project area.

Information about biological resources in the project area is available from a myriad of sources. Some of the common sources of biological information include species lists solicited from the U.S. Fish and Wildlife Service (FWS) and the California Department of Fish and Game (DFG), maps such as the National Wetlands Inventory Maps compiled by FWS, soil surveys compiled by the Natural Resources Conservation Service, environmental documents for nearby projects, and documents prepared by resource agencies concerning species potentially found in the study area. A standard source is the most recent records of the California Natural Diversity Data Base (CNDDDB) RareFind for the USGS quadrangle on which the project occurs, and for adjacent quadrangles as habitat conditions and regional species distributions dictate. 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 project site and whose life requirements may be met by the habitat types that are present within the survey area. Consult the most recent edition of the California Native Plant Society's Inventory of Rare and Endangered Vascular Plants of California for information on the distribution and habitat requirements of sensitive plant taxa.

2-3 ISSUE IDENTIFICATION/ SCOPING

The scoping process provides many of the issues that require discussion in an environmental document. The District Biologist supplements this process as needed with site visits and interviews with local experts and agency personnel familiar with sensitive resources potentially found in the project area.

2-3.1 Level of Detail

The level of detail must be sufficient to determine if the project will result in a significant impact. The NES describes the project setting in such detail that project planners and the public have a clear idea of the nature, distribution, and abundance of resources. The NES must address whether a sensitive or biologically important resource occurs in the project area, whether the resource will be affected, and whether the project impact is significant.

As the sensitivity of the resource increases, the level of detail in the NES will also increase. Threatened and endangered species, as well as proposed species, candidate species, and some special status resources require a thorough analysis of potential project impacts. A determination of the potential for take of a listed species or critical habitat is required.

2-3.2 Area of Direct and Indirect Effect

The District Biologist coordinates with the Project Engineer to develop the limits of the project study area. A project study area includes the footprint of the completed project, new right of way limits, areas needed for utility relocation, construction access roads, driveway realignments, and construction easements. Within these limits the biologist evaluates biological resources for both direct and indirect effects. If impacts resulting from the project extend beyond the project limits, the impacted areas must be included in the analysis.

Area of Direct Effect. The area of direct effect is where construction activity results in the removal of biotic resources and landforms. The National Environmental Policy Act (NEPA) Regulations define direct effects as those "which are caused by the action and occur at the same time and place." Resources lost under the footprint of the action are obvious direct effects, such as filling a wetland to build a highway. Less obvious direct effects might be where a natural process has been blocked, such as blocking a migration corridor or disrupting a breeding cycle.

Area of Indirect Effect. As defined in the NEPA Regulations indirect effects are those "which are caused by the action and are later in time or farther removed in distance, but are still reasonably foreseeable. Indirect effects may include growth inducing effects and other effects related to induced changes in the pattern of land use, population density or growth rate, and related effects on air and water and other natural systems, including ecosystems."

When evaluating an action for indirect social effects, the District Biologist coordinates with a socioeconomic planner to determine indirect social changes that may occur from the construction of a project. The socioeconomic planner determines probable changes likely to occur in the project area. The District Biologist evaluates the biological resources that will be impacted because of these indirect social effects.

2-3.3 Contacts with Agencies and Individuals

Throughout the development of the NES, the District Biologist contacts individuals and agencies for information or negotiation purposes. A section of the NES should discuss 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 project area, 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 project area. 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 impact on resources. These negotiations typically involve State, Federal, and local 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, Endangered Species Act Procedure, discusses this process in detail.

2-4 FIELD SURVEY METHODS

Prior to conducting field surveys, the District Biologist compiles lists of potential sensitive resources likely to occur within the vicinity of the project area. 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 impact, long-term and short-term impacts, 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 impacted 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? 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 project area, determine the presence of sensitive habitats and species, and evaluate the impacts of the proposed project on the project area. All field surveys to determine the presence of sensitive species 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 a project vicinity. The District Biologist must obtain the required permits for handling these species or hire a qualified consultant who possesses the required permits.

If the project area 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 project area, being sure to investigate areas of potential sensitivity found from the data search and aerial photo interpretation.

Field safety is extremely important. It is the responsibility of the District Biologist to become familiar with Caltrans Code of Safe Practices (Appendix 6, Volume 1, Environmental Handbook). As discussed in the Code of Safe Practices, biologists must use the buddy system during surveys.

Survey work that requires entry onto private property is generally allowable under Caltrans Statutes, Article 1, Chapter 4, Title 7 of the Eminent Domain Law. This law states that "any person authorized to acquire property for a particular use by eminent domain may enter upon property to make photographs, studies, surveys, examinations, tests, soundings, borings, samplings, or appraisals, or to engage in similar activities reasonably related to acquisition or use of the property for that use". However, there are limitations to this authority if the activity causes actual damage to or substantial interference with the possession or use of the property. Thus, entry on private property may require that written permission from the property owner or a Right of Entry be obtained. Therefore, it is important that the District Biologist coordinate with the District Right of Way Unit for assistance to determine any actions that might be necessary prior to survey work on private property. Obtaining Rights of Entry, if necessary, could be a time consuming process and it is important that coordination with Right of Way be as far in advance as possible.

2-4.1 Mapping

The District Biologist maps the vegetation types within the survey area as early as possible during field investigations to provide base maps for subsequent biological work and preliminary impact assessment. Mapping should be at a scale large enough to show vegetation types and important biological features such as habitat for sensitive species, wetlands, and unique plant assemblages. Vegetation community map units must be selected on the basis of a recognized classification system. In all cases, the NES must reference the source for all classification systems used.

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. Identify each species observed to the extent necessary to determine whether it is threatened or endangered. Also 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 project area. A biologist may need to develop a detailed discussion of communities in the project area when communities of state or local significance, such as oak woodlands or wetlands, will be impacted. 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 impacts. By discussing impacts 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 impacts.

2-4.2 Waterways, Wetlands, and Jurisdictional Areas

Caltrans biologists identify, delineate, and discuss impacts to riparian and aquatic communities, including rivers, streams, lakes, wetlands, and other waters of the United States to satisfy the requirements of Executive Order 11990, Section 10, of the Rivers and Harbors Act (33 U.S.C. 401 et seq.), Section 404 and Section 401 of the Clean Water Act (33 U.S.C. 1251-1376), National Wild and Scenic Rivers Act (16 U.S.C. 1271-1287), NEPA, the California Environmental Quality Act (CEQA), Sections 1601-1603 of the Fish and Game Code, and the California Wild and Scenic Rivers Act (P.R.C.5093.50 et seq).

Streams, Rivers, and Lakes. Caltrans is required to notify DFG 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 1601-1603 of the Fish and Game Code. Preliminary notification and project review generally occurs during the environmental process. When an existing fish or wildlife resource may be adversely affected, DFG is required to propose reasonable project changes to protect the resource. These modifications are formalized in a Streambed Alteration Agreement (e.g. 1601 agreement). The District Biologist must identify in the NES those areas that may pertain to Section 1601-1603 of the Fish and Game Code.

Wetlands and Other Waters of the United States. As discussed in greater detail in Chapter 3, Wetlands, to determine the presence of a wetland the District Biologist uses the U.S. Army Corps of Engineers (ACOE) and U.S. Environmental Protection Agency (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 ACOE Wetlands Delineation Manual (January 1987) to make the wetland determination. The wetland determination requires the identification of three

criteria: (1) the 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, Wetlands.

When wetlands occur in the project area, the NES will include a Wetland Assessment. The purpose of an assessment is to map the wetland area and discuss the functions, values, and potential impacts 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 impacts 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 Categorical Exclusions (CE), a newspaper notice inviting comments must be published. 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 impacts. Guidelines for compliance with these requirements are discussed in Chapter 3, Wetlands.

2-4.3 Plant Survey Techniques

The following recommendations for botanical surveys and impact assessments have been adopted by DFG and the California Native Plant Society. These guidelines, developed by James R. Nelson, are published in *California Native Plant Society's Inventory of Rare and Endangered Vascular Plants of California*. It is recommended that Caltrans biologists follow these guidelines.

Guidelines for Assessing Effects of Proposed Developments on Rare Plants and Plant Communities

The following recommendations are intended to help those who prepare and review environmental documents determine when a botanical survey is needed, who should be considered qualified to conduct such surveys, how field surveys should be conducted, and what information should be contained in the survey report.

Survey Guidelines.

1. Botanical surveys that are conducted to determine the environmental effects of a proposed development should be directed to all rare, threatened, and endangered plants, and rare plant communities. The plants are not necessarily limited to those species which have been "listed" by State and Federal agencies but should include any species that, based on all available data, can be shown to be rare and/or endangered.
2. It is appropriate to conduct a botanical field survey to determine if, or the extent that, rare plants will be affected by a proposed project when: based on an initial biological assessment, it appears that the project may damage potential rare plant habitat; rare plants have historically been identified on the project site, but adequate information for impact assessment is lacking; or no initial biological assessment has been conducted and it is unknown whether or not rare plants or their habitat exist on the site.
3. Botanical consultants should be selected on the basis of possession of the following qualifications (in order of importance):

- a. Experience as a botanical field investigator with experience in field sampling design and field methods;
 - b. Taxonomic experience and a knowledge of plant ecology;
 - c. Familiarity with the plants of the area, including rare species; and
 - d. Familiarity with the appropriate State and Federal statutes related to rare plants and plant collecting.
4. Field searches should be conducted in a manner that will locate any rare or endangered species that may be present. Specifically, rare plant surveys should be:
- a. Conducted at the proper time of year when rare or endangered species are both "evident" and identifiable. Field surveys should be scheduled to coincide with known flowering periods, and/or during periods of phenological development that are necessary to identify the plant species of concern.
 - b. Floristic in nature. Every species noted in the field should be identified to the extent necessary to determine whether it is rare or endangered. Predictive surveys, surveys which predict the occurrence of rare species based on the occurrence of habitat or other physical features rather than actual field inspection, should be reserved for ecological studies, not for impact assessment.
 - c. Conducted in a manner that is consistent with conservation ethics. Collections of rare or suspected rare species (voucher specimens) should be made only when such actions would not jeopardize the continued existence of the population and in accordance with applicable State and Federal permit regulations. Voucher specimens should be deposited at recognized public herbaria for future reference. Photography should be used to document plant identification and habitat whenever possible, but especially when the population cannot withstand collection.
 - d. Conducted using systematic field techniques in all habitats of the site to ensure a reasonably thorough coverage of potential impact areas.
 - e. Well documented. When a rare or endangered plant (or rare plant community) is located, a California Native Species (or Community) Field Survey Form or equivalent written form should be completed and submitted to the Natural Diversity Data Base.
5. Reports of botanical field surveys should be included in or with environmental assessments, EIR's, and EIS's. They should contain the following information:
- a. Project description, including a detailed map of the project location and study area.
 - b. A written description of biological setting, referencing the community nomenclature used, and a vegetation map.
 - c. Detailed description of survey methodology.
 - d. Dates of field surveys.
 - e. Results of survey (including detailed maps).
 - f. An assessment of potential impacts.
 - g. Discussion of the importance of rare plant populations with consideration of nearby populations and total species distribution.
 - h. Recommended mitigation measures to reduce or avoid impacts and monitoring program to measure the success of the mitigation.
 - i. List of all species identified.

- j. Copies of all California Native Species Field Survey Forms or Natural Community Field Survey Forms.
- k. Name of field investigator(s).
- l. References cited, persons contacted, herbaria visited, and disposition of voucher specimens.

2-4.4 Wildlife Survey Techniques

Given the variety and number of wildlife species and types of habitats found in California, it is impossible to present 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 of 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 impacts to the expected resource. Specialized surveys are usually reserved for those instances where a sensitive resource is expected in the project area. Surveys for many of the species listed as threatened or endangered must follow a specified protocol established by DFG or FWS and may require a permit.

A California Native Species Field Survey Form should be completed and sent to CNDDDB when sensitive species are located.

A sampling of references that describe wildlife survey techniques is presented. However, this is not an exhaustive list. 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.

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.

2-5 EVALUATING IMPACTS AND SIGNIFICANCE

The District Biologist evaluates the effects of the project on the biotic resources in the project area. This evaluation investigates the direct and indirect effects (as discussed in Section 2-3.2), the long-term and/or short-term impacts, and the cumulative impacts resulting from the project. The NES also discusses the level of impacts to determine the significance of the project impacts to resources.

2-5.1 Cumulative Effect

A cumulative effect is defined in the NEPA Regulations as "the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (Federal or non-Federal) or person undertakes such other actions.

Cumulative impacts can result from individually minor yet collectively significant actions taking place over a period of time."

If the District Biologist evaluates the project for endangered species under the Federal Endangered Species Act, a slightly different definition will be used. Cumulative effect is defined in the FWS Regulations for Interagency Cooperation as "those effects of future State or private activities not involving Federal activities, that are reasonably certain to occur within the action area of the Federal action subject to consultation."

2-5.2 Determining Significance of Effects

The District Biologist must evaluate the project impacts to determine the level of significance of each impact on the biological resources. Impacts are evaluated by assessing the context and intensity. Context and intensity are defined below.

[The Council on Environmental Quality \(CEQ\) Regulations](#) and [CEQA Guidelines](#) have similar approaches to determine the significance of impacts. Following are excerpts from those Regulations and Guidelines. See Volume I of the Environmental Handbook for a complete discussion of significance.

CEQ Regulations, 1508.27 SIGNIFICANTLY. "Significantly" as used in NEPA requires considerations of both context and intensity:

- (a) Context. The significance of an action must be analyzed in different circumstances, such as society as a whole (human, national), the affected region, the affected interests, and the locality. An impact's level of significance varies with the setting (context) of the proposed action. For instance, in the case of a site-specific action, significance would usually depend upon the effects in the locale rather than in the world as a whole. Both short-term and long-term effects are relevant.
- (b) Intensity. The intensity of an impact refers to the severity of impact. Responsible officials must bear in mind that more than one agency may make decisions about partial aspects of a major action. The following should be considered in evaluating intensity:
 - (1) Impacts that may be both beneficial and adverse. A significant effect may exist even if the Federal agency believes that on the balance the effect will be beneficial.
 - (2) The degree to which the proposed action affects public health or safety.
 - (3) Unique characteristics of the geographic area such as proximity to historic or cultural resources, park lands, prime farmlands, wetlands, wild and scenic rivers, or ecologically critical areas.
 - (4) The degree to which the effects on the quality of the human environment are likely to be highly controversial.
 - (5) The degree to which the possible effects on the human environment are highly uncertain or involve unique or unknown risks.
 - (6) The degree to which the action may establish a precedent for future actions with significant effects or represents a decision in principle about future consideration.
 - (7) Whether the action is related to other actions with individually insignificant but cumulatively significant impacts. Significance exists if it is reasonable to anticipate a cumulatively significant impact on the environment. Significance cannot be avoided by terming an action temporary or breaking it down into small component parts.
 - (8) The degree to which the action may adversely affect districts, sites, highways, structures, or objects listed or eligible for listing in the National Register of Historic Places or may cause loss or destruction of significant scientific, cultural, or historic resources.

- (9) The degree to which the action may adversely affect an endangered or threatened species or its habitat that has been determined to be critical under the Endangered Species Act of 1973.
- (10) Whether the action threatens a violation of Federal, State, or local law or requirements imposed for the protection of the environment.

CEQA Guidelines, 15064 Determining Significant Effects.

- (b) The determination of whether a project may have a significant effect on the environment calls for careful judgment on the part of the public agency involved, based to the extent possible on scientific and factual data. An ironclad definition of significant effect is not possible because the significance of an activity may vary with the setting. For example, an activity which may not be significant in an urban area may be significant in a rural area.
- (d) In evaluating the significance of the environmental effect of a project, the Lead Agency shall consider both primary, or direct, and secondary, or indirect, consequences.
- (g) The decision as to whether a project may have one or more significant effects shall be based on information in the record of the Lead Agency.
 - (1) If the Lead Agency finds there is substantial evidence in the record that the project may have a significant effect on the environment, the Lead Agency shall prepare an EIR. Said another way, if a Lead Agency is presented with a fair argument that a project may have a significant effect on the environment, the Lead Agency shall prepare an EIR even though it may also be presented with other substantial information that the project will not have a significant effect.
 - (2) If the Lead Agency finds that there is no substantial evidence that the project may have a significant effect on the environment, the Lead Agency shall prepare a Negative Declaration.
- (h) In marginal cases where it is not clear whether there is substantial evidence that a project may have a significant effect on the environment, the Lead Agency shall be guided by the following factors:
 - (1) If there is serious public controversy over the environmental effects of a project, the Lead Agency shall consider the effect or effects subject to the controversy to be significant and shall prepare an EIR. Controversy unrelated to an environmental issue does not require preparation of an EIR.
 - (2) If there is disagreement between experts over the significance of the effect on the environment, the Lead Agency shall treat the effect as significant and shall prepare an EIR.

CEQA Guidelines, 15065 Mandatory Findings of Significance.

A Lead Agency shall find that a project may have a significant effect on the environment and thereby require an EIR to be prepared for the project where any of the following conditions occur:

- (a) The project has the potential to substantially degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of a rare or endangered plant or animal, or eliminate important examples of the major periods of California history or prehistory.
- (b) The project has the potential to achieve short-term environmental goals to the disadvantage of long-term environmental goals.

- (c) The project has possible environmental effects which are individually limited but cumulatively considerable. As used in the subsection, "cumulatively considerable" means that the incremental effects of an individual project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects.
- (d) The environmental effects of a project will cause substantial adverse effects on human beings, either directly or indirectly.

CEQA Guidelines, Appendix G - SIGNIFICANT EFFECTS.

A project will normally have a significant effect on the environment if it will:

- (c) Substantially affect a rare or endangered species of animal or plant or the habitat of the species;
- (d) Interfere substantially with the movement of any resident or migratory fish or wildlife species;
- (t) Substantially diminish habitat for fish, wildlife, or plants;
- (v) Create a potential public health hazard or involve the use, production or disposal of materials which pose a hazard to people or animal or plant populations in the area affected.

2-6 MITIGATION MEASURES

A brief synopsis of mitigation is discussed in this chapter as it pertains to the NES. A detailed discussion can be found in Chapter 5, Mitigation and Monitoring.

The District Biologist takes the lead in developing and implementing biological mitigation measures for the proposed action. Only mitigation measures approved by Caltrans management in conjunction with the resource agencies requesting the measures will be discussed in the mitigation section of the NES. All approved mitigation measures are included in the environmental documents. Recommendations from consultants concerning mitigation measures and significance will not be in the NES, but are discussed in the Official Memo transmitting the consultant document to the Contract Administrator.

Mitigation development is coordinated with the appropriate resource or regulatory agency (ACOE, FWS, DFG, Coastal Commission, etc.) and all Caltrans programs affected by the proposed measures. Development of the mitigation plan may involve Project Development, Construction, Landscape Architecture, Maintenance, and Hydraulics, in addition to the Environmental Program.

In some cases the District Biologist must produce a Mitigation Plan, separate from the NES, that outlines measures to avoid, reduce, or offset adverse biological effects associated with transportation projects. This plan will inform personnel associated with the project of the agreed upon mitigation measures, the goals and objectives to be achieved, procedures for their implementation, and practicable monitoring techniques.

Mitigation measures as defined in the CEQ Regulations (40 CFR Part 1508.20) shall include:

- **avoiding** the impacts altogether by not taking a certain action or parts of an action;
- **minimizing** impacts by limiting the degree or magnitude of the action and its implementation;
- **rectifying** the impact by repairing, rehabilitating, or restoring the impacted environment;
- **reducing or eliminating** the impact over time by preservation and maintenance operations during the life of the action; and
- **compensating** for the impact by replacing or providing substitute resources or environments.

The level of mitigation required will be a consequence of the significance of the impacts on the biotic resources.

2-7 NATURAL ENVIRONMENT STUDY FORMAT AND CONTENT

The following is a suggested outline to help develop the NES.

I. Summary of Findings and Conclusions

The Summary of Findings and Conclusions includes the results of the impact analysis, findings of the 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.

II. Introduction

The Introduction describes the proposed project, its general location and a concise statement of the project's purpose and need.

- A. Project Description
- B. Project Purpose and Need

III. Study Methodology

The Study Methodology discussion tells the reader what studies were conducted, how they were conducted and when they were conducted.

- A. Studies Required (HEP, WET, etc.)
- B. Survey Dates and Personnel
- C. Problems Encountered and Limitations That May Influence Results (untypical weather, surveying at the wrong time of year, etc.)
- D. Definition of terms

IV. Environmental Setting

The Environmental Setting sets up the biological discussion so the reader understands the region in which the project will occur. A clear description of the setting explains the context and intensity of impacts. The setting discussion gives the reader a concise description of the area's topography, soils, vegetation, water courses and level of human or natural disturbance.

- A. A description of the biological communities and topographical features encountered in the project area with descriptions of the dominant plant species and common wildlife species.
- B. The existing level of disturbance.

V. Important Biological Resources in the Project Area

This section describes the species of special concern that are likely to be in the project area. (This can be presented in a table format).

- A. Plant Species of Concern
- B. Wildlife Species of Concern
- C. Important Natural Communities

VI. In Depth Studies for Special Laws

The NES may include detailed studies if there are biological resources in the project area that receive special attention because of specific laws. Detailed studies include a Biological Assessment and Wetlands Assessment.

VII. Project Impacts

This section analyzes the potential impacts on biotic resources for each project alternative. Each alternative is evaluated to determine its impact to the biological resources in the project area and to what degree mitigation will be required.

VIII. Cumulative Impacts

This section evaluates current and future Caltrans actions, as well as non-Caltrans actions, within the project study area that are currently threatening the biotic resources.

IX. Mitigation Measures

Only mitigation measures approved by Caltrans management in conjunction with the resource agencies are discussed in the NES.

X. Agency Coordination

A paragraph describing completed and ongoing coordination between Caltrans and reviewing agencies.

XI. References and Personal Contacts

All literature, data sources, and personal contacts used to obtain information for the NES are listed. This section also includes the List of Preparers.

XII. Appendix

The appendices include information to back up the NES such as mapping, plant and animal lists, wetland data forms, and CNDDDB forms.

CHAPTER 3

WETLANDS

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CHAPTER 3

WETLANDS

3-1 INTRODUCTION

This chapter will describe the responsibilities of the District Biologist, the definition of wetlands, how and why wetlands are regulated, and the general procedures that should be implemented by the biologist when dealing with wetland impacts.

3-2 BIOLOGIST'S ROLE

The Caltrans District Biologist acts as the liaison between Caltrans and resource and regulatory agencies, such as the U.S. Army Corps of Engineers (ACOE), that are responsible for approving actions that affect habitats described as wetlands. The District Biologist is responsible for being aware of the regulatory procedures required for identifying wetlands. In addition, the biologist must have a basic understanding of wetland ecology in order to determine the extent of potential impacts and to design appropriate mitigation or compensation activities.

The District Biologist is a member of the Project Development Team (PDT) with varied responsibilities that frequently go beyond the environmental analysis process. With regard to wetlands, the overall processes that involve the biologist are listed below.

- Perform field reviews of the project, as needed, to determine whether wetlands are present.
- Map or delineate the wetlands and other waters of the United States and submit a report to the ACOE and the Natural Resources Conservation Service (NRCS) documenting results and requesting verification of the determination.
- Provide mapping to the Project Manager and discuss methods to avoid, minimize, or mitigate (compensate for) potential impacts to wetlands.
- Coordinate with resource and regulatory agency staff to discuss potential project impacts and methods to avoid, minimize, or mitigate potential impacts to wetlands. Where possible, written agreement is obtained from agency staff regarding proposed methods.
- Confirm implementation of avoidance, minimization, and mitigation activities during and/or prior to construction of the transportation project.
- Where required, monitor or provide monitoring oversight for habitat mitigation activities.
- Report monitoring results to resource and regulatory staff as required.

3-3 WETLANDS DEFINED

Executive Order 11990 - Protection of Wetlands (1977), calls for no net loss of habitats referred to as wetlands. Wetlands are driven by hydrology. The presence of water near the soil surface results in soil and plant characteristics that are not found in uplands (mostly dry) or aquatic (almost always wet) areas. Wetlands are generally found in transition zones between upland and aquatic habitats.

For the regulatory process, the ACOE and U.S. Environmental Protection Agency (EPA) jointly define wetlands as follows: "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" (EPA, 40 CFR 230.3 and [ACOE, 33 CFR 328.3](#)).

Caltrans recognizes this definition and uses it in the assessment of biological impacts of transportation projects. The EPA, ACOE, U.S. Fish and Wildlife Service (FWS) and the California Department of Fish and Game (DFG) work together in reviewing and approving the permits most frequently required for projects which will impact wetlands. The Regional Water Quality Control Board (RWQCB) may also have a role in its capacity of providing Section 401 certification.

The following wetland types are commonly found in California:

Freshwater. These areas may be permanent or seasonal, inland or coastal. This category includes riparian, or streamside areas, marshes, seeps, montane mountain meadows, and vernal pools. In some cases, wetlands may also occur within riparian settings above the wettest portions of the streambed. Areas subject to saltwater influence in coastal settings support vegetation adapted to brackish conditions. Alkaline conditions may support vegetation similar to that found in areas influenced by saltwater.

Saltwater. Coastal marsh, subject to full tidal action, occurs along the coast of California.

3-4 REGULATORY AGENCIES

The term "regulatory agency" is typically used to describe agencies such as the ACOE and the DFG which issue wetland related permits or agreements.

The following table provides a summary list of the agencies that regulate activities in wetlands (Cylinder *et al.* 1995).

Agency	Regulation	Authority
U.S. Army Corps of Engineers	Clean Water Act, Section 404	Regulates placement of dredged or fill material into waters of the United States.
	Rivers and Harbors Act of 1899 Section 10	Regulates work in navigable waters of the United States.
U.S. Environmental Protection Agency	Clean Water Act	Enforcement of regulations, may veto ACOE permit.
	CEQA, NEPA	Commenting authority.
U.S. Fish and Wildlife Service	Fish and Wildlife Coordination Act	Reviews/comments on Federal actions that affect wetlands and other waters, including Section 404 permit applications.
	Endangered Species Act	ACOE must consult with FWS if endangered species on site.
	CEQA, NEPA	Commenting authority.

National Marine Fisheries Service	Fish and Wildlife Coordination Act	Reviews/comments on Federal actions that affect coastal waters, including Section 404 permit applications.
	Endangered Species Act	ACOE must consult with NMFS if endangered marine species on site.
	CEQA, NEPA	Commenting authority.
California Department of Fish and Game	California Fish and Game Code Sections 1600-1607	Regulates activities resulting in alteration of streams and lakes.
	CEQA, NEPA	Commenting authority.
Regional Water Quality Control Boards	Clean Water Act, Section 401	Issues water quality certification; certification required for Section 404 permits.
	Clean Water Act, Section 401	Regulates discharge of waste into waters of the United States.
	CEQA, NEPA	Commenting authority.
California Coastal Commission	Coastal Act of 1976	Issues all coastal development permits.
	Coastal Zone Management Act of 1976	Issues notice that work is consistent with state coastal management plan.
	CEQA, NEPA	Commenting authority.
San Francisco Bay Conservation and Development Commission	McAteer-Petris Act of 1965	Regulates work within the bay, certain creeks, and a shoreline band of 100 feet inland from line of highest tidal action.
State Lands Commission	Public Trust Doctrine	May preclude the use of submerged lands and tidelands if this use is inconsistent with public trust.

3-4.1 U.S. Army Corps of Engineers

Wetlands have legal protection in accordance with Section 404 of the Clean Water Act (33 U.S.C. Section 1344). A permit from the ACOE is required for most activities that will impact wetlands. The term "waters of the U.S." is also discussed in Section 404. Waters are currently described as any areas that might be considered waterways, either for commerce or recreation, even on a limited scale. Wetlands are a subcategory of waters. Frequently, the term "wetlands and other waters of the U.S." is used when describing areas under ACOE jurisdiction. Delineation of waters and wetlands results in "potential jurisdictional areas" which must be verified by the ACOE. Upon verification, these areas are referred to as "jurisdictional areas." Litigation may result in modification of the definition of waters and/or wetlands; therefore, the District Biologist or other user of this handbook must use the latest guidance from the ACOE.

A Section 404 permit is required from the ACOE when a project requires fill or other modification of waters, including wetlands. There are two types of permits issued by the ACOE, individual and general.

Individual Permits. Individual permits are the most complex. They cover projects affecting more than three acres, resulting in potentially significant impacts. The process of obtaining an individual permit usually takes many months. Special Conditions of the permit may include mitigation activities that need to be monitored for a five to ten year period for the most complex and/or controversial projects.

General Permits. There are two types of general permits, nationwide and regional. Nationwide permits cover a wide variety of activities with minimal impacts (less than three acres, 500 feet of lineal stream). Nationwide permits may take two to three months, or more, to obtain. Regional permits are wide ranging, blanket permits used to cover roadside ditch maintenance activities, for example, for a designated geographic area. Regional permits may take months to prepare; however, they save time in the long run for small activities such as routine maintenance.

Initiation of a request for an ACOE permit to affect wetlands involves other resource and regulatory agencies as a part of the interagency review process. The ACOE submits permit applications to the EPA, DFG, National Marine Fisheries Service (NMFS), and FWS for review and comment. Time periods and extent of commenting required by these agencies varies depending upon the permit type. Individual permits are the most lengthy and involved.

Applications for ACOE permits may be prepared and submitted by the Project Engineer, the District Biologist, or others, using information on delineated wetlands and other waters of the U.S. as prepared by the biologist. The Project Engineer provides information on the extent of the construction impacts responsible for proposed fill. The District Biologist is the key liaison with resource and regulatory agency staff regarding the wetland habitat impacts and potential mitigation.

3-4.2 Regional Water Quality Control Board

[Section 401 of the Clean Water Act \(33 U.S.C. 1341\)](#) requires any applicant for a Federal license or permit to conduct any activity that may result in a discharge of a pollutant into waters of the United States to obtain certification from the State in which the discharge originates. As a result, proposed fill in waters and wetlands requires coordination with the appropriate RWQCB that administers Section 401 and provides certification. The RWQCB also plays a role in review of water quality and wetland issues, including avoidance and minimization of impacts. Section 401 certification is required prior to issuance of a Section 404 permit. The Project Engineer may be responsible for this coordination, with assistance from the District Biologist, regarding specific impacts and mitigation.

3-4.3 California Department of Fish and Game

Wetlands may also be subject to jurisdiction of the DFG in accordance with [DFG Code Sections 1600-1607](#). The DFG regulates activities that would alter the flow, bed, channel or bank of streams and lakes by issuing Streambed Alteration Agreements, a type of permit. In riparian areas their jurisdictional limits are usually delimited by the tops of the stream or lake banks, or the outer edge of riparian vegetation, whichever is wider. Wetlands under jurisdiction of the ACOE may or may not be included in the area covered by a Streambed Alteration Agreement obtained from the DFG.

Caltrans must contact the DFG regarding any potential Section 1600-1607 impacts independent of their role as reviewer on ACOE Section 404 permits. The DFG contacts for Section 1600 are best facilitated by coordination with the District Biologist.

3-4.4 California Coastal Commission

When a project will require fill in wetlands within the coastal zone, Caltrans must obtain a permit from the California Coastal Commission (CCC) or the city or county with coastal permit jurisdiction. The CCC oversees implementation of the California Coastal Act (CCA) and the Federal Coastal Zone Management Act (CZMA). The coastal zone is generally defined as the distance from the ocean shoreline 1,000 yards inland, or more in some locations. The District Biologist and the Project Engineer may share coordination with the CCC, when needed.

3-4.5 San Francisco Bay Conservation and Development Commission

Projects affecting wetlands within the limits of San Francisco Bay may require a permit from the San Francisco Bay Conservation and Development Commission (BCDC). The BCDC has jurisdiction over all areas of San Francisco Bay subject to tidal action up to the mean high tide line, or a line five feet above mean sea level in marshlands. The area 100 feet inland from the mean high tide is also within jurisdiction. The BCDC is responsible for Federal implementation of the CZMA within the limits of San Francisco Bay, rather than the CCC. The Project Engineer is usually the key contact for this agency. The District Biologist provides analysis of wetland impacts and may work directly with agency staff on mitigation requirements unique to the BCDC.

3-4.6 State Lands Commission

The State Lands Commission (SLC) manages submerged lands, tidelands, and swamp and overflowed lands owned by the State. Despite the fact that most of these lands have been conveyed to the private sector, submerged lands and tidelands are still subject to the public trust, even if filled. Permits from the SLC or land use leases with conditions to protect the purposes of the public trust may be required.

3-5 RESOURCE AGENCIES

The term "resource agency" is typically used to describe agencies such as the FWS, NMFS, and the EPA, which protect natural resources but do not issue wetland-related permits.

3-5.1 U.S. Environmental Protection Agency

The mission of the EPA includes protection of human health and safeguarding the natural environment. The EPA has the right to challenge an ACOE permit approval. Section 404 (b) (1) of the EPA and ACOE guidelines for Section 404 of the Clean Water Act (ACOE, EPA 1993) involve assurance that the proposed activity does not violate water quality standards. It requires that the applicant provide an alternatives analysis to show that the alternative least damaging to waters of the United States has been selected.

3-5.2 Natural Resources Conservation Service

Caltrans may be required to coordinate with the NRCS, formerly the Soil Conservation Service, when a proposed transportation project may affect agricultural lands where farmers have been growing commodity crops in areas that were drained, filled, or otherwise altered wetlands prior to 1985. The Food Security Act of 1985 (referred to as "Swampbuster") ended the NRCS approval of the draining of wetlands for commodity crops. The NRCS administers the Act, as amended by the Food, Agriculture, Conservation, and Trade Act of 1990 and the Federal Agriculture Improvement and Reform Act of 1996.

In 1994, the NRCS signed a Memorandum of Agreement (MOA) with the ACOE which makes the NRCS responsible for wetland delineations on prior converted croplands and farmed wetlands that receive

agricultural subsidies through the Federal government. Agricultural land is defined as land that is intensively used and managed for the production of food and fiber. Examples are cropland, hayland, and pastures, including native pastures and rangeland, orchards, vineyards, areas which support wetland crops, other lands used to produce or support the production of livestock, and small tree farms. The NRCS may use the procedures for delineating wetlands as described in the National Food Security Act Manual, Third Edition (NRCS 1996). Linear projects such as roadway improvements may be excluded from the NRCS involvement.

When the NRCS is involved, the District Biologist is responsible for contacting the NRCS, submitting the wetland delineation report to the appropriate NRCS field office, and requesting verification. In some cases, the ACOE may take the responsibility for the NRCS verification, or provide evaluation of an "other waters" determination. It is best to obtain guidance from the NRCS regarding responsibility of all aspects of the determination.

3-5.3 U.S. Fish and Wildlife Service

The mission of the FWS includes working to conserve, protect, and enhance fish and wildlife and their habitats for the continuing benefit of the American people. According to the Fish and Wildlife Coordination Act, all Federal agencies are required to contact the FWS, NMFS, and the state's wildlife agency regarding activities that affect, control, or modify waters of any stream or other bodies of water. The DFG is the state wildlife agency in California. These consulted agencies review applications for permits issued under Section 404 and provide comments to the ACOE about the environmental impacts of the proposed project.

3-6 EARLY COORDINATION AND AGREEMENTS

3-6.1 Early Coordination

It is important to identify potential wetland impacts as early in the environmental process as possible. Early notification to the Project Manager allows time for investigation of design modifications to avoid or minimize potential impacts to wetlands. If impacts cannot be avoided, and have been reduced to the minimum level practicable, wetland mitigation proposals to compensate for those impacts must be developed by the District Biologist and others on the Project Development Team, and evaluated as part of the environmental impact analysis process.

3-6.2 NEPA/404 Memorandum of Understanding

Caltrans has implemented early coordination with the State and Federal agencies involved in the wetland regulation process. In 1993, Caltrans signed a Memorandum of Understanding (MOU) with the Federal Highway Administration, Federal Transit Administration, EPA, ACOE, FWS, NMFS, and the Arizona and Nevada Departments of Transportation. The objective of the MOU is to integrate the National Environmental Policy Act (NEPA) and the Clean Water Act, Section 404. Referred to as the NEPA/404 integration process, the MOU commits these agencies to ensuring the earliest possible consideration of environmental concerns pertaining to waters of the U.S., including wetlands.

Early stage planning meetings allow for full discussion of project alternatives to avoid wetlands. These alternatives may need to be discussed in the environmental document as a Wetlands Only Practicable Finding (WOPAF). Section 404 permit applications also require an alternatives analysis.

3-7 WETLAND DELINEATION

As stated in Section 3-3, Caltrans follows the wetlands definition agreed to by the EPA and ACOE. Although the DFG and FWS have their own definitions, they rarely play a role in the wetland delineation and assessment process.

The ACOE publishes guidance regarding the standard procedures required to delineate wetlands that may be under ACOE jurisdiction (Env. Lab. 1987). In 1994, the EPA, NRCS, and ACOE agreed to use the 1987 ACOE Wetland Delineation Manual for non-agricultural lands (CFR Vol. 59, No. 12, pp. 2920-2924 Jan. 19, 1994). The procedure describes a three-parameter approach that includes presence of hydrophytic vegetation, wetland hydrology, and hydric soils. All three parameters must be present, under normal circumstances, for an area to be designated as a wetland under jurisdiction of the ACOE. Such wetlands are referred to as jurisdictional wetlands. In order to obtain a Section 404 permit, Caltrans must provide the ACOE with a delineation of potential jurisdictional areas, including wetlands.

The delineation must be made by a qualified biologist. A qualified biologist is one who has successfully completed an ACOE approved training course in wetland delineation in accordance with the currently approved methodology. Biologists who have not completed the training should be supervised by a qualified biologist when preparing wetland delineations. The biologist takes site information and background materials to prepare what is commonly referred to as a Wetland Delineation Report. For clarification of the fact that this report covers wetlands and other waters of the U.S., it might more accurately be referred to as the Wetlands/Waters Delineation and Assessment Report.

This report is submitted to the ACOE as a part of the Section 404 permit application package. It also serves as a technical report for the environmental document, in conjunction with the Natural Environment Study (NES) described in Chapter 2 of this handbook. If the wetland impacts of a project are very small, their discussion may be included as a part of the NES. In this case, a separate Wetland Delineation Report would be prepared and submitted to the ACOE for the permitting process. Materials to include in these reports will be discussed in the following section. If the wetland impacts are large or controversial, it is more convenient to prepare a report separate from the NES. The NES covers non-wetland impacts that would not necessarily be of interest to the ACOE in review of a Section 404 permit application.

3-8 WETLANDS ASSESSMENT

Delineation of wetlands is only the first phase of determining potential impacts. The biologist must also analyze the impacts with respect to the proposed loss of wetland functions and values. Proposed mitigation or compensation actions must also be developed. In order to do this, the functions and values of the wetland habitat must be evaluated to determine the degree of impacts resulting from the proposed transportation project. In this manner, appropriate mitigation plans may be developed to replace those functions and values.

Functions. Functions are the physical, chemical, and biological attributes of a wetland without regard to their importance to society. Examples of functions include flood flow alteration, wildlife habitat, and groundwater discharge.

Values. The term values may be used to describe those functions that are generally regarded as beneficial to society. Recreation and uniqueness are examples of values. All or part of society may not value some functions. Nutrient removal and transformation, for example, may not be considered a value if that function leads to algal blooms and noxious odors.

Caltrans uses the functions and values described in the Wetland Evaluation Technique (WET) (Adamus *et al.* 1987). The WET manual describes the following functions and values:

- Groundwater recharge

- Groundwater discharge
- Flood flow alteration
- Sedimentation stabilization
- Sediment/toxicant retention
- Nutrient removal/transformation
- Production export
- Wildlife habitat (aquatic and terrestrial)
- Uniqueness/heritage
- Recreation

The WET Manual describes a detailed methodology for analyzing these functions and values. The results describe habitat values as low, medium, or high, without regard to habitat size. The model is based primarily on wetland systems from the southern and eastern regions of the United States.

Although the complex methodology described in the manual may be used, experience has shown that informed professional judgment, applied to the identified functions and values, accomplishes the same result in California wetlands. These results are obtained in significantly less time than implementing the full methodology. The District Biologist is responsible for interpreting and understanding the functions and values and using their best professional judgement to determine potential impacts.

3-9 WETLAND DELINEATION AND ASSESSMENT REPORT FORMAT

The following outline represents one way to present the project information in a report format. This outline may be adapted to meet the needs of a particular project.

I. Summary

II. Introduction

- A. Description of Project
- B. Purpose of Assessment

III. Project Setting

- A. Vegetation community
- B. Hydrology
- C. Soils

IV. Methodology

- A. Pre-survey investigations
- B. Field survey

V. Results

- A. Summary table of wetland impacts
- B. Wetland functions and values
 - 1. Description of existing functions and values
 - 2. Potential impacts

VI. Discussion

- A. Avoidance and minimization recommendations
- B. Mitigation recommendations

VII. References Cited

VIII. Personal Communications Cited

IX. Appendices

- A. Project maps showing proposed ACOE jurisdictional areas (1:100 scale map preferred)
- B. Data Forms - Wetland Delineation
- C. National Wetlands Inventory (NWI) map, where available

3-10 WETLAND MITIGATION

In accordance with Section 404 requirements, Executive Order 11990 - Protection of Wetlands (1977), and the U.S. Fish and Wildlife Service Mitigation Policy (1981) unavoidable impacts to wetlands must be compensated. The District Biologist works closely with the Project Development Team to design a suitable creation or restoration project that will replace the wetland functions and values affected by the transportation project. The District Biologist is usually responsible for monitoring the wetland mitigation report and submitting annual monitoring reports to the ACOE. The processes involved are described in detail in Chapter 5, Mitigation and Monitoring.

3-11 REFERENCES

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- Cylinder, P.D., D.M. Bogdan, E.M. Davis, and A.I. Herson. 1995. Wetlands regulation - a complete guide to federal and California programs. Solano Press Books, Point Arena, CA. 363 pp.
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Natural Resources Conservation Service, 1996. National Food Security Act Manual, 3rd Edition. 180-V-NFSAM.

U.S. Fish and Wildlife Service, 1981. U.S. Fish and Wildlife Service Mitigation Policy. Federal Register Vol. 46, No. 15, January 23, 1981, pp. 7644-7663 (as corrected in the Federal Register of February 4, 1981).

CHAPTER 4

FEDERAL AND STATE ENDANGERED SPECIES ACT PROCEDURES

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CHAPTER 4

FEDERAL AND STATE ENDANGERED SPECIES ACT PROCEDURES

4-1 INTRODUCTION

The California Department of Transportation (Caltrans) is committed to the protection and preservation of California's unique and diverse environment. All Caltrans projects must be evaluated to determine if any proposed species, listed species, candidate species, species of concern, rare species, and proposed and designated critical habitat are present in the project area at the earliest time possible in the project development process. These species are known as special status species.

This chapter provides an overview of the laws, regulations, policies, and procedures related to plant and animal species regulated under the Federal Endangered Species Act (FESA) (as amended, 16 United States Code [USC] 1531 et seq.) and the California Endangered Species Act (CESA) (Fish and Game Code, Sections 2050 et seq.). This chapter is a summary of Caltrans procedures and does not supersede Federal and State policies and regulations.

4-1.1 Federal Endangered Species Act of 1973

The purpose of the FESA is to provide a means whereby the ecosystems upon which threatened and endangered species depend may be conserved and to provide a program for the conservation of such species. FESA mandates all Federal departments and agencies to conserve listed species and to utilize their authorities in furtherance of the purposes of FESA. FESA provides specific mechanisms to achieve its purposes, and Section 7 is one of those. Section 7 requires that Federal agencies develop a conservation program for listed species (Section 7(a)(1)) and that they avoid actions that will further harm species and their critical habitat (Section 7(a)(2)).

Although Caltrans is not a Federal agency, on August 10, 2005, the President signed into law the [Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users \(SAFETEA-LU\)](#). SAFETEA-LU establishes a pilot program allowing Caltrans to assume all of the FHWA environmental responsibilities under NEPA and other environmental laws (NEPA Delegation). This delegation authority is limited to highway projects, including Local Assistance Federal Aid projects, and it could be for specific projects within the State or a programmatic delegation.

As of July 1, 2007, Caltrans has accepted this environmental responsibility, and therefore, will be the Federal lead agency for projects subject to Section 7 of FESA. As a result, District Biologists, along with the project development team (PDT), prepare [Biological Assessments \(BA's\)](#) and corresponds directly with the Service(s). Refer to the [SER, Chapter 38, NEPA Delegation](#), for specific information concerning SAFETEA-LU.

For Local Assistance projects, the [Local Agency](#) and/or their qualified consultants are responsible for preparing the [Natural Environment Study \(NES\)](#), [Natural Environment Study, Minimal Impact \(NES MI\)](#), [Biological Assessment \(BA\)](#), and other reports, as necessary. The District Biologist is responsible for providing oversight, guidance, and approval. Section 7 consultation can only be initiated by the District

Biologist. The Local Agency is not allowed under NEPA Delegation to initiate consultation with the Service(s).

The United States Fish and Wildlife Service (USFWS) and the National Marine Fisheries Service (NMFS), collectively referred to as the Service(s), share responsibility for administration of FESA. USFWS retains jurisdiction over terrestrial species and freshwater aquatic species, while NMFS retains jurisdiction over marine species and most anadromous fish. Section 7 of FESA requires Caltrans and Caltrans' Local Assistance to regularly consult with these two agencies to assess the potential effects of its projects upon listed species and their habitats.

4-1.2 Section 4 – Listing Process

FESA consists of 18 Sections; the most commonly referred to Sections are 4, 7, 9, and 10. For continuity and understanding, the Sections will be discussed in the following order: Sections 4, 9, 4(d), 10, and 7. It is important to understand how species are listed to help with effects determinations in the environmental document. Species are listed on the basis of the best scientific and commercial data available, the species biological status, and threats to its existence. The Service(s) provide reasons for listing a species and threats affecting the species; this information can be helpful in making effects determinations.

FESA provides for listing plant and animal species into the following categories:

- Listed Threatened Species
- Listed Endangered Species
- Proposed Threatened Species
- Proposed Endangered Species
- Candidate Species (awaiting listing)

If the Service(s) determine that a species is warranted listing, they must propose a rule in the [Federal Register](#) describing their basis for the ruling. After the proposed rule is published in the Federal Register, the public comment period begins. Caltrans may provide information during the comment period regarding the status of the species and may call on District Biologists with knowledge of these species for information regarding the effects of the listing to project delivery. Following the comment period, the Service(s) will determine if the proposed rule will be accepted, revised, or withdrawn. Designated critical habitat for that species is typically determined one year after the species is listed.

4-1.3 Section 9 – Prohibited Acts

Once listed, Section 9 of FESA makes it unlawful for any person to “take” threatened or endangered species. Take means to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or attempt to engage in any such conduct. Harm is further defined to include significant habitat modification or degradation which actually kills or injures fish or wildlife by significantly impairing essential behavioral patterns, including, breeding, spawning, rearing, migrating, feeding or sheltering.

Significant habitat modification that results in the impairment of species essential behavioral patterns may constitute a violation of the Section 9 take prohibition. The take definition is not applied to plants; however, the effects of federal actions must be avoided and minimized and evaluated in the BA. In addition, California has its own laws restricting activities involving listed plant species. For additional information on FESA and plants refer to Section 4-9.

4-1.4 Section 4(d) – Special Rule Reports

In some circumstances, the standard regulatory provisions under FESA for a threatened species may not be the necessary and appropriate provisions for the conservation of that species. In those situations, the Secretary of the Department of the Interior or the Department of Commerce has the discretion under Section 4(d) of FESA to determine in a special rule those measures and prohibitions that are necessary and advisable for the conservation of that particular species.

Section 4(d) of FESA is a management program establishing prohibitions that apply to threatened (not endangered) species, subspecies, and Distinct Population Segments (DPS); they are designed to preclude species from becoming endangered. These 4(d) rules take the place of the normal protections of FESA and may either increase or decrease FESA's normal protections. Section 4(d) rules apply to mammals, birds, reptiles, amphibians, fishes, and crustaceans.

The section 4(d) rule that typically affects District Biologists are those issued for salmonids. In June, 2000, NMFS adopted a rule prohibiting the “take” of 14 groups of salmon and steelhead listed as threatened under FESA (July 10, 2000, 65 FR 42422). NMFS adopted the take rule under section 4(d) of FESA. This rule prohibits anyone from taking a listed salmon or steelhead, *except* in cases where the take is associated with an approved program. The 4(d) rule creates a mechanism by which application of FESA section 9(a)(1) take prohibitions may be limited for land and water activities that NMFS has found will conserve listed salmonids’ habitat, yet may incidentally take species.

Section 4(d) applies particularly to “take,” which can include any act that kills or injures listed fish or wildlife species, and may include habitat modification. FESA prohibits ANY take of species listed as threatened or endangered; however, some take of threatened species that does not interfere with fish and wildlife species survival and recovery can be allowed under section 4(d).

The District Biologist should be aware of any section 4(d) rules that may apply in the project area at the initial stages of project development so that measures and prohibitions under Section 4(d) are considered from the on-set of the project. The [USFWS provides a list of threatened species with special 4\(d\) rules](#).

4-1.5 Section 10 – Exemptions

Section 10 allows the Service(s) to issue incidental take permits (ITP) for otherwise prohibited actions pursuant to Section 9 of FESA if such taking of listed species is in the course of otherwise lawful activities. There are two types of permits issued for take under FESA:

1. Recovery and Interstate Commerce Permits (Section 10(a)(1)(A)): For scientific research on a listed species or activities to enhance a listed species propagation or survival a Section 10(a)(1)(A) permit is required. Examples include, but are not limited to: abundance surveys, genetic research, relocations, capture and marking, and telemetric monitoring.
2. Incidental Take Permits (Section 10(a)(1)(B)): If engaged in an otherwise lawful activity where a listed species may be adversely affected, and the purpose of your activity is not scientific research or enhancement of a listed species, you may need to obtain an ITP.

Section 10(a)(1)(A) allows for permitting take of threatened or endangered species for scientific research, or purposes of propagation or survival. As a District Biologist, it may be necessary to obtain a scientific collection permit (SCP) for particular species, for survey purposes, or implementing conservation measures.

When non-federal agencies conduct an otherwise lawful activity that might incidentally, but not intentionally, take a listed species, an ITP (Section 10(a)(1)(B)) must first be obtained from the Service(s). Section 10(a)(1)(B) requires a Habitat Conservation Plan (HCP) for an ITP on *non-Federal lands*.

Although infrequently used, ITP's are issued for projects that use State funds only. When there is Federal funding or the project requires Federal decisions, such as permits, the Section 7 process is followed.

For example, if the project is a State only funded maintenance project, with no U.S. Army Corps of Engineers permit, Section 10(a)(1)(B) requires an ITP to take listed species. As a condition of the ITP, Caltrans must develop a HCP.

4-1.6 Section 7 – Interagency Cooperation

Interagency Cooperation, as defined in Section 7 of FESA, requires all Federal agencies to consult with the Service(s) if the Federal agency (and Caltrans under NEPA Delegation) determines that any action it funds, authorizes, or carries out may affect a listed species or its designated critical habitat. Section 7 has been amended several times since being signed into law in 1973. The latest requirements for consultation can be found at 50 CFR Part 402.

Specifically, Section 7(a)(1) directs the Secretary to review other programs administered by them and utilize such programs to further the purposes of FESA. It also directs all other Federal agencies to utilize their authorities in furtherance of the purposes of FESA by carrying out programs for the conservation of listed species pursuant to FESA.

Section 7(a)(2) requires that, “each Federal agency shall, in consultation with the Secretary of the Interior, ensure that any action it authorizes, funds, or carries out is not likely to jeopardize the continued existence of listed species or result in the destruction or adverse modification of designated critical habitat.”

Under NEPA Delegation, Caltrans acts on behalf of the FHWA for Section 7 Interagency Cooperation (Caltrans is the Federal lead agency for projects subject to Section 7). Under Section 7, Caltrans must consult with the Service(s) when an action we carry out, fund, or authorize, may affect a proposed, threatened or endangered species.

Consistent Section 7 terminology is important when describing effects, determinations, and measures to comply with FESA. The Section 7 Consultation Handbook (and revisions as updated) prepared by the Service(s) is helpful in explaining the Section 7 processes, provides examples of various types of consultations, along with a glossary of terms. Terminology used in BA's must be consistent with the Section 7 Consultation Handbook. A Glossary of Terms is provided in [Appendix A](#).

The District Biologist should ensure they enter and constantly update the [STEVE](#) with all pertinent fields for tracking Section 7 Consultations with the Service(s).

4-2 PRELIMINARY ENVIRONMENTAL ANALYSIS REPORT (PEAR) PHASE

The initial review of existing data should be conducted during the PEAR development phase. For projects that require a Project Study Report-Project Development Support (PSR-PDS), a PEAR is prepared as part of the Project Initiation Document (PID). The PSR identifies the purpose and need, scope, schedule and estimated cost of a project. The PEAR provides the initial environmental evaluation of a project and all feasible alternatives before it is programmed. The PEAR estimates the scope, schedule, and costs

associated with gaining environmental approval. The information contained in the PEAR provides foundational information to the Project Development Team (PDT) as they begin studies in the Project Report phase, facilitating early consultation with the Service(s).

Based on the PEAR review, the District Biologist should determine whether additional field surveys are needed and identify the potential need for compensatory mitigation. The District Biologist must provide the environmental generalist with the scope, timeline, and information gathered from field reviews; the environmental generalist will then incorporate the presented information into the PEAR and Draft Workplan. For the timing of biological tasks in relation to the project development process refer to the [SER, Volume 1, Chapter 14, Biological Resources; Biological Processes Flowchart](#).

The scoping tool used for Federal-aid Local Assistance projects (off the State Highway System) is the Preliminary Environmental Study (PES) form. The Local Agency is required to complete the PES form first, and then follow the procedures set forth in Chapter 6 of the [Local Assistance Procedures Manual](#).

Local Agencies may not proceed with the final design of a project or request Authorization to Proceed with Right of Way or Construction until compliance with NEPA occurs, this includes FESA. Failure to follow this requirement will make the project ineligible for Federal Highway Administration (FHWA) reimbursement.

4-2.1 Coordination with the Project Development Team and the Service(s)

Early coordination requires the District Biologist to meet early in the project design phase with the project manager (PM) and the PDT to discuss the project in its beginning planning stages. The District Biologist and PDT must review the proposed project description and materials, be familiar with the project area, consider comments received during the project scoping process, and review existing sources of information known about the project on a regional scale. The timing of construction, surveys, scheduling, project costs, and other project specific discussions should also be discussed.

If there is a need for early coordination with the Service(s) during the PEAR phase, it is beneficial to obtain or review a list of potential special status species or designated critical habitat that may be present in the proposed project area to assist in focusing these early discussions (refer to section 4-2.2 for additional information on obtaining species lists).

Early coordination with the Service(s) under Section 7 can begin with Technical Assistance or Informal Consultation (refer to section 4-4.8, 4-4.10, and [Appendix B](#)). This may include discussions regarding what type of listed species or designated critical habitat may occur in the project area, what effect the proposed action may have on those species and habitat, and ways to identify, avoid, or minimize likely effects from the project. Coordinating early with the Service(s) can help facilitate agreement on mitigation and conservation actions that may reduce or eliminate project effects in order to arrive at a No Effect determination. Continuous coordination with the Service(s) throughout the project is necessary to ensure the consultation is processed in a timely manner and will facilitate and expedite the preparation of the BA (if necessary).

4-2.2 Species List

During the PEAR phase of project development the District Biologist should include in the PEAR analysis whether or not a BA may be required for the proposed project. This helps define the timelines for possible field studies, Section 7 consultation, as well as potential mitigation costs.

The District Biologist requests a species list to determine if special status species or designated critical habitat is present in the proposed project area. [Species list](#) updates or verifications must be done in line with FESA Section 7 consultation and [environmental document milestones](#) (eg: Draft Environmental Document (DED)/Final Environmental Document (FED)). Section 7 consultation and the preparation of the BA typically occur between the DED and FED phases of project development.

Preparation of the BA must begin within 90 days receipt of a species list and an additional 90 days allows for receipt of a Biological Opinion (BO) from the Service(s) and preparation of the FED by the District Biologist. Species list generated prior to the DED help support the initial effects determinations, which should also be current. An updated species list may be necessary to begin consultation if the species list generated prior to the DED is older than 180 days. If Section 7 consultation is complete, but the FED is delayed, the District Biologist may need to verify or update the species list if it is older than 180 days prior to finalizing the FED. A species list also includes designated critical habitat within the project area; therefore, noting any designated critical habitat updates is also important.

Updates or verifications can be completed in the following ways:

- Request a new list or verify an existing list in writing (informally/formally) from the Service(s).
- Species lists generated from the Service(s) Field Office websites, if available.

Templates for written species list requests can be found on the [Caltrans Division of Environmental Analysis' Endangered Species Coordination](#) website. The [Arcata](#) and [Sacramento](#) USFWS websites provide lists of candidate, proposed, threatened, and endangered species for particular geographic areas.

Keeping up with current species list will result in reduced project delays and will assure that the District Biologist is up to date with species and critical habitat revisions, listings, and de-listings. For additional information please refer to the Memorandum entitled "[Clarification Regarding Federal Endangered Species List Validity.](#)"

4-2.3 Clarification of Local Agency, Consultant, and Caltrans Roles

In light of the involvement of Local Agencies and Consultants in the analysis and preparation of technical documents, it is important to understand the District Biologists role, as well as roles of Local Agencies and Consultants.

Local agencies and Consultants may generate a list of species present in the project area and submit the information to the District Biologist for review and transmission to the Service(s) for concurrence, but may not submit the list to the Service(s) on behalf of Caltrans. Local Agencies and Consultants cannot make any project decisions, such as project modifications or alternatives to avoid effects on behalf of Caltrans, as assigned under NEPA Delegation; this is part of the informal consultation process ([Appendix C](#)) that occurs between Federal agencies.

Local Agencies or Consultants may provide biological information to Caltrans through Technical Assistance with the Service(s), such as their expertise, the species life history, effects determinations, alternative analysis, ideas for avoidance and minimization, protocols, along with their support, information, and ideas ([Appendix C](#)).

All documentation must be submitted for [QA/QC per Caltrans standards](#) (section 4-11). Caltrans must finalize all technical documents prior to submittal to the Service(s) for consultation. Please refer to [Appendix C](#) for additional information on the roles and responsibilities of the District Biologist, Local Agency, and Consultant.

4-2.4. Evaluate the Proposed Project – Information Gathering

The preliminary project evaluation should be performed early in the project development process so it can be used in the selection of alternatives to be studied in the environmental document. The District Biologist must develop background information for all biological resources that have a potential of being affected by the proposed project.

Important sources of general biological information include species lists and designated critical habitat information obtained from the [Service\(s\) websites](#), [National Wetlands Inventory Maps](#) compiled by the USFWS, the [Department of Fish and Game](#) (DFG), environmental documents for nearby projects, and interviews with individuals who are familiar with the biological resources of the project area.

Published reports such as the most recent edition of the California Native Plant Society's [Inventory of Rare and Endangered Vascular Plants of California](#) should be consulted for information on the distribution and habitat requirements of sensitive plant species. The District Biologist should also contact local agency and academic personnel who may be experts on the biota of the study area. These experts may be able to provide additional, unpublished information regarding the distribution and importance of resources within the project area. A windshield survey or site visit can then be conducted to acquire existing information about species distribution, occurrence, and ecology. Please refer to [Appendix D](#) and [Appendix F](#) for [links to biological resource information](#) and [Caltrans guidance](#).

The District Biologist must develop background information for Federal and State special status species that have the potential of being affected by the proposed project. When a species is a concern to the Service(s) and DFG, the District Biologist will consult with both agencies simultaneously, including having both agencies present at the same meeting.

The District Biologist should also rely on existing information and comments received during the scoping process to develop a list of special status species and habitats that may be present in the project area. Information obtained from the most recent records of the California Natural Diversity Data Base (CNDDB) should be reviewed for the USGS quadrangle on which the project occurs and for adjacent quadrangles as habitat conditions and regional species distribution dictate. Refer to section 4-3.1 for information on determining the biological study area (BSA) limits.

4-2.5 Site Visit

The initial site visit assists in determining the types and level of field studies potentially required. Ideally, the site visit should be conducted with the PDT, or with someone who is very familiar with the project. The District Biologist should determine and document topography, vegetation, stream habitat conditions, riparian corridor locations, existing levels of disturbance, present land use, historical and present species use, and the presence of designated critical habitat.

The District Biologist determines what locations are important habitat features in relation to the proposed project and determines if there are effects to listed species. The site visit also provides opportunity to identify suitable habitat presence and possible minimization measures that can be implemented to limit effects.

Remember that there are two laws that must be addressed in the analysis of special status species and habitat; the Federal law (FESA) and the State law (CESA); therefore, during the site visit the District Biologist should also note any State listed species, rare species, and sensitive plants and/or special habitats. State only listed species information will not be discussed in the BA, since the BA focuses only on those studies and effects analyses associated with federally listed, proposed, threatened and endangered species, (and possibly candidate species) that may be affected by the action. The information gathered regarding State only listed species may be necessary for the CESA analysis (refer to section 4-10 for additional information on CESA procedures).

For Local Assistance projects, the District Biologist attends field reviews with the Local Agency and/or their qualified consultant to provide guidance and determine the type of biological study necessary.

4-3 DRAFT ENVIRONMENTAL DOCUMENT (DED): PROJECT APPROVAL ENVIRONMENTAL DOCUMENT (PAED) PHASE

The PAED Phase of project development includes the [Draft Environmental Document](#) and the [Final Environmental Document](#) phases. During the PAED Phase, the District Biologist must conduct focused field studies, determine project effects to species and their habitats, support findings to be made in the BA (if necessary), and develop mitigation plans (if necessary). The District Biologist should ensure they enter and constantly update the [STEVE](#) with all pertinent fields for tracking Section 7 Consultations with the Service(s).

After the initial windshield survey or site visit, the District Biologist will review project documents such as the PID and PEAR to revisit the cost, schedule, scope, and assumptions made in the project initiation document. This is especially important where new species have been listed, regulations have changed, or seasonal constraints apply.

The District Biologist must refine the list of resources generated during the initial review to those that have the potential of being affected by the proposed action. The District Biologist can then make recommendations on the studies required to assess the effects. For projects with minimal effects on biological resources, the District Biologist may be able to conclude the field study after the initial site visit.

For Local Assistance projects, the District Biologist would prepare a No Effect memo, or direct the Local Agency and/or their qualified consultant to prepare an NES or NES (MI) and fully document the determination of No Effect for approval by the District Biologist.

The District Biologist must carefully focus the scope and extent of biological field studies prior to conducting field investigations. This is necessary to insure 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 will be limited to those that are pertinent to the project area and can reasonably be expected to be affected by the project under study. In most cases, substantive resource issues will have been identified during the project scoping process before initiating biological field studies. From a project management standpoint, this step also provides needed information to schedule field work, allocate survey efforts within the BSA, and develop mitigation plans. Please refer to and [Appendix F](#) for a list of common biological resources.

Some projects may require permits or agreements. The groundwork for these documents should be developed during the initial stages of the project development. Caltrans and the appropriate resource agency should reach an agreement on the requirements to obtain those permits or agreements. These conditions can then be incorporated into the environmental document and become an integral part of the project.

Local Agencies are responsible for obtaining their own permits. Caltrans requests copies to be submitted to the District Local Assistance Engineer (DLAE) when received by the Local Agency.

4-3.1 Determining the Biological Study Area (BSA) Limits

The limits of the BSA are determined in coordination with the PDT. The BSA refers to the area directly and indirectly affected by the proposed project and its interdependent and interrelated actions. This area

will usually be larger than the project footprint. A 10-mile radius from the project site normally provides a useful frame of reference for developing a list of special status species to be considered during project studies; however, this will not be adequate in all cases. Typically, the District Biologist should consider all species whose range includes the project site and whose life requirements may be met by the habitat types that are present within the survey area. The BSA refers to all areas to be affected by the action; not merely the immediate area involved in the action.

To determine your BSA, mark the project footprint on a topography map and/or an aerial map. Identify the range of effects such as:

1. Ground disturbance
2. Changes in water quality and quantity (both surface and underground water)
3. Air quality
4. Lighting effects
5. Noise disturbance
6. Staging and disposal areas

Draw a line around all of the affected areas; this is the BSA limits.

For Local Assistance projects, the District Biologist works closely with the Local Agency and/or their consultant to determine the BSA limits. Final approval lies with the District Biologist.

4-3.2 Conduct Required Studies

Once the District Biologist is aware that special status species are, or may be present in the BSA, the District Biologist must initiate a biological field study to determine any effects that the proposed project may have on species or their habitat. This initial effort is to determine the actual presence or absence of a species and habitat in the BSA. If listed species or designated critical habitats are identified in the BSA, the project effect(s) must be determined. This level of study must be sufficient to determine the type and extent of the effects a project will have on special status species and habitats.

Biological field surveys are also conducted to obtain information needed to determine the projects long-term, short-term, and cumulative effects. Prior to collecting biological data, the District Biologist formulates questions and issues that need to be investigated during the field surveys. Pertinent questions may include:

- How rare or abundant are the resources in the region?
- How will the project affect the resilience of the resource?
- Are there invasive species currently in the BSA and will the project promote the spread of invasive species?
- What is the importance of the effected resources on a local or regional scale?
- What will the species exposure from the project be?
- What will the response be?

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. For more detailed information on field survey methods, refer to [Volume 3, Chapter 2, section 2-4 of the NES](#), which provides information on mapping procedures, plant survey techniques, wildlife survey techniques, as well as evaluating effects and significance. Also refer to [Appendix D](#) and [Appendix F](#) for links to additional information on biological resources.

4-3.3 Inferring Presence

For some species, such as the kangaroo rat, if suitable habitat features or prey species are present in the BSA, the presence of listed species must be inferred. A [document template](#) was released for inferring presence of federally listed species based on the best available scientific evidence. There must be a supportable and reasonable expectation that a species is present in the BSA and will be affected by the work. For additional information on inferring presence please refer to section 4-5.3.

4-3.4 Document Findings in the NES and Determine the Need for Biological Assessment (BA)

The DED is prepared simultaneously with the Draft Project Report. Typically, the District Biologist summarizes technical documents related to effects on [biological resources](#) in the [NES or NES \(MI\)](#) for use in the environmental document. This includes the methods and results of studies completed or in progress; identification of effects quantified as appropriate for each biological resource and alternative; identification of proposed mitigation, avoidance, minimization, and compensation measures; and a list of permits and agreements needed, along with any other agency coordination. At the DED stage, the District Biologist should, at a minimum, be able to clearly state No Effect or May Effect determinations related to listed species and/or designated critical habitat.

If during the preliminary evaluation, the District Biologist determines there will be no affects to federally listed species or designated critical habitat, the determination that the action is excluded must be documented in the NES or NES (MI).

If the scoping indicates potential affects to listed or proposed species or designated critical habitat, a species focused BA will be prepared. A BA is required for any major construction activity with a federal nexus or if listed species or designated critical habitat may be present in the action area (50 CFR Ch. IV Section 402.12).

For Local Assistance projects, the District Biologist determines the necessary level of study and directs the Local Agency and/or their qualified staff to prepare the report for the District Biologists approval and processing by Caltrans.

The BA analyzes the potential effects of the project on listed species and designated critical habitat and justifies a particular effect determination for each listed species and designated critical habitat addressed. Refer to the [SER, Forms and Templates](#) for an annotated outline of the BA.

Projects with a federal nexus that require Section 7 Interagency Cooperation with the Service(s) include:

- if the project is on federal land;
- if the project is partially or fully federally funded;
- if the project requires any other type of federal permit ([Appendix E](#)) or approval; and
- if a U.S. Army Corp of Engineers (USACE) permit is required for the project (nationwide or individual permit).

It is important to remember that technical documents such as the BA or NES will become incorporated into the Environmental Document by the environmental generalist. The District Biologist should review the Environmental Document to be sure that FESA terms are consistent with Section 7 language. The Environmental Document should also be reviewed to verify how the technical studies are being incorporated into the Environmental Document during project development. Refer to the [SER, Forms and Templates](#) for templates of environmental documents and biological technical documents.

4-3.5 Preparation of the Biological Assessment (BA)

Once the field studies are complete, a BA must be prepared which clearly states what the probable effects will be from constructing the project as proposed. If the conclusion is that the project may affect listed species or modify designated critical habitat, the BA should be prepared as a working draft.

Because the majority of Caltrans projects have a federal nexus, and listed species are often areas affected by the project, the timely and quality preparation of the BA is critical to meeting the regulatory intent, project schedule, and budget.

The purpose of the BA is to provide determination of the effects on the listed species. For each species evaluated, the BA must arrive at one of the three effects conclusions:

- The action will have *no effect* on the species or designated critical habitat;
The action *may affect, not likely to adversely affect* the species or designated critical habitat; or
- The action *may affect, likely to adversely affect* the species or designated critical habitat.

The District Biologist must also consider the effects the proposed project may have on designated critical habitat. Refer to section 4-4 for additional information on effects determinations.

While the BA is in draft form, the District Biologist and PDT should meet with representatives of the Service(s) and DFG to explore methods of reducing the projects effects. This includes evaluating methods of avoiding the effect, minimizing the effect, or developing appropriate mitigation to off-set the project effects.

The BA would be in preparation during the DED phase and completed just after the preferred alternative is selected. However, with some projects where multiple alternatives with wide-ranging effects are being studied at the DED stage, the District Biologist may not be able to complete the BA until after the alternatives have been narrowed; following the circulation of the DED. In these cases, the assessment of effects for each alternative must be in sufficient detail for an adequate comparison of alternatives. Mitigation should at least be to the conceptual stage before the DED is circulated. Sometimes it is preferable to develop detailed mitigation after alternative selection is completed.

Consultation, Conference, or Technical Assistance must be complete before the FED is approved; mitigation measures must also be described in the FED.

4-3.6 Biological Assessment Report Format

Caltrans has developed a [BA template](#) detailing information that must be included in the BA. The annotated outline includes standard language for particular topics, standard graphics, and tips for analyses. The BA template must be used to facilitate consultation with the Service(s), make effects determinations, and to elaborate on each effect.

4.4 EVALUATION OF EFFECTS

The District Biologist must determine the direct, indirect, interrelated and interdependent, cumulative effects, as well as the anticipated take likely to occur from the proposed project. Effect determinations must be consistent with the type of project in the project description, the biology in species accounts, the habitat status, and the existing environment.

4-4.1 Direct and Indirect Effects

Direct Effects occur at or very close to the time of the action itself. For example, effects associated with clearing, grubbing, excavating, loss of habitat, construction noise disturbance, sedimentation from in water construction, or removal of trees.

Indirect effects are those that are caused by the action and are later in time (after the action is complete) but are still reasonably certain to occur.

Examples of indirect effects from transportation projects may include new roadways or land access. They have the potential for indirect effects to listed species and their habitat, because the proposed action can potentially cause changes in land development. It can be difficult to determine the causal relationship; one approach is to compare the proposed action to the no action alternative (if the action/project was not undertaken).

4-4.2 Interdependent and Interrelated Effects

Interdependent and interrelated actions need to be evaluated for potential direct and indirect effects. According to USFWS, effects of the action under consultation are analyzed together with the effects of other activities that are interrelated to, or interdependent with that action. The analysis of whether other activities are interrelated to, or interdependent with, the proposed action under consultation should be conducted by applying a “but for” test. The District Biologist should ask whether another activity in question would occur but for the proposed action under consultation. If the answer is no, (that the activity would not occur but for the proposed action), then the activity is interrelated or interdependent and should be analyzed with the effects of the action. If the answer is yes, then the activity is not interdependent or interrelated and would not be analyzed with the effects of the action under consultation (USFWS, 2010).

Interdependent actions have no independent utility apart from the proposed action ([50 CFR Section 402-02](#)). Interdependent actions are typically because of the proposed action. Interrelated actions are part of a larger action and depend on the larger action for their justification (50 CFR, Section 402-02). Interrelated actions are typically associated with the proposed action.

4-4.3 Cumulative Effects

Cumulative effects are defined differently under FESA, Section 7, than under the National Environmental Policy Act (NEPA). Section 7 regulations require the District Biologist to provide an analysis of cumulative effects when requesting initiation of formal consultation. The Section 7 definition of cumulative effects state that they are those effects of future State or private activities not involving Federal activities that are reasonably certain to occur within the action area that is subject to consultation with the Service(s).

A cumulative effect is defined in the NEPA regulations as the effect on the environment which results from the incremental effects of the action when added to other past, present, and reasonably foreseeable future actions, regardless of what agency (Federal or non-Federal) or person who undertakes such other actions. Cumulative effects can result from individually minor, yet collectively significant actions, taking place over a period of time.

Cumulative effects may include the effects of natural processes and events. Accordingly, there may be different cumulative effects on different environmental resources. The premise is that effects can

accumulate to become more than the sum of their parts; that there are thresholds which, once crossed, cause incremental effects to be greater than a linear extrapolation would predict.

For example, the marginal effect on the existing transportation system of adding a lane may be a small effect, but if traffic is increased, the small effect of adding one lane could sum to a much larger effect. The increase in traffic and wider lanes may prevent species from using an existing crossing corridor.

4-4.4 Critical Habitat

The District Biologist must also consider the effects the proposed project may have on designated critical habitat. Designated critical habitat is habitat that has been federally designated for specific species through the FESA listing process. Designated critical habitat includes geographic areas on which are found those physical and biological features essential to the conservation of the species and which may require special management considerations or protection (USFWS, 2011). Critical habitat may include areas not occupied by the species at the time of listing but that are essential to the conservation of the species. Designated critical habitat only applies to Federal actions under Section 7; it does not apply to non-Federal activities.

To determine potential for designated critical habitats to be exposed to project effects, the District Biologist must examine whether the project effects will extend into designated critical habitat areas and/or will affect any primary constituent elements (PCE) of these habitat areas. PCE's are "those physical and biological features of a landscape that a species needs to survive and reproduce (USFWS, 2011). For example, cover or shelter, sites for breeding, reproduction, rearing of offspring, germination, or seed dispersal; and habitats that are protected from disturbance."

4-4.5 Incidental Take

The potential for the proposed project to incidentally take a listed species should be analyzed in detail. A take analysis should quantify the number of individuals or the amount of a species habitat (occupied or designated critical habitat) likely to be lost as a result of the proposed project. The terms and conditions of the incidental take statement (ITS) stipulate the number of individuals of a species that may be taken. The ITS is issued to the District Biologist in the form of a BO received from the Service(s).

Take provisions for *proposed* species or *proposed* critical habitat are discussed with the Service(s) through a conference. Conferences are used for Caltrans actions likely to affect proposed species or adversely modify proposed critical habitat. Caltrans prepares a Conference Report and receives a Conference Notice. Conferences must be converted to a formal consultation, culminating in issuance of a BO, if the species is listed during the project's life, including during construction.

The need to consult with the Service(s) for listed plants is similar to the process for listed animal species. The evaluations of the effects to listed plants from a proposed action are analyzed and included in the BA prepared by the District Biologist and in the BO received from the Service; however, plants are not defined or described by the take definition. Refer to section 4-9 for additional information on plants and FESA.

4-4.6 Conclusion of Effects Analysis

No Effect (NE) Determination

The NE determination is only appropriate if the proposed action will have no effect, including indirect, direct, interrelated, and interdependent effects on the species or designated critical habitat. If during the preliminary evaluation, the District Biologist determines there will be no effects to federally listed species; their findings are documented in the NES or NES (MI) and the Categorical Exclusion (CE), Environmental Assessment (EA), or Environmental Impact Statement (EIS).

If the project is determined to have no effect on all listed species under NMFS jurisdiction, but may affect one or more listed species under USFWS jurisdiction, there would be no necessary consultation with NMFS; however, preparation of a BA would be necessary for the USFWS listed species.

An example of a NE could be the following: the District Biologist contacts the USFWS to request information on listed species. The USFWS provides a species list containing 3 plants, 1 fish, and 1 butterfly located in the BSA. The proposed project would be constructed at an upland site, on clay soils. The 3 plants are found only on sandy soils. The butterfly's habitat is one of the plants on sandy soil. The nearest sandy soils are 10 miles from the proposed project. The fish is in a stream 5 miles from the proposed project.

There would be no effects from the project, either direct or indirect, because no construction is proposed in listed species habitat or in an area that may affect listed species. In addition, the District Biologist has charted a route for heavy equipment moving onto the construction site that avoids listed species habitat.

May Affect, Not Likely to Adversely Affect (NLAA)

If there are direct or indirect effects from the proposed project and these effects are expected to be discountable, insignificant, or completely beneficial, the appropriate conclusion would be NLAA for listed species. Insignificant indicates that the effect from the proposed action would not reach a level at which take occurs or destruction or adverse modification of designated critical habitat. Discountable indicates that it is extremely unlikely effects would occur.

For example, the District Biologist contacts the USFWS to request information on listed species. USFWS provides a species list containing 2 birds and 1 fish. The proposed project would be constructed at an upland site, 200 yards from the stream (fish habitat) and adjoining riparian vegetation (bird habitat). The migratory birds use the riparian vegetation to nest between April 15 and August 15. The uplands are highly erodible soils. The District Biologist agrees not to construct during the nesting season. The District Biologist flags the riparian vegetation to indicate an avoidance zone and installs silt fencing between the riparian vegetation and the construction site. The District Biologist states that he/she will plant the disturbed soils surrounding the project with native vegetation after construction. The District Biologist also agrees to monitor the vegetation planted for 3 years to assure that it establishes sufficiently to prevent any additional erosion in the project area caused by construction.

The conclusion is that although the District Biologist is working in very close proximity to listed species habitat, the action is not likely to adversely affect listed species because the District Biologist has incorporated sufficient avoidance and other mitigation measures into the project so that any effects to listed species would be discountable. The District Biologist prepares a BA that includes a complete description of the project, all proposed avoidance and other mitigation measures, and the resulting effects of the project on the listed species. The BA is sent to the USFWS to request concurrence that the project is not likely to adversely affect (NLAA) listed species.

If an effect determination is a beneficial effect, it is not necessarily considered a No Effect (NE) determination, but could be considered an NLAA. For example; Caltrans could be replacing a culvert that had previously blocked passage of salmonids. Flow would be diverted around the project site during construction to minimize sediment related effects to downstream areas. There may be short-term effects associated with construction of the new culvert; however, once flows return to normal, the installation of the new culvert will have beneficial effects because access to suitable spawning and rearing habitat is now available which was not previously accessible.

May Affect, Likely to Adversely Affect (LAA)

If an adverse effect on a listed species may occur as a direct or indirect result of a proposed action (including interrelated and interdependent actions), and these effects are not discountable, insignificant, or beneficial, the appropriate conclusion or effect determination for the proposed action is a LAA. If the overall effect of the proposed action is beneficial to the listed species or its designated critical habitat, but is also likely to cause adverse effects, even in the short term, the proposed action would still be considered LAA. If incidental take is anticipated to occur as a result of the proposed action, a LAA determination is made. LAA determinations for listed species require formal consultation with the Service(s). An example of where an LAA determination would be applicable is if the proposed action would clear vegetation in the BSA which is known habitat for listed species.

For example, the District Biologist contacts the USFWS to request information on listed species. The USFWS provides a species list containing 10 birds. The proposed project would be constructed at an upland site within a significant migratory bird corridor that is utilized by the 10 listed birds. Construction will permanently alter the character of the corridor and will likely cause take of listed birds every year during the migration periods. In this type of scenario, formal consultation will be required. The District Biologist prepares a BA to submit to the USFWS to accompany their request to initiate formal consultation because the project is likely to cause take of listed birds every year during their migration periods.

4-4.7 Processing of the Biological Assessment

The District Biologist, along with the PDT, may initiate technical assistance, conference, informal, or formal consultation with the Service(s), depending upon the level of effects the proposed project is expected to have upon listed species or designated critical habitats. The BA process depends on the environmental document type and the species status; refer to table below for the appropriate consultation effort.

If the determination is:	Then:
EIS (major construction activity)	USFWS/NMFS
Listed species and designated critical habitat; may affect determination; (LAA)	Consultation with Service(s) required.
Listed species, not likely to adversely affect (NLAA);	Informal Consultation with Service(s) required. Concurrence in the finding by the Service(s) is required

No effect (NE);	Consultation with Service(s) required.
Proposed species, may affect;	Conference with Service(s) required.
Proposed species, not likely to adversely affect or no effect;	Concurrence after listed.
Candidate/species of concern, may affect;	Technical Assistance.
Candidate/species of concern, no effect;	Summarize in document, backup in file.
CE /FONSI	USFWS/NMFS
Listed or proposed species, no effect.	Summarize in document, backup in file.
If species list was requested from Service(s), no effect.	Notify Service(s) of no effect to close file.
All others.	Same as EIS.

It is the District Biologists responsibility to make effect determinations (and follow the [QA/QC approval process](#)) for a project which would trigger the requirement to consult with the Service(s); Caltrans also assumes the risk of making an erroneous decision. For Local Assistance projects, Local Agencies and/or their consultants are not allowed to make effect determinations.

The BA should be submitted to the appropriate Service depending on the species that are addressed. Caltrans, acting as the Federal lead agency under NEPA Delegation, may submit a BA for formal consultation. For formal consultation, the Service(s) review the BA and may concur with the determinations made by the District Biologist. If the Service(s) concur in writing, then no further consultation is needed. The Service(s) may also request additional information before providing concurrence with the determination; the District Biologist should respond to such requests.

4-4.8 Technical Assistance

Technical Assistance is used for the information gathering phase and scoping in the project development process. Technical Assistance may take a variety of forms; it may include the species list provided by the Service(s), information on listed, proposed, and candidate species, exchange of information concerning species, the Service(s) practices, methods, and protocols, and names of contacts having information on other sensitive species or State listed species.

Technical Assistance is informal; however, it should be taken as seriously as if the species were listed. The Service(s) Technical Assistance also includes recommendations for studies, persons to contact, and other information for listed species.

4-4.9 Conference, 50 CFR, Part 402.10

Conferences are required for Caltrans projects likely to jeopardize the continued existence of *proposed* species or adversely modify *proposed* critical habitat. Caltrans may request a formal conference for a project warranting an effect determination of Likely to Adversely Affect (LAA) for proposed species or critical habitat. A LAA effect determination is not the same as jeopardy or adverse modification. Informal conferences also may be requested by the District Biologist if a listing is imminent and the project BA reaches a conditional effect determination of NLAA for that species. The District Biologist can request a

conference in the BA transmittal or consultation initiation letter for projects that address proposed species and proposed critical habitats in the BA.

4-4.10 Informal Consultation, 50 CFR, Part 402.13

Informal consultation ([Appendix B](#)) is an optional process that is designed to help determine whether formal consultation is needed. All conversations and correspondence between the District Biologist and the Service(s), including a request for a species list, is considered informal consultation. This period is used to understand potential effects of actions and to collaborate with the Service(s) on measures to avoid and minimize effects to listed resources and to reduce the need for formal consultation. Caltrans may voluntarily modify the project description as appropriate based on this informal consultation.

Initiation of informal consultation must be requested in writing by the District Biologist and/or their managers. The request must include project information and an analysis of effects potentially resulting from the proposed project.

Informal Consultation can be used to assist the Service(s) in determining if formal or informal consultation is required for review of a project's potential effects on listed species or designated critical habitat. Informal Consultation can also be used by the District Biologist to request the Service(s) concurrence with a determination of No Effect (NE) or not likely to adversely affect (NLAA). This process involves submittal of a BA to the Service(s) for review.

If the District Biologist, along with the PDT, determines that a project is NLAA listed species or critical habitat, the District Biologist uses the informal consultation process ([Appendix B](#)) to request the Service(s) concurrence (in agreement with District Biologists determinations). Concurrence by the Service(s) is required for a NLAA determination and the District Biologist is granted a concurrence letter from the Service(s).

4-4.11 Formal Consultation, 50 CFR Part 402.14

If the District Biologist, along with the PDT, determines that the proposed project qualifies as a determination of likely to adversely affect (LAA) for listed species, formal consultation ([Appendix B](#)) and concurrence from the Service(s) is required in the form of a biological opinion (BO). Initiation of formal consultation ([Appendix B](#)) must be requested in writing by the District Biologist, acting on behalf of Caltrans (the Federal action agency).

In order to comply with Section 7 regulations (50 CFR 402.14(c)), to request formal consultation, the District Biologist must produce an initiation package that meets the following six criteria:

1. A description of the action being considered
2. A description of the specific area that may be affected by the action
3. A description of any listed species or critical habitat that may be affected by the action
4. A description of the manner in which the action may affect any listed species or critical habitat and an analysis of any cumulative effects
5. Relevant reports, including EISs, EAs, BAs or other analysis prepared on the proposal
6. Any relevant studies or other information available on the action, the affected listed species, or critical habitat

Through the consultation process ([Appendix B](#)), the Service(s) may recommend modifications to the project to eliminate or reduce adverse effects. If effects can be reduced to an insignificant or discountable level, then consultation can proceed informally.

When formal consultation (Appendix B) is required, the District Biologist provides the Service(s) with the BA to assist the Service(s) in the preparation of their Biological Opinion (BO). Formal consultation ends with the issuance of a BO provided by the Service(s). The formal consultation process must be completed within 135 days, although extensions are possible.

Within 30 days of receiving a request from the District Biologist for formal consultation, the Service(s) will concur with the District Biologist's BA or notify the District Biologist that they do not concur with the determination made in the BA. The Service(s) will notify the District Biologist in writing that they have enough information to initiate consultation or the Service(s) can request the District Biologist submit additional information (pursuant to 50 CFR 402.14(c) and, if it is a major federal action, 50 CFR 402.12(f)). Within 90 days, the Service(s) complete consultation with the District Biologist. During the 45 day period after consultation, the Service(s) write their final BO.

If the consultation process is not addressed by the Service(s) in the prescribed amount of time for response to the District Biologist prepared BA, Caltrans has agreed upon an extension process. For additional information on the extension process (elevation ladder) refer to section 4-5.3, [Dispute Resolution Process for Section 7 Consultation](#).

4-5 FINAL ENVIRONMENTAL DOCUMENT (FED)

Comments received during the circulation of the DED may substantially alter the course of project studies. Alternatives may be deleted, additional alternatives may arise, the preferred alternative may change, the need for additional studies may be brought to light, and design variations may be suggested. Any of these changes may cause the need for additional biological studies.

During the FED phase of project development the District Biologist should prepare a summary of any revisions, additional studies, species updates, approvals and opinions, as appropriate, to submit for inclusion in the environmental document.

The District Biologist should also ensure they enter and constantly update the [STEVE](#) with all pertinent fields for tracking Section 7 Consultations with the Service(s).

The FED phase must include verification of all information from the RTP stage, PID stage, and Draft Report stage. If necessary, at the FED phase the District Biologist revises the technical studies, finalizes mitigation plans and the BA, and submits it to the Service(s) or other agencies if required. The BO is then obtained from the Service(s). This information is submitted to the environmental generalist for incorporation into the FED. For Local Assistance projects, the BO is transmitted from Caltrans to the Local Agency for inclusion into the FED.

4-5.1 Biological Opinion

The BO is the document that states the opinion of the Service(s) as to whether or not the project is likely to jeopardize the continued existence of listed species or result in the destruction or adverse modification of habitat.

A BO may include:

- Reasonable and Prudent Alternatives (RPAs): actions recommended to avoid jeopardy or adverse modification
- Incidental Take Statement (ITS): specifies the amount or extent of takings authorized, requires RPAs, and sets forth terms and conditions

The determination of whether or not the project would be likely to jeopardize the species or adversely modify critical habitat, directly, indirectly, or cumulatively, is contained in the BO. If a jeopardy or adverse modification determination is made, the BO must identify any reasonable and prudent alternatives (RPAs) that could allow the project to move forward.

The BO can be a lengthy document and can take a substantial period of time to write. If the proposed action is not likely to jeopardize the continued existence of a species or adversely modify critical habitat, the project may proceed, provided it follows the terms and conditions outlined in the BO issued by the Service(s). The BO may include RPAs or reasonable and prudent measures (RPMs). These alternatives may cause changes in design, cost, scope, or schedule.

RPAs and RPMs include specific actions required to avoid jeopardy or adverse modification to listed species and designated critical habitat. The BO may include terms and conditions that set out the specific methods by which the RPMs are to be accomplished.

Prior to finalizing the BO, the Service(s) will provide a draft terms and conditions to the District Biologist. The District Biologist, along with the PDT, will review the conditions and provide comments back to the Service(s) before they are finalized.

4-5.2 Incidental Take Statement (ITS)

The Section 7 process has provisions for allowing take of listed species. When a proposed Federal action is found to be consistent with Section 7(a)(2) of FESA and that action may incidentally take individuals of listed species, the Service(s) will issue an incidental take statement (ITS) specifying the effect of any incidental taking of endangered or threatened species. The incidental take statement (ITS) will include the anticipated amount or extent of take on any listed species that may otherwise occur incidental to the project (except for plants). The ITS also includes non discretionary reasonable and prudent measures (RPMs) to be carried out by Caltrans that will minimize the effects of the incidental take. The Service(s) provide Caltrans with specific terms and conditions that, if complied with, will ensure that the taking is incidental to, and not intended as part of Caltrans actions, and is not considered a prohibited taking under FESA.

The District Biologist, in conjunction with the PDT, will review the analysis and the ITS in the Service(s) draft BO to make sure that Caltrans, and/or the Local Agency, can incorporate and meet the proposed measures.

4-5.3 Dispute Resolution Process for Section 7 Consultation: Elevation Ladder

In November, 2006, the FHWA, in cooperation with Caltrans and the USFWS, agreed upon a [Dispute Resolution Process for FESA Section 7 Consultations](#) that have gone beyond the specified Section 7 consultation timelines.

In April, 2009, [Guidance for the Joint Issue Memo for the Dispute Resolution Process for Section 7 Endangered Species Consultation](#) was formalized. This memo provides an [example template](#) for the dispute resolution process. The example template identifies the necessary information needed at a higher level of decision-making and provides a uniform presentation of the issues.

Caltrans' Division of Environmental Analysis may initiate automatic elevations when 60 days has elapsed from the date the initiation request for consultation was received and there is no 30-day insufficiency letter and no indication that the Service has formally started the consultation; or when 135 days plus a 30 day grace period have passed from the date formal consultation was started where no BO has been completed.

The Memorandum entitled "[Tracking Federal Endangered Species Act Consultations and Automatic Elevation Procedures](#)" helps implement the Dispute Resolution Process Flowchart and Elevation Ladder. The Memorandum also includes steps for data input into the [Standard Tracking Exchange Vehicle for](#)

[Environmental \(STEVE\)](#), ensuring a completed Biological Assessment, timely consultation initiation and automatic elevation procedures with the Service(s).

The STEVE is an internal, Caltrans only, database. STEVE is used for quarterly reporting to the Service(s). The [STEVE](#) is a database workflow tool that allows for movement of documents through the environmental process. The Districts should ensure they are using the STEVE and filling out and constantly updating all pertinent fields for tracking consultations with the Service(s). For additional information on how the STEVE is to be used to track requirements for Section 7 consultations refer to the [STEVE User Guide](#), the [STEVE Launcher](#) (Oct 2011), and the Memorandum, [Tracking Federal Endangered Species Act Consultations and Automatic Elevation Procedures](#).

4-5.4 Local Assistance Process

The [Division of Local Assistance](#) (DLA) is a section of Caltrans that distributes FHWA funding primarily to local agencies for transportation-related projects. The use of FHWA funding provides a federal nexus trigger that subjects the local agency project to the same FESA requirements.

The District Biologist prepares and approves the No Effect memos; however, the Caltrans DLA process is slightly different for other reports in that the Local Agency prepares the project NES (MI), NES, or BA (either in-house or using a qualified consultant). The Local Agency and/or qualified consultant works in close coordination with the Caltrans District Biologist. The District Biologist approves the NES, NES (MI), or BA, and is responsible for initiating consultation with the Services, as necessary. Refer to contents in this chapter for FESA procedures, the [Local Assistance Procedures Manual, Chapter 6](#), and [Appendix C](#) for additional information on the [Division of Local Assistance](#) procedures and responsibilities.

4-6 DRAFT PLANS, SPECIFICATIONS, AND ESTIMATES (PS&E) PHASE

Throughout development of the draft PS & E, the District Biologist should review and assure that all biological commitments are included in the contract and there is sufficient funding to accomplish those commitments.

During the PS & E phase of project development, supplemental studies may be necessary to confirm results or to address additional issues that arise during design, coordination and/or consultation. The District Biologist must review the draft PS & E for compliance with permits, licenses, agreements, or certifications (PLAC); environmental commitments must be carried forward through to the construction monitoring stage.

The District Biologist must review work window hours to verify they have been correctly identified; assure that environmentally sensitive areas (ESA) are mapped and noted; review the establishment of plantings or specifications; preventative netting or fencing; monitoring specifications; and any other environmental commitments. Please refer to the [SER, Forms and Templates for the PS&E Ready to List Review Tool](#) for a comprehensive checklist.

The District Biologist insures that all biological commitments are recorded in the [Environmental Commitments Record \(ECR\)](#) which becomes part of the Resident Engineer (RE) Pending File. The ECR will also alert the RE that the District Biologist would like to be notified of the pre-construction meeting.

For Local Assistance projects please refer to Chapter 6 of the [Local Assistance Procedures Manual](#).

4-7 CONSTRUCTION AND MONITORING PHASE

During the construction and monitoring phase of project development the District Biologist may be required to participate in pre-construction meetings, pre-construction surveys, and construction monitoring and coordination to ensure compliance with PLAC's.

The District Biologist assists the Resident Engineer (RE) to ensure that all biological requirements and considerations in the contract are understood by, and those necessary preparations are made by, the RE and the Contractor. The Biologist may conduct construction monitoring or oversee a consultant's biological construction monitoring.

For Local Assistance projects please refer to Chapter 6 of the [Local Assistance Procedures Manual](#).

4-8 ESSENTIAL FISH HABITAT

Essential fish habitats, (EFH), are those waters and substrate necessary to fish for spawning, breeding, feeding, or growth to maturity. For the purpose of interpreting the definition of essential fish habitat: "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. EFH is described by Fishery Management Councils (Council) in amendments to Fishery Management Plans, and is approved by the Secretary of Commerce acting through NMFS (50 CFR 600.10). Only species covered by a Fishery Management Plan need to be considered for EFH coordination. Fishery Management Plans (FMPs) are developed by the Regional [Fishery Management Councils](#) (RFMCs) and implemented by [NMFS](#).

EFH consultations are slightly different from FESA consultations. In previous years, Section 7 consultations and EFH consultations were conducted with NMFS separately. In 2003, NMFS and the FHWA agreed to consolidate Section 7, FESA consultations with EFH consultations in the memorandum entitled, [Essential Fish Habitat Delegation Authority](#). The memorandum identifies Caltrans as the non-Federal representative to consult with NMFS on EFH issues. The District Biologist may conduct concurrent consultations with NMFS.

EFH evaluations must be clearly identified and be distinguished from the Section 7, FESA consultation. This is necessary to clearly distinguish the independent consultation requirements under the [Magnuson-Stevens Fishery Conservation and Management Act](#) (MSFCMA) and FESA, despite the opportunity to conduct both consultations simultaneously.

The [Essential Fish Habitat Delegation Authority](#) memorandum describes also under which circumstances Caltrans will consult with NMFS on EFH by providing various scenarios for when Caltrans will act upon the FHWA's behalf. These scenarios can be very useful to the District Biologist. Mandatory contents of an EFH assessment are identified at 50 CFR 600.920(e)(3).

In September, 2004, Caltrans provided "[Guidance for Combined Essential Fish Habitat and Endangered Species Act Consultation Process](#)" that provides a flowchart for EFH consultations, along with additional guidance for implementation of the combined FESA and EFH consultation processes. The memo is also intended to further clarify the responsibilities of the FHWA and Caltrans.

District Biologists must not overlook EFH issues and requirements. Coordination among Caltrans, the FHWA, and NMFS established a [delegation process](#). EFH will require more information to be added to the BA. The discussion of potential project effects to EFH should be presented in an appendix to the BA. Consultation under FESA should be coordinated with [EFH consultation](#) so that the two processes proceed concurrently to the extent appropriate (considering the species involved). One process should not be subsumed in the other; rather they should proceed in parallel.

There are four essential elements of EFH consultation:

- The District Biologist provides to NMFS notification of an activity that may adversely affect EFH
- The District Biologist provides to NMFS an assessment of effects on EFH with notification
- NMFS provides to the District Biologist EFH conservation recommendations
- The District Biologist provides to NMFS a detailed written response, within 30 days of receiving NMFS EFH conservation recommendations (at least 10 days before final approval of the action for decisions that are rendered in fewer than 30 days).

The trigger for an [EFH consultation](#) is the District Biologists determination that an action or proposed action, funded, authorized or undertaken by Caltrans may adversely affect EFH. If the District Biologist makes such a determination, then EFH consultation is required.

If the District Biologist determines that an action does not meet the may adversely affect EFH test (the action will not adversely affect EFH), no consultation is required. The District Biologist is not required to contact NMFS about their determination, and should not be encouraged to do so. A no effect on EFH letter is not required or even addressed by either the statute or the EFH regulations. If the District Biologist does send NMFS a no effect on EFH letter, NMFS may elect to respond in writing at their discretion, but a letter of concurrence from NMFS is not required.

If, as a result of the District Biologists request for concurrence, NMFS becomes aware of potential adverse effects on EFH, NMFS should inform the District Biologist and proceed as described in the following section.

4-8.1 NMFS Adversely Affect Determinations

If NMFS receives information regarding a Caltrans action that may adversely affect EFH, but the District Biologist has not initiated EFH consultation, NMFS may inform the District Biologist of their need to consult with NMFS on actions that may adversely affect EFH, to fulfill their statutory obligations under the Magnuson-Stevens Act.

If the District Biologist has determined that their action will not adversely affect EFH, but NMFS disagrees, NMFS may ask the District Biologist to initiate EFH consultation so that NMFS will have appropriate information (the [EFH Assessment](#)) to develop EFH conservation recommendations. However, the District Biologist is not required to agree to NMFS' request. If NMFS believes that the District Biologists action would adversely affect EFH, NMFS is required by the [MSFCMA](#) to provide EFH

conservation recommendations, regardless of whether the District Biologist has initiated EFH consultation. The District Biologist is required to respond to these recommendations in writing regardless of whether consultation was initiated.

4-8.2 Consultation Initiation and Completion of EFH

An EFH consultation is generally initiated when notification and an EFH Assessment is provided to NMFS for a Caltrans action that may adversely affect EFH, although the District Biologist may (and should be encouraged to) discuss EFH concerns in pre-application planning and other early phases of project development. An EFH consultation generally is concluded when the District Biologist provides a response to NMFS EFH conservation recommendations. However, in the case of Programmatic Consultations and General Concurrences, additional consultation for specific types of activities may be required after the District Biologist responds to EFH conservation recommendations.

Furthermore, the EFH regulations allow NMFS to request further review of the District Biologists decisions that are contrary to NMFS recommendations (50 CFR 600.920(j)(2)). For District Biologists decisions that are made in less than 30 days, the EFH regulations specify that the District Biologists response to NMFS EFH conservation recommendations must be provided to NMFS at least 10 days before final action on the project (50 CFR 600.920(j)(1)), to allow for further review, if required. Although the EFH regulations do not specify this 10-day time period for projects authorized after more than 30 days, in practice a minimum 10-day window should be allowed between the District Biologists response to NMFS and final action on the project. NMFS will then have the time to request further review, if needed.

Finally, supplemental consultation is required if the District Biologist substantially revises a proposed action and adverse effects on EFH are changed, or if new information becomes available that affects the basis for NMFS EFH conservation recommendations (50 CFR 600.920(k)).

For more detailed guidance on EFH consultations, see [NMFS Essential Fish Habitat Consultation Guidance](#). Refer to the [EIS, Annotated Outline](#), for general EFH requirements.

4-8.3 [EFH Consultation Matrix](#)

FESA	Essential Fish Habitat (EFH)	
	No Adverse Effect	Adverse Effect
No Effect	No consultation for FESA or EFH	Consultation on EFH (no consultation for FESA)
Not Likely to Adversely Affect	Informal consultation for FESA (no consultation for EFH)	Informal consultation for FESA and consults on EFH
Likely to Adversely Affect	Formal consultation on FESA (no consultation on EFH per District Biologists determinations)	Formal consultation on FESA and EFH

Document Type	BA for FESA (include documentation determination in section 5.2 of NES following guidance for EFH analysis	BA for FESA, including the EFH Assessment
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4-9 PLANTS AND FESA

The USFWS is responsible for the protection of federally listed plant species. It is prohibited to remove and reduce to possession or maliciously damage or destroy proposed, threatened, and endangered plant species on Federal lands.

The need to consult with the Service for listed plants is similar to the process for listed animal species; the only difference is there is no incidental take for listed plants; thus, the BO does not contain an Incidental Take Statement (ITS).

The District Biologist must evaluate the effects to listed plants and include the analysis in the BA. The Service analyzes the take occurring and effects of the action(s) and considers whether the action is likely to jeopardize the continued existence of federally listed plants. The Service addresses the conclusions in the BO; however, since there are no take prohibitions that apply to plants, there will be no analysis in the BO as to whether take will occur. Even though take of plants may occur, there is no exemption for take of plants under Section 7 (no incidental take provision).

The District Biologist discusses and negotiates with the Service forms of compensation if the loss to federally listed plants is considerable; for example, protection of another area where the listed plant is located. It is also important to remember that some plants are fully protected under CESA and must be fully mitigated. Refer to section .4-10.12 for additional information on CESA and plants.

FESA protection afforded to plants depends on its status. FESA prohibitions may be found in Section 4 (d), Section 9 (a)(2), 50 CFR 17.61, and 50 CFR 17.71 and are outlined as follows:

For federally listed threatened plants it is unlawful to:

1. Import or export (into, out of, or through the U.S.)
2. Remove and reduce to possession from Federal property
3. Engage in interstate or foreign commerce

For federally listed endangered plants it is unlawful to:

1. Import or export (into, out of, or through the U.S.)
2. Remove and reduce to possession from Federal property
3. Engage in interstate or foreign commerce
4. Maliciously damage or destroy on Federal property
5. Remove, cut, dig up, damage, or destroy on private property in violation of any law or regulation of any state including state criminal trespass law

Permits are available to allow the District Biologist to carry out prohibited activities. For *threatened* plants, the activity may be for scientific purposes, the enhancement of propagation or survival of the species, economic hardship, botanical or horticultural exhibition, education or other activities consistent

with the purposes and policy of FESA. For *endangered* plants, permits may be issued for scientific purposes, enhancement of propagation or survival of the species, or economic hardship.

Information about plant resources is available from many sources. Some of the most common sources of biological information concerning plants are provided in [Appendix F](#).

4-10 CALIFORNIA ENDANGERED SPECIES ACT PROCESS

This section will review the CESA listing process, species categories, take prohibition and authorization; the contents of an incidental take permit application, consistency determinations, scientific collecting permits, mitigation plans and activities, and how the take prohibition applies to plants.

All species may be taken for scientific purposes but not all may be taken for educational, non-commercial propagation, or management purposes. This is determined by whether a species is classified as a fully protected species, candidate, threatened, or endangered species, species of special concern, a standard exception species, an endangered or rare plant species, or other native species. Refer to the table below for definitions of species categories used in permitting the take of nongame animals and plants.

Species Category	Species Category Definition
Fully Protected	Includes species of fish, amphibians, reptiles, birds, and mammals listed as Fully Protected by the State Legislature (see Fish and Game Code, Sections 3511, 4700, 5050, and 5515).
Threatened, Endangered, or Candidate Species	Includes all species listed by the California Fish and Game Commission (see Title 14 CCR, Section 670.5), and by the Federal government under FESA.
Species of Special Concern	Includes fish, amphibians, reptiles, birds, and mammals that DFG has determined are potentially at risk to become threatened or endangered.
Standard Exception Animals	Includes species included in the three above categories, and bird nests and eggs, raptors, bats, carnivores, game animals, and other specially protected birds and mammals. The back of the application for an SCP has a list of these species.
Other Native Animals	Includes the other animals not included in the sections above.
Endangered and Rare Plants	Includes all plants listed by the Fish and Game Commission (see Title 14 CCR, Section 670.2)

4-10.1 California Endangered Species Act (CESA) Procedures

[CESA](#) states that all native species of fishes, amphibians, reptiles, birds, mammals, invertebrates, and plants, and their habitats, threatened with extinction and those experiencing a significant decline which, if not halted, would lead to a threatened or endangered designation, will be protected or preserved.

CESA mandates that State agencies should not approve projects that would jeopardize the continued existence of these threatened or endangered species if reasonable and prudent alternatives are available that would avoid jeopardy (Fish and Game Code 2050 *et seq.*).

DFG regulates activities related to fish, wildlife, and plants in California and is responsible for administering CESA. CESA emphasizes early coordination to avoid potential affects to State listed species and to develop appropriate mitigation planning to offset project caused losses of listed species. However, if take of a State Listed species is unavoidable, an application pursuant to F&G Code Section 2081 is prepared and submitted by the District Biologist. Refer to section 4-10.5 below for additional information on Section 2081.

Unlike FESA, there are no State agency consultation procedures under CESA. For projects that affect both a State and federally listed species, compliance with FESA will satisfy CESA if DFG determines that the Federal incidental take authorization is "consistent" with CESA under F&G Code Section 2080.1. Refer to section 4-10.4 for additional information concerning take.

The State definition of take under CESA does not include critical habitat modification. Unlike FESA, where habitat is protected under the "harm" and "harass" definitions, habitat under CESA may not necessarily be protected. Under CESA habitat removal is prohibited if it is the proximate cause of death to the species.

The effects from taking listed species must be minimized and fully mitigated. Full mitigation means that no net effects to listed species may occur under CESA.

4-10.2 CESA Listing Process

Individuals, organizations, or the DFG can submit petitions to the Fish and Game Commission requesting that a species, subspecies, or variety of plant or animal be added to, deleted from, or changed in status on the State lists of rare, threatened or endangered species.

If the petition is accepted and the species becomes a candidate species, a 12-month review period starts, during which time the candidate species receives the same CESA protection as a listed species. DFG recommends to the Commission whether the species should be listed based on the best scientific information available to DFG. DFG compiles updated lists of state and federally listed species on the agency website.

4-10.3 Prohibition Against Take

[Section 2080 of the California Fish and Game Code](#) prohibits take of any species that the Fish and Game Commission determines to be a threatened or endangered species. Section 2081(b) allows DFG to issue an incidental take permit if certain requirements are met. Take is defined as hunting, pursuing, catching, capturing, or killing, or attempting to hunt, pursue, catch, capture, or kill listed species. Unlike FESA, this definition does not encompass harm, harassment, or habitat modification, but rather includes only acts leading to the death of a listed species.

4-10.4 Incidental Take Authorization and Permit

The California Department of Fish and Game (DFG) has the authority under [Section 2081 of the California Fish and Game Code](#) to issue permits for the take of species listed under CESA (State listed species) if the

take is incidental to an otherwise lawful development project; DFG has determined that the effects of the take have been minimized and fully mitigated; and, the take would not jeopardize the continued existence of the species.

The Section 2081 program (14 CCR 783.3) is a certified regulatory program under the California Environmental Quality Act (CEQA); therefore, DFG does not need to prepare a separate CEQA document when approving a Section 2081 permit. DFG will adopt Caltrans CEQA findings.

4-10.5 Incidental Take Permit (ITP), Section 2081(b) and (c)

Sections 2081(b) and (c) of CESA allow DFG to issue an incidental take permit (ITP) for a State listed threatened and endangered species only if specific criteria are met. These criteria are reiterated in Title 14 CCR, Sections 783.4(a) and (b), and are as follows:

1. The authorized take is incidental to an otherwise lawful activity;
2. The impacts of the authorized take are minimized and fully mitigated;
3. The measures required to minimize and fully mitigate the impacts of the authorized take:
 - a. are roughly proportional in extent to the impact of the taking on the species,
 - b. maintain the applicant's objectives to the greatest extent possible, and
 - c. are capable of successful implementation;
4. Adequate funding is provided to implement the required minimization and mitigation measures and to monitor compliance with and the effectiveness of the measures; and
5. Issuance of the permit will not jeopardize the continued existence of a State-listed species.

The terms and conditions of the permit will be determined by DFG and must ensure that the issuance criteria in items 1 through 5 above are met. Complete requirements and procedures for CESA ITPs are found in CCR Title 14, Sections 783.0 - 783.8.

The Incidental Take Permit process is normally initiated by the District Biologist contacting the appropriate DFG [Regional Office](#).

DFG states that no Section 2081(b) permit may authorize the take of "fully protected" species and "specified birds" (Fish and Game Code Sections 3505, 3511, 4700, 5050, 5515, and 5517). If a project is planned in an area where a fully protected species or a specified bird occurs, the District Biologist and PDT must design the project to avoid all take.

CESA emphasizes early consultation to avoid potential effects to threatened and endangered species, and to develop appropriate mitigation planning to offset effects to listed species populations and their essential habitats. The District Biologist should coordinate with DFG in developing and preparing the ITP, preparing the CEQA findings, the mitigation and monitoring plan, as well as policy direction and consistency with permitting standards.

4-10.6 Contents: Incidental Take Permit

During the preparation of a [permit application](#), the District Biologist should consult with DFG in order to ensure that the application will meet the requirements of the regulations when it is submitted to them. Applications for permits are submitted to the appropriate DFG Regional Manager.

In addition, since DFG will be a responsible agency for purposes of issuing an ITP where Caltrans is the lead agency for purposes of CEQA compliance, the following must be included in the permit application:

- The name, address, telephone number and contact person of the lead agency.
- A statement as to whether an environmental impact report, negative declaration, mitigated negative declaration, initial study or other document has been prepared or is being considered.
- At the option of the applicant, a notice of preparation, notice of determination, or draft or final environmental document may be attached.

4-10.7 Consistency Determination, Section 2080.1

For projects that affect species that are listed both under the State and Federal acts, the Section 7 consultation has been completed and a Biological Opinion and Incidental Take Statement (ITS) have been obtained from the Service(s). The requirements of CESA can be met if DFG determines that the ITS received from the Service(s) is consistent with CESA. Therefore, when conducting consultations under Section 7 of FESA, you must include DFG in the consultation process ([Appendix B](#)).

Upon receipt of an ITS, the District Biologist notifies the director of DFG, in writing, that an ITS has been issued pursuant to FESA and requests DFG to make a determination as to whether the ITS is consistent with CESA. The District Biologist submits 2 copies of the BO and ITS with the request and sends a copy, with attachment, to the appropriate DFG Regional Manager, since they will be conducting the actual review. Typically, a request for Consistency Determination can be concluded within 30 days of DFG's receipt of the Service(s) BO and request for Consistency Determination.

DFG will publish, in the General Public Interest section of the California Regulatory Notice Register, upon the receipt of that notice. Within 30 days DFG will determine whether the ITS is consistent with CESA. The determination will be published in the General Public Interest section of the California Regulatory Notice Register.

For consultation leading to a State incidental take permit (ITP), this process can take up to 120 day; 30 days to determine that the application for a take permit is complete and 90 days after DFG determines the application is complete to process and issue the permit.

4-10.8 Scientific Collecting Permit

A DFG [Scientific Collection Permit](#) is required to take, collect, capture, mark, or salvage, for scientific, educational, and non-commercial propagation purposes, mammals, birds and their nests and eggs, reptiles, amphibians, fishes, and invertebrates. These activities require a SCP. The take of some animals may also require a Memorandum of Understanding (MOU) or other additional written authorization from the DFG. Take of threatened or endangered species incidental to an otherwise lawful activity requires a [Section 2081\(b\) permit](#). Close coordination with DFG throughout the project development process will be beneficial to the District Biologist.

4-10.9 Mitigation Plans

The mitigation plan should identify measures to avoid and minimize the take of State-listed species and to fully mitigate the effects of that take. These measures can vary from project to project. Some of the measures used in the past include: delineation of construction sites; take avoidance measures tailored to the affected species; preconstruction notification of DFG; employee education programs; reporting procedures when an animal is killed, injured or trapped; compliance inspections and reports; acquisition and transfer

of habitat management lands; and associated funding (including money for document processing and for initial protection (fencing, posting, clean-up), and endowments for management of the lands in perpetuity). This list can serve as a partial inventory of measures that may be used to minimize and mitigate take, but these are not mandatory requirements and the list is not inclusive of all potential measures. The District Biologist and the PDT may propose alternative strategies for minimizing and fully mitigating effects. DFG must be able to conclude, however, that the project's effects are fully mitigated and the measures, when taken in aggregate, must meet the full mitigation standard.

Measures to minimize the take of species covered by the permit and to mitigate the effects caused by the take are set forth in one or more attachments to the permit. This attachment generally is a mitigation plan which is prepared and submitted by the District Biologists in coordination with DFG staff. The District Biologist will focus on translating goals and objectives and developing a conceptual mitigation plan, followed by a detailed project proposal.

Refer to the [SER, Volume 3, Chapter 5, Mitigation and Monitoring](#), for additional information on mitigation procedures, along with [DFGs website](#).

4-10.10 Mitigation Activities

Mitigation activities are defined as any biological activities performed in order to compensate for the effects of transportation projects. Ecological restoration is another term often used to describe these actions. Activities implemented to minimize biological effects to species or habitats may also be included. Mitigation activities can vary widely depending on the type of project.

4-10.11 Plants and CESA

State listed threatened and endangered plants are covered under CESA. Thus, effects to State listed plants must be minimized and fully mitigated under CESA just as effects to animals are; however, state listed rare plants may not be covered under CESA.

To align with Federal regulations, CESA created the categories of threatened and endangered species. It converted all rare *animals* into CESA as threatened species, but did not do so for rare *plants*. Thus, under CESA, there are three listing categories for plants in California: rare, threatened, and endangered.

[Section 2080 of the California Fish and Game Code](#) prohibits take of any species that the Fish and Game Commission determines to be a threatened or endangered species. State-listed threatened and endangered plants are to be managed and protected under CESA. DFGs "[Protocols for Surveying and Evaluating Impacts to Special Status Native Plant Populations and Natural Communities](#)" provides protocols to facilitate a consistent and systematic approach to the survey and assessment of special status plant species or natural communities so that reliable information is produced and the potential of locating a special status plant species or natural community is maximized. These protocols may also assist District Biologists to determine when a botanical survey is needed, how field surveys may be conducted, and what information to include in a survey report. [DFG's protocols](#) may help avoid delays caused when inadequate biological information is provided during the environmental review process; assist the District Biologist to make an informed decision regarding direct, indirect, and cumulative effects of a proposed project on special status native plants and their natural communities. The protocols will also assist the District Biologist in meeting the requirements of CEQA for adequate disclosure of effects, as well as conserve public trust resources.

The collection, possession, transplantation or propagation of rare, threatened or endangered plants or manipulation of their habitat requires a Rare, Threatened or Endangered [Plant Collecting Permit](#) or [Plant Research Permit](#). These permits are required for activities conducted on both private and public land. Take of threatened or endangered species incidental to an otherwise lawful activity requires a DFG, Section 2081(b) permit.

4-11 QUALITY CONTROL AND ASSURANCE

All information provided during informal FESA and EFH consultations must be consistent with the content, analysis, and terminology of the BA and EFH templates respectively. The NES and NES-MI templates cannot be used in-lieu of a BA or EFH report for consultation purposes. Refer to the Caltrans [Quality Control and Assurance for Biological Technical Documents](#) for the processing requirements of biological technical documents.

4-12 REFERENCES

- California Department of Fish and Game. January 2011. Nongame Wildlife Program. Definitions of Species Categories Used in Permitting the Take of Nongame Animals and Plants.
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- [California Native Plant Society](#). 2001. Inventory of Rare, Threatened, and Endangered Plants of California.
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- Sawyer, J.O. and T. Keeler-Wolf. 1995. A Manual of California Vegetation. California Native Plant Society. Sacramento, CA. 471 pp.
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- U.S. Fish and Wildlife Service and National Marine Fisheries Service. Endangered Species, Consultation Handbook: Procedures for Conducting Consultation and Conference Activities under Section 7 of the Endangered Species Act. March 1998.
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- U.S. Fish and Wildlife Service. 2001. Interdependent and Interrelated Effects. AESO/FA. 2321 West Royal Palm Road, Suite 103, Phoenix, Arizona 85021
- U.S. Fish and Wildlife Service. 2003. Memorandum: [Service Interim Guidance on Avoiding and Minimizing Wildlife Impacts from Wind Turbines](#).
- U.S. Fish and Wildlife Service. Division of Endangered Species. 2000. [Critical Habitat: What Is It?](#) Document Number 703/358 2105.
- U.S. Fish and Wildlife Service. 2012. [Digest of Federal Resource Laws](#).

4-14 APPENDICES

Appendix A – Glossary of Terms

Action - all activities or programs of any kind authorized, funded, or carried out, in whole or in part, by Federal agencies in the United States or upon the high seas. Examples include, but are not limited to: (a) actions intended to conserve listed species or their habitat; (b) the promulgation of regulations; (c) the granting of licenses, contracts, leases, easements, rights-of-way, permits, or grants-in-aid; or (d) actions directly or indirectly causing modifications to the land, water, or air. [50 CFR §402.02]

Action area - all areas to be affected directly or indirectly by the Federal action and not merely the immediate area involved in the action. [50 CFR §402.02]

Affect/effect - to affect (a verb) is to bring about a change ("The proposed action is likely to adversely affect piping plovers nesting on the shoreline"). The effect (usually a noun) is the result ("The proposed highway is likely to have the following effects on the Florida scrub jay"). "**Affect**" appears throughout Section 7 regulations and documents in the phrases "may affect" and "likely to adversely affect." "**Effect**" appears throughout Section 7 regulations and documents in the phrases "adverse effects," "beneficial effects," "effects of the action," and "no effect." [Proper grammatical usage]

Anticipated/allowable/authorized - in incidental take statements, the Services determine the amount or extent of incidental take "anticipated" (expected) due to the proposed action or an action modified by reasonable and prudent alternatives. When writing incidental take statements, use only the phrase "anticipated" rather than "allowable" or "authorized," as the Services do not allow or authorize (formally permit) incidental take under Section 7. [Clarification of usage]

Applicant - any person (an individual, corporation, partnership, trust, association, or any other private entity; or any officer, employee, agent, department, or instrumentality of the Federal Government, of any State, municipality, or political subdivision of a State, or of any foreign government; any State, municipality, or political subdivision of a State; or any other entity subject to the jurisdiction of the United States) [ESA §3(12)] who requires formal approval or authorization from a Federal agency as a prerequisite to conducting the action. [50 CFR §402.02]

Appreciably diminish the value - to considerably reduce the capability of designated or proposed critical habitat to satisfy requirements essential to both the survival and recovery of a listed species. [Clarification of usage]

Best available scientific and commercial data - to assure the quality of the biological, ecological, and other information used in the implementation of the Act, it is the policy of the Services to: (1) evaluate all scientific and other information used to ensure that it is reliable, credible, and represents the best scientific and commercial data available; (2) gather and impartially evaluate biological, ecological, and other information disputing official positions, decisions, and actions proposed or taken by the Services; (3) document their evaluation of comprehensive, technical information regarding the status and habitat requirements for a species throughout its range, whether it supports or does not support a position being proposed as an official agency position; (4) use primary and original sources of information as the basis for recommendations; (5) retain these sources referenced in the official document as part of the administrative record supporting an action; (6) collect, evaluate, and complete all reviews of biological, ecological, and other relevant information within the schedules established by the Act, appropriate regulations, and applicable policies; and (7) require management-level review of documents developed and drafted by Service biologists to verify and assure the quality of the science used to establish official

positions, decisions, and actions taken by the Services during their implementation of the Act. [59 FR 34271 (July 1, 1994)]

Biological assessment - information prepared by, or under the direction of, a Federal agency to determine whether a proposed action is likely to: (1) adversely affect listed species or designated critical habitat; (2) jeopardize the continued existence of species that are proposed for listing; or (3) adversely modify proposed critical habitat. Biological assessments must be prepared for "major construction activities." See 50 CFR §402.02. The outcome of this biological assessment determines whether formal consultation or a conference is necessary. [50 CFR §402.02, 50 CFR §402.12]

Biological opinion - document which includes: (1) the opinion of the Fish and Wildlife Service or the National Marine Fisheries Service as to whether or not a Federal action is likely to jeopardize the continued existence of listed species, or result in the destruction or adverse modification of designated critical habitat; (2) a summary of the information on which the opinion is based; and (3) a detailed discussion of the effects of the action on listed species or designated critical habitat. [50 CFR §402.02, 50 CFR §402.14(h)]

Candidate species - plant and animal taxa considered for possible addition to the list of threatened and endangered species. These are taxa for which the Fish and Wildlife Service has on file sufficient information on biological vulnerability and threat(s) to support issuance of a proposal to list, but issuance of a proposed rule is currently precluded by higher priority listing actions. [61 FR 7596-7613 (February 28, 1996)]

Conference - a process of early interagency cooperation involving informal or formal discussions between a Federal agency and the Services pursuant to Section 7(a)(4) of the Act regarding the likely impact of an action on proposed species or proposed critical habitat. Conferences are: (1) required for proposed Federal actions likely to jeopardize proposed species, or destroy or adversely modify proposed critical habitat; (2) designed to help Federal agencies identify and resolve potential conflicts between an action and species conservation early in a project's planning; and (3) designed to develop recommendations to minimize or avoid adverse effects to proposed species or proposed critical habitat. [50 CFR §402.02, 50 CFR §402.10]

Conservation - the terms "conserve," "conserving" and "conservation" mean to use and the use of all methods and procedures which are necessary to bring any threatened or endangered species or to the point at which the measures provided pursuant to [the] Act are no longer necessary. Such methods and procedures include, but are not limited to, all activities associated with scientific resources management such as research, census, law enforcement, habitat acquisition and maintenance, propagation, live trapping, and transplantation, and, in the extraordinary case where population pressures within a given ecosystem cannot be otherwise relieved, may include regulated taking. [ESA §3(3)]

Conservation measures - are actions to benefit or promote the recovery of listed species that are included by the Federal agency as an integral part of the proposed action. These actions will be taken by the Federal agency or applicant, and serve to minimize or compensate for, project effects on the species under review. These may include actions taken prior to the initiation of consultation, or actions which the Federal agency or applicant have committed to complete in a biological assessment or similar document.

Conservation recommendations - the Services' non-binding suggestions resulting from formal or informal consultation that: (1) identify discretionary measures a Federal agency can take to minimize or avoid the adverse effects of a proposed action on listed or proposed

species, or designated or proposed critical habitat; (2) identify studies, monitoring, or research to develop new information on listed or proposed species, or designated or proposed critical habitat; and (3) include suggestions on how an action agency can assist species conservation as part of their action and in furtherance of their authorities under section 7(a)(1) of the Act. [50 CFR §402.02]

Constituent elements - physical and biological features of designated or proposed critical habitat essential to the conservation of the species, including, but not limited to: (1) space for individual and population growth, and for normal behavior; (2) food, water, air, light, minerals, or other nutritional or physiological requirements; (3) cover or shelter; (4) sites for breeding, reproduction, rearing of offspring, germination, or seed dispersal; and (5) habitats that are protected from disturbance or are representative of the historic geographic and ecological distributions of a species. [ESA §3(5)(A)(i), 50 CFR §424.12(b)]

Critical habitat - for listed species consists of: (1) the specific areas within the geographical area occupied by the species, at the time it is listed in accordance with the provisions of Section 4 of the Act, on which are found those physical or biological features (constituent elements) (a) essential to the conservation of the species and (b) which may require special management considerations or protection; and (2) specific areas outside the geographical area occupied by the species at the time it is listed in accordance with the provisions of Section 4 of the Act, upon a determination by the Secretary that such areas are essential for the conservation of the species. [ESA §3 (5)(A)] Designated critical habitats are described in 50 CFR §17 and 226.

Cumulative effects - are those effects of future State or private activities, not involving Federal activities, that are reasonably certain to occur within the action area of the Federal action subject to consultation. [50 CFR §402.02] This definition applies only to Section 7 analyses and should not be confused with the broader use of this term in the National Environmental Policy Act or other environmental laws.

Designated non-Federal representative - the person, agency, or organization designated by the Federal agency as its representative to conduct informal consultation or prepare a biological assessment. The non-Federal representative must be designated by giving written notice to the Director. If a permit or license applicant is involved and is not the designated non-Federal representative, then the applicant and the Federal agency must agree on the choice of the designated non-Federal representative. [50 CFR §402.02, 50 CFR §402.08]

Destruction or adverse modification of critical habitat - a direct or indirect alteration that appreciably diminishes the value of critical habitat for both the survival and recovery of a listed species. Such alterations include, but are not limited to, alterations adversely modifying any of those physical or biological features that were the basis for determining the habitat to be critical. [50 CFR §402.02]

Director - the Assistant Administrator for Fisheries for the National Oceanic and Atmospheric Administration; or the Fish and Wildlife Service Regional Director; or their respective authorized representative. [50 CFR §402.02]

Distinct Population Segment - "population," or "distinct population segment," are terms with specific meaning when used for listing, delisting, and reclassification purposes to describe a discrete vertebrate stock that may be added or deleted from the list of threatened and endangered species. The use of the term "distinct population segment" will be consistent with the Services' population policy. [61 FR 4722-4725 (February 7, 1996)]

Early consultation - a preliminary consultation requested by a Federal agency on behalf of a prospective permit or license applicant prior to the filing of an application for a Federal permit or license. [50 CFR §402.11]

Effects of the action - the direct and indirect effects of an action on the species or critical habitat, together with the effects of other activities that are interrelated or interdependent with that action. These effects are considered along with the environmental baseline and the predicted cumulative effects to determine the overall effects to the species for purposes of preparing a biological opinion on the proposed action. [50 CFR §402.02] The environmental baseline covers past and present impacts of all Federal actions within the action area. This includes the effects of existing Federal projects that have not yet come in for their Section 7 consultation.

Endangered species - any species which is in danger of extinction throughout all or a significant portion of its range. [ESA §3(6)]

Environmental baseline - the past and present impacts of all Federal, State, or private actions and other human activities in an action area, the anticipated impacts of all proposed Federal projects in an action area that have already undergone formal or early Section 7 consultation, and the impact of State or private actions that are contemporaneous with the consultation in process. [50 CFR §402.02]

USFWS - the U.S. Fish and Wildlife Service.

Federal agency - any department, agency, or instrumentality of the United States. [ESA §3(7)]

Fish or wildlife - any member of the animal kingdom, including without limitation any mammal, fish, bird (including any migratory, nonmigratory, or endangered bird for which protection is also afforded by treaty or other international agreement), amphibian, reptile, mollusk, crustacean, arthropod or other invertebrate, and includes any part, product, egg, or offspring thereof, or the dead body or parts thereof. [ESA §3(8)]

Formal consultation - a process between the Services and a Federal agency or applicant that: (1) determines whether a proposed Federal action is likely to jeopardize the continued existence of listed species or destroy or adversely modify designated critical habitat; (2) begins with a Federal agency's written request and submittal of a complete initiation package; and (3) concludes with the issuance of a biological opinion and incidental take statement by either of the Services. If a proposed Federal action may affect a listed species or designated critical habitat, formal consultation is required (except when the Services concur, in writing, that a proposed action "is not likely to adversely affect" listed species or designated critical habitat). [50 CFR §402.02, 50 CFR §402.14]

Habitat Conservation Plan - Under Section 10(a)(2)(A) of the Act, a planning document that is a mandatory component of an incidental take permit application, also known as a Conservation Plan.

Incidental take - take of listed fish or wildlife species that results from, but is not the purpose of, carrying out an otherwise lawful activity conducted by a Federal agency or applicant. [50 CFR §402.02]

Indirect effects - those effects that are caused by or will result from the proposed action and are later in time, but are still reasonably certain to occur. [50 CFR §402.02]

Informal consultation - an optional process that includes all discussions and correspondence between the Services and a Federal agency or designated non-Federal representative, prior to formal consultation, to determine whether a proposed Federal action may affect listed species or critical habitat. This process allows the Federal agency to utilize the Services' expertise to evaluate the agency's assessment of potential effects or to suggest possible modifications to the proposed action which could avoid potentially adverse effects. If a proposed Federal action may affect a listed species or designated critical habitat, formal consultation is required (except when the Services concur, in writing, that a proposed action "is not likely to adversely affect" listed species or designated critical habitat). [50 CFR §402.02, 50 CFR §402.13]

Interdependent actions - actions having no independent utility apart from the proposed action. [50 CFR §402.02]

Interrelated actions - actions that are part of a larger action and depend on the larger action for their justification. [50 CFR §402.02]

Is likely to adversely affect - the appropriate finding in a biological assessment (or conclusion during informal consultation) if any adverse effect to listed species may occur as a direct or indirect result of the proposed action or its interrelated or interdependent actions, and the effect is not: discountable, insignificant, or beneficial (see definition of "is not likely to adversely affect"). In the event the overall effect of the proposed action is beneficial to the listed species, but is also likely to cause some adverse effects, then the proposed action "is likely to adversely affect" the listed species. If incidental take is anticipated to occur as a result of the proposed action, an "is likely to adversely affect" determination should be made. An "is likely to adversely affect" determination requires the initiation of formal Section 7 consultation. [Clarification of usage]

Is likely to jeopardize proposed species/adversely modify proposed critical habitat – the appropriate conclusion when the action agency or the Services identify situations where the proposed action is likely to jeopardize the proposed species or adversely modify the proposed critical habitat. If this conclusion is reached, conference is required. [Clarification of usage]

Is not likely to adversely affect - the appropriate conclusion when effects on listed species are expected to be discountable, insignificant, or completely beneficial. **Beneficial effects** are contemporaneous positive effects without any adverse effects to the species.

Insignificant effects relate to the size of the impact and should never reach the scale where take occurs.

Discountable effects are those extremely unlikely to occur. Based on best judgment, a person would not: (1) be able to meaningfully measure, detect, or evaluate insignificant effects; or (2) expect discountable effects to occur. [Clarification of usage]

Jeopardize the continued existence of - to engage in an action that reasonably would be expected, directly or indirectly, to reduce appreciably the likelihood of both the survival and recovery of a listed species in the wild by reducing the reproduction, numbers, or distribution of that species. [50 CFR §402.02]

Listed species - any species of fish, wildlife or plant which has been determined to be threatened or endangered under Section 4 of the Act. [50 CFR §402.02]

Major construction activity - a construction project (or other undertaking having similar

physical effects) which is a major Federal action significantly affecting the quality of the human environment as referred to in the National Environmental Policy Act (NEPA, 42 U.S.C. 4332(2)(C)). [50 CFR §402.02]

May affect - the appropriate conclusion when a proposed action may pose **any** effects on listed species or designated critical habitat. When the Federal agency proposing the action determines that a "may affect" situation exists, then they must either initiate formal consultation or seek written concurrence from the Services that the action "is not likely to adversely affect" [see definition above] listed species. [Clarification of usage]

Minor change rule - when preparing incidental take statements, the Services must specify reasonable and prudent measures and their implementing terms and conditions to minimize the impacts of incidental take that do not alter the basic design, location, scope, duration, or timing of the action, and that involve only minor changes. [50 CFR §402.14(i)(2)]

NMFS - the National Marine Fisheries Service.

No effect - the appropriate conclusion when the action agency determines its proposed action will not affect a listed species or designated critical habitat. [Clarification of usage]

Occupied critical habitat - critical habitat that contains individuals of the species at the time of the project analysis. A species does not have to occupy critical habitat throughout the year for the habitat to be considered occupied (e.g. migratory birds). Subsequent events affecting the species may result in this habitat becoming unoccupied. [Clarification of usage]

Population - "population," or "distinct population segment," are terms with specific meaning when used for listing, delisting, and reclassification purposes to describe a discrete vertebrate stock that may be added or deleted from the list of threatened and endangered species. The term "population" will be confined to those distinct population segments officially listed, or eligible for listing, consistent with Section 4(a) of the Act and the Services' population policy. [61 FR 4722-4725 (February 7, 1996)]

Preliminary biological opinion - the opinion issued as a result of early consultation. [50 CFR §402.02]

Programmatic consultation - consultation addressing an agency's multiple actions on a program, regional or other basis. [Clarification of usage]

Proposed critical habitat - habitat proposed in the Federal Register to be designated as critical habitat, or habitat proposed to be added to an existing critical habitat designation, under Section 4 of the Act for any listed or proposed species. [50 CFR §402.02]

Proposed species - any species of fish, wildlife or plant that is proposed in the Federal Register to be listed under Section 4 of the Act. [50 CFR §402.02]

Reasonable and prudent alternatives - recommended alternative actions identified during formal consultation that can be implemented in a manner consistent with the intended purpose of the action, that can be implemented consistent with the scope of the Federal agency's legal authority and jurisdiction, that are economically and technologically feasible, and that the Director believes would avoid the likelihood of jeopardizing the continued existence of listed species or the destruction or adverse modification of designated critical habitat. [50 CFR §402.02]

Reasonable and prudent measures - actions the Director believes necessary or appropriate to minimize the impacts, i.e., amount or extent, of incidental take. [50 CFR §402.02]

Recovery - improvement in the status of listed species to the point at which listing is no longer appropriate under the criteria set out in Section 4(a)(1) of the Act. [50 CFR §402.02]

Recovery unit - management subsets of the listed species that are created to establish recovery goals or carrying out management actions. To lessen confusion in the context of Section 7 and other Endangered Species Act activities, a subset of an animal or plant species that needs to be identified for recovery management purposes will be called a "recovery unit" instead of a "population." [Clarification of usage]

Section 4 - the section of the Endangered Species Act of 1973, as amended, outlining procedures and criteria for: (1) identifying and listing threatened and endangered species; (2) identifying, designating, and revising critical habitat; (3) developing and revising recovery plans; and (4) monitoring species removed from the list of threatened or endangered species. [ESA §4]

Section 7 - the section of the Endangered Species Act of 1973, as amended, outlining procedures for interagency cooperation to conserve Federally listed species and designated critical habitats. Section 7(a)(1) requires Federal agencies to use their authorities to further the conservation of listed species. Section 7(a)(2) requires Federal agencies to consult with the Services to ensure that they are not undertaking, funding, permitting, or authorizing actions likely to jeopardize the continued existence of listed species or destroy or adversely modify designated critical habitat. Other paragraphs of this section establish the requirement to conduct conferences on proposed species; allow applicants to initiate early consultation; require FWS and NMFS to prepare biological opinions and issue incidental take statements. Section 7 also establishes procedures for seeking exemptions from the requirements of Section 7(a)(2) from the Endangered Species Committee. [ESA §7]

Section 7 consultation - the various Section 7 processes, including both consultation and conference if proposed species are involved. [50 CFR §402]

Section 9 - the section of the Endangered Species Act of 1973, as amended, that prohibits the taking of endangered species of fish and wildlife. Additional prohibitions include: (1) import or export of endangered species or products made from endangered species; (2) interstate or foreign commerce in listed species or their products; and (3) possession of unlawfully taken endangered species. [ESA §9]

Section 10 - the section of the Endangered Species Act of 1973, as amended, that provides exceptions to Section 9 prohibitions. The exceptions most relevant to Section 7 consultations are takings allowed by two kinds of permits issued by the Services: (1) scientific take permits and (2) incidental take permits. The Services can issue permits to take listed species for scientific purposes, or to enhance the propagation or survival of listed species. The Services can also issue permits to take listed species incidental to otherwise legal activity. [ESA §10]

Service(s) - the Fish and Wildlife Service or the National Marine Fisheries Service (or both).

Species - includes any subspecies of fish or wildlife or plants, and any distinct population segment of any species of vertebrate fish or wildlife which interbreeds when mature. [ESA §3(16)]

Species list – a list of candidate, proposed, threatened, and endangered species in the project area obtained from the Service(s) through written request or from web based searches. (50 CFR 402.12 (e)).

Survival - For determination of jeopardy/adverse modification: the species' persistence as listed or as a recovery unit, beyond the conditions leading to its endangerment, with sufficient resilience to allow for the potential recovery from endangerment. Said another way, survival is the condition in which a species continues to exist into the future while retaining the potential for recovery. This condition is characterized by a species with a sufficient population, represented by all necessary age classes, genetic heterogeneity, and number of sexually mature individuals producing viable offspring, which exists in an environment providing all requirements for completion of the species' entire life cycle, including reproduction, sustenance, and shelter. [Clarification of usage]

Take - to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect or attempt to engage in any such conduct. [ESA §3(19)]

Harm is further defined by FWS to include significant habitat modification or degradation that results in death or injury to listed species by significantly impairing behavioral patterns such as breeding, feeding, or sheltering.

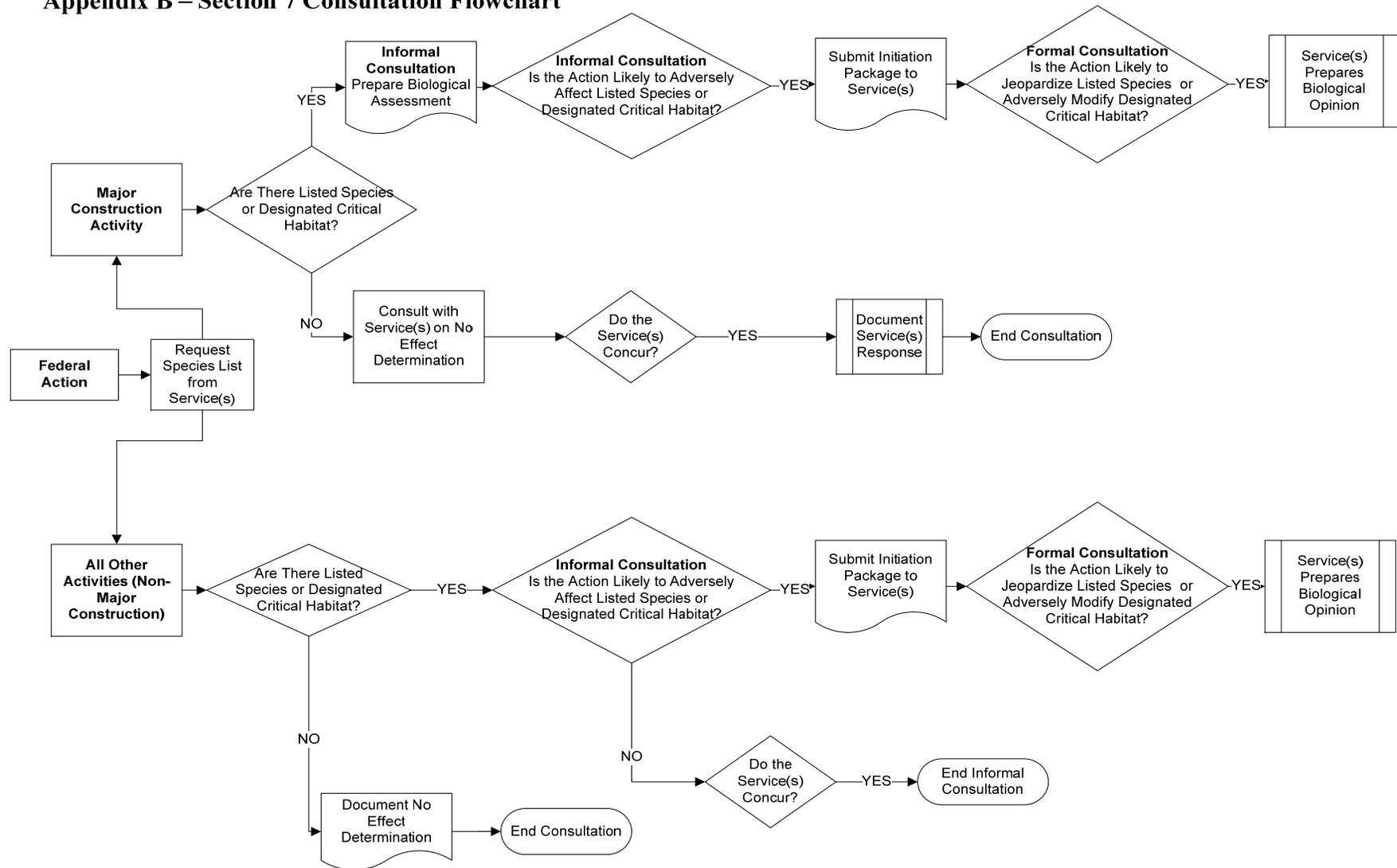
Harass is defined by FWS as actions that create the likelihood of injury to listed species to such an extent as to significantly disrupt normal behavior patterns which include, but are not limited to, breeding, feeding or sheltering. [50 CFR §17.3]

Technical assistance from the Service(s) may take a variety of forms; it includes the species list provided by the Service, information on listed, proposed, and candidate species, as well as names of contacts having information on other sensitive species or State listed species.

Threatened species - any species which is likely to become an endangered species within the foreseeable future throughout all or a significant portion of its range. [ESA §3(20)]

Unoccupied critical habitat - critical habitat not occupied (i.e., not permanently or seasonally occupied) by the listed species at the time of the project analysis. The habitat may be suitable, but the species has been extirpated from this portion of its range. Conversely, critical habitat may have been designated in areas unsuitable for the species, but restorable to suitability with proper management, if the area is necessary to either stabilize the population or assure eventual recovery of a listed species. As recovery proceeds, this formerly unoccupied habitat may become occupied. Some designated, unoccupied habitat may never be occupied by the species, but was designated since it is essential for conserving the species because it maintains factors constituting the species' habitat.

Appendix B – Section 7 Consultation Flowchart



Appendix C – Roles of Caltrans, Local Agency, and Consultant for Local Assistance Projects

Local Agency/Consultant’s Role	District Biologist’s Role
Technical Assistance Scoping Phase (PEAR Phase)	Provide Guidance and Oversight in all Phases of Development of Biological Technical Documents
Expertise	Provide Guidance and Oversight
Species Life History	Provide Guidance and Oversight
Protocols and Methods	Provide Guidance and Oversight
Information to Aid in Species List Generation (cannot request a species list directly from the Service(s); only web-based searches).	Provide Guidance and Oversight
Support, Information, and Ideas	Track and Update STEVE
Technical Services/Support During Consultation/Project Delivery Phase (PA & ED Phase)	Provide Guidance and Oversight in all Phases of Development of Biological Assessment
Expertise	Provide Guidance and Oversight
Species Life History	Provide Guidance and Oversight
Protocols and Methods	Request Species List to Begin Informal Consultation
Support, Information, and Ideas	Provide Guidance and Oversight
Surveys	
Input Related to Determination of Effects/Alternatives	Coordinate and Correspond with Service(s)
Draft BA	Adoption/Development of Caltrans’ Biological Assessment
	Initiate Formal Consultation
	Review Draft Biological Opinion
	Accept Biological Opinion and Incorporate into Final Environmental Document
	Track and Update STEVE
Construction and Monitoring Phase	Provide Guidance and Oversight
Monitor construction activities for compliance with BO	Provide Guidance and Oversight
	Report Any Issues to the Service(s)
Mitigation Phase	Provide Guidance and Oversight
Monitor mitigation measures	Provide Guidance and Oversight
Prepare mitigation reports	Review and Submit Monitoring Reports to the Service(s)
	Track and Update STEVE

NOTE: Only the District Biologist and/or their managers may conduct Section 7 consultations; however, Local Agencies and Consultants, under the direction of the District Biologist, are encouraged to participate. Please refer to [Quality Control and Assurance for Biological Technical Documents](#) for additional information. Please refer to Section 4-5.4 for additional information on the roles and responsibilities of Local Agencies and Consultants.

Appendix D – Biological Resources, Species Lists, and Caltrans Guidance

Along with the CNDDDB and Service(s) website, additional information on biological resources are available. Some of the common sources of biological resources information include the following:

U.S. Fish and Wildlife Service

- [Endangered Species Program](#) provides special status species information
- [Threatened and Endangered Species Database \(TESS\)](#) provides species lists and information
- [Guidelines and Survey Protocols: Sacramento Fish and Wildlife Office](#)
- [Survey Protocols: Ventura Fish and Wildlife Office](#)
- [Endangered Species Home Page](#)
- [Factsheets and News Releases on Threatened and Endangered Species](#)
- [National Wildlife Refuge System](#)
- [Number of Federal Listed Species by State](#)
- [Guidelines for the Fulfillment of Interagency Cooperation Under Section 7 of the Endangered Species Act](#)

National Marine Fisheries Service

- [Listed Pacific Salmon](#)
- [Listed Marine Mammals](#)
- [Listed Marine Turtles](#)
- [Listed Other Marine Species](#)
- [Essential Fish Habitat](#)
- [NMFS EFH Consultations](#)
- [Essential Fish Habitat & Critical Habitat Comparisons](#)
- [Essential Fish Habitat Mapper v2.0](#)
- [Essential Fish Habitat Consultation Guidance](#)
- [Endangered Species Act Salmon Regulations and Permits](#)
- [Cooperative Policy on Information Standards Under FESA](#)
- [Cooperative Policy for the Ecosystem Approach to FESA](#)
- [Cooperative Policy Regarding the Role of State Agencies in FESA](#)
- [Cooperative Policy for Peer Review in FESA Activities](#)
- [Cooperative Policy for Recovery Plan Participation and Implementation Under FESA](#)

Critical Habitat

- [USFWS Critical Habitat Portal](#)
- [NMFS Critical Habitat](#)

- [NMFS Critical Habitat Maps and Data](#)
- [Code of Federal Regulations: 50 CFR 226 - Designated Critical Habitat](#)
- [Geographic Information Systems \(GIS\) Data on Critical Habitat](#)

California Department of Fish and Game (DFG)

- [Protocols for Surveying and Evaluating Impacts to Special Status Native Plant Populations and Natural Communities](#)
- [Survey and Monitoring Protocols and Guidelines](#)
- [California Natural Diversity Data Base \(CNDDDB\): Inventories the status and locations of rare plants and animals in California](#)
- [Wildlife Species Matrix](#)
- [BIOS](#): Biogeographic Information and Observation System online mapping tool
- [VegCAMP](#): Vegetation Classification and Mapping Program
- [CWHR](#): California Wildlife Habitat Relationships
- [GIS](#): Geographic Information Systems services and support
- [California Environmental Resources Evaluation System \(CERES\)](#): Access a variety of electronic data describing California's rich and diverse environments.

Federal Register

- [Federal Register](#)
- [Code of Federal Regulations \(CFR\)](#)

Caltrans Guidance

- [Caltrans BA Template](#)
- [Caltrans EIS Template](#)
- [Environmental Commitments Record](#)
- [General Biological Technical Document Format FAQs](#)
- [Clarification Regarding Federal Endangered Species List Validity](#). Jay Norvell (June 22, 2011)
- [Tracking Federal Endangered Species Act Consultations and Automatic Elevation Procedures](#). Jay Norvell (March 18, 2011)
- [Guidance for the Joint Issue Memo for the Dispute Resolution Process for Section 7 Endangered Species Act Consultation](#). Jay Norvell (April 8, 2009).
- [Dispute Resolution Process with FWS for Section 7](#). (November 21, 2006)
- [Cumulative Impact and Growth-Related, Indirect Impact Analyses Guidance](#). Kelly C Dunlap (October 9, 2007).

- [Joint Guidance FHWA/Caltrans NEPA Consultation/Reevaluation Guidance](#). Jay Norvell, (June 21, 2007).
- [Inferred Presence of Federally Listed Species](#) (FHWA - California Division)
- [Programmatic biological opinion based on the FHWA's minor transportation projects](#). USFWS (December 21, 2004)
- [Guidance for Preparers of Cumulative Impact Analysis](#) Approach and Guidance. (June 30, 2005)
- [Guidance for Preparers of Growth-related, Indirect Impact Analyses](#). (May, 2006)
- [Environmental Commitments Record: Memo](#), (June 10, 2005)
- [Mitigation in Areas with Habitat Conservation Plans](#). FHWA - California Division. (December 3, 2004)
- [Guidance for Combined Essential Fish Habitat and Endangered Species Act Consultation Process](#). (September 20, 2004)
- [Essential Fish Habitat Delegation Authority](#). (June 7, 2004)
- [FHWA Technical Advisory](#) (T-6640.8A). (October 30, 1987)
- [Conducting Endangered Species Act Consultations with Services](#). Michael G. Ritchie (FHWA) (April 24, 2002)
- [Project Initiation Documents and the Preliminary Environmental Analysis Report](#). Kelly C. Dunlap, (July 28, 2011).
- [Preliminary Environmental Analysis Report Handbook](#). Gary R. Winters (December 27, 2001)

Caltrans District Biologists have use of internal [Section 7 Concurrence and Request Letter Templates](#) to help build an administrative record of correspondence related to consultation. These templates may only be used by Caltrans District Biologists due to the State of California, Department of Transportation's, official headers and footers. The internal templates are available on Caltrans Division of Environmental Analysis, Biological Studies and Technical Assistance website. This is not to be confused with Caltrans, Standard Environmental Reference (SER), forms and templates, which are available to all Biologists.

- Request Species List
- Request Species List Follow-up
- 30 Day Concurrence with BA Findings
- Confirming Concurrence with Understanding of Methods/Protocols
- Confirming Understanding of Methods/Protocols
- Section 7 Consultation Initiation Request
- Request Biological Opinion

Appendix E – Federal Regulations Table

The following table may be used as a reference. The table provides a summary of the Federal agencies that regulate activities concerning the Federal Endangered Species Act and responsibilities of District Biologist's.

Regulation	Agency	Responsibility
Federal Endangered Species Act (FESA) (50 CFR Part 402), as amended	U.S. Fish and Wildlife Service (USFWS)	District Biologist consults with USFWS if listed terrestrial species and freshwater aquatic species or habitat is present
Fish and Wildlife Coordination Act (FWCA) (16 USC 661-666), as amended	U.S. Fish and Wildlife Service (USFWS)	District Biologist is required to consult with USFWS/DFG when a proposed activity involving the impoundment, diversion, deepening, control, or modification of a stream or body of water. Agency will prepare reports and recommendations that document project effects on wildlife and identify measures that may be adopted to prevent loss or damage to wildlife resources
Migratory Bird Treaty Act (MBTA) (16 USC 703-711), as amended	U.S. Fish and Wildlife Service (USFWS)	Unlawful to take, import, export, possess, sell, purchase, or barter any migratory bird. A Federal MBTA authorization (permit) is needed to collect birds covered by the MBTA. Applies to feathers, eggs, and nests also. Of particular concern when birds nest on bridges, buildings, signs, and other structures
Bald and Golden Eagle Protection Act (16 USC 668-668d), as amended	U.S. Fish and Wildlife Service (USFWS)	Illegal to take bald or golden eagles. If disturbance will occur, District Biologist must obtain a permit to authorize take of eagles. Applies to feathers, eggs, and nests also. Of particular concern when birds nest on bridges, signs, and buildings
Fishery Conservation and Management Act (Magnuson-Stevens Act) (Public Law 94-265), as	U.S. Fish and Wildlife Service (USFWS)	District Biologist must document and consult with NMFS on activities that may adversely affect essential fish habitat (EFH)

amended		
Noxious Weed Control and Eradication Act of 2004 (7 U.S.C. 2814(a)), as amended	U.S. Fish and Wildlife Service (USFWS)	Section 15 requires Caltrans to develop and establish a management program for control of undesirable plants that are classified under State or Federal law located on Federal lands under Caltrans jurisdiction
Plant Protection Act (PPA) (7 USC 7702, 7 USC 7701 & 7 USC 7701), as amended	U.S. Fish and Wildlife Service (USFWS)	Cannot import, take, possess, or sell any native plant determined to be an endangered native plant or rare native plant
Lacey Act (16 U.S.C. §§ 3371-3378), as amended	U.S. Fish and Wildlife Service (USFWS)	Prohibits trade in wildlife, fish, and plants that have been illegally taken, possessed, transported or sold
National Environmental Policy Act (NEPA) (42 USC 4321 et seq.), as amended	U.S. Fish and Wildlife Service (USFWS)	Cooperating Agency
Federal Endangered Species Act (FESA)	National Marine Fisheries Service (NMFS)	District Biologist consults with NMFS if listed marine species and most anadromous fish are present in project area
Fishery Conservation and Management Act (Magnuson-Stevens Act) (Public Law 94-265), as amended	National Marine Fisheries Service (NMFS)	Requires District Biologist to consult with NMFS on activities that may adversely affect essential fish habitat (EFH)
Anadromous Fish Conservation Act (16 USC 757a-757g; 79 Stat. 1125), as amended	National Marine Fisheries Service (NMFS)	NMFS enters into agreements with states and other non-Federal interests to conserve, develop, and enhance the anadromous fish
Marine Mammal Protection Act (MMPA) (16 USC § 1361 et seq), as amended	National Marine Fisheries Service (NMFS)	Requires District Biologist to apply for an Incidental Harassment Authorization (IHA) if the project could result in take of any marine mammal. Permits that involve listed marine mammals require additional review and processing time under FESA and NEPA

<p>Lacey Act (16 U.S.C. §§ 3371-3378), as amended</p>	<p>National Marine Fisheries Service (NMFS)</p>	<p>Prohibits trade in wildlife, fish, and plants that have been illegally taken, possessed, transported or sold</p>
<p>National Environmental Policy Act (NEPA) (42 USC 4321 et seq.), as amended</p>	<p>National Marine Fisheries Service (NMFS)</p>	<p>Cooperating Agency</p>
<p>Lacey Act (16 U.S.C. §§ 3371-3378), as amended</p>	<p>United States Department of Agriculture (USDA)</p>	<p>Prohibits trade in wildlife, fish, and plants that have been illegally taken, possessed, transported or sold</p>
<p>Noxious Weed Control and Eradication Act of 2004 (7 U.S.C. 2814(a)), as amended</p>	<p>United States Department of Agriculture (USDA)</p>	<p>Section 15 requires Caltrans to develop and establish a management program for control of undesirable plants that are classified under State or Federal law located on Federal lands under Caltrans jurisdiction</p>
<p>Plant Protection Act (PPA) (PUBLIC LAW 106-224, as amended) (part of the Agricultural Risk Protection Act)</p>	<p>United States Department of Agriculture (USDA)</p>	<p>Cannot import, take, possess, or sell any native plant determined to be an endangered native plant or rare native plant</p>

Appendix F - Biological Resources: Plants

[California Department of Fish and Game](#) (DFG)

- [California Natural Diversity Database Resources](#) (CNDDB) is a program that inventories the status and locations of rare plants and animals in California
- [Protocols for Surveying and Evaluating Impacts to Special Status Native Plant Populations and Natural Communities](#) (11/2009)
- [Guidelines for Conducting and Reporting Botanical Inventories for Federally Listed, Proposed, and Candidate Plants](#) (USFWS, 2000)
- [Fish and Game Code 1900-1913: Native Plant Protection Act](#)
- [Listing Threatened and Endangered Plants](#)
- [Research on Rare, Threatened or Endangered Plants](#)
- [Status of Rare, Threatened, and Endangered Plants and Animals of California 2000-2004](#)
- [Rare Plant Program](#)
- [Biogeographic Information and Observation System - BIOS](#)
- [Vegetation Classification and Mapping Program](#)
- [Endangered, Threatened and Rare Plant Species](#)
- [Special Vascular Plants, Bryophytes, and Lichens](#)
- [Plant and Animal Information](#)
- [Survey Guidelines](#)
- [California Native Plant Society \(CNPS\)](#)
- [Inventory of Rare and Endangered Vascular Plants of California](#)
- [Jepson Interchange](#)
- [A Manual of California Vegetation](#)
- [CalFlora Database, Botanical Resource for California](#)

Plant Permits

- [Scientific Collecting Permit](#)
- [Research Permit Guidelines](#)
- [Research Permit Application](#)

Other Guidance

- [California Desert Native Plants Act](#) (Fish and Game Code 1925 et seq.)
- [Senate Concurrent Resolution No. 17: Oak Woodlands](#)

- [Sudden Oak Death Resolutions](#)

Appendix G – State Regulations Table

The following table may be used as a reference. The table provides a summary of the State agencies that regulate activities concerning the California Endangered Species Act and responsibilities of District Biologist's.

Regulation	Agency	Responsibility
California Endangered Species Act (CESA)	California Department of Fish and Game (DFG)	Section 2080 prohibits District Biologist from take of any threatened or endangered species.
California Endangered Species Act (CESA)	California Department of Fish and Game (DFG)	Section 2080.1 District Biologist must submit the Federal biological opinion/incidental take statement to DFG for a determination as to whether the Federal document is "consistent" with CESA.
California Endangered Species Act (CESA)	California Department of Fish and Game (DFG)	Incidental Take Permit – (Section 2081(b) and (c)) may be issued to the District Biologist to allow take if the take is incidental to otherwise lawful activity, fully mitigated, funded, and will not jeopardize special status species
California Native Plant Protection Act (CNPPA) (Fish and Game Code 1900 et seq.)	California Department of Fish and Game (DFG)	Prohibits the taking of listed plants from the wild and require notification of the DFG at least 10 days in advance of any change in land use. District Biologist is required to conduct botanical inventories and consult with DFG during project planning.
California Desert Native Plant Act (Fish and Game Code 1925 et seq. and Food and Agriculture Code 80001-80006)	California Department of Fish and Game (DFG)	Harvest, transport, sale, or possession of specific native desert plants is prohibited unless Biologist has a valid permit, or wood receipt, and the required tags and seals (applicable only within the Counties of Imperial, Inyo, Kern, Los Angeles, Mono, Riverside, San Bernardino, and San Diego).
Fish and Wildlife Coordination Act (16 USC 661-666)	California Department of Fish and Game (DFG)	District Biologist is required to consult with DFG that document project effects on wildlife. (DFG prepares reports and recommendations to document project effects on wildlife and identify measures that may be

		adopted to prevent loss or damage to wildlife resources).
CEQA	California Department of Fish and Game (DFG)	Commenting authority

CHAPTER 5

MITIGATION AND MONITORING

5-1 INTRODUCTION

- 5-1.1 Need for Mitigation
- 5-1.2 Mitigation Activities
- 5-1.3 Other Resources

5-2 MITIGATION DEVELOPMENT TEAM PROCESS

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- 5-2.6 Construction Monitoring
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5-3 SUGGESTED REFERENCES

- 5-3.1 Wetlands - Ecology, Restoration
- 5-3.2 Riparian Habitat
- 5-3.3 Ecosystem Monitoring
- 5-3.4 Aquatic Resources
- 5-3.5 Regulatory Issues
- 5-3.6 General References
- 5-3.7 Professional Associations

CHAPTER 5

MITIGATION AND MONITORING

5-1 INTRODUCTION

5-1.1 Need for Mitigation

By the mitigation and monitoring stage of the environmental analysis process (CEQA and/or NEPA), initial impact assessment work has been completed. It has been determined that unavoidable impacts to sensitive natural resources require restoration, creation, or enhancement of the habitats affected by the proposed project. The District Biologist has initiated coordination with resource and regulatory agency staff to determine the extent of concern and controversy regarding the proposed mitigation project. The U.S. Army Corps of Engineers (ACOE) usually has final approval in wetland mitigation projects due to the Section 404 (Clean Water Act) permitting requirements. Mitigation for upland projects, such as oak woodland, fisheries, or endangered species, may involve the California Department of Fish and Game (DFG), U.S. Fish and Wildlife Service (FWS), or National Marine Fisheries Service (NMFS) as the lead approving agency.

In the mitigation development phase of the environmental analysis process, a team effort is initiated to develop project goals and objectives, prepare detailed plans, construct, and monitor the project.

5-1.2 Mitigation Activities

For purposes of this chapter, mitigation activities are defined as any biological activities performed in order to compensate for the impacts of transportation projects. Ecological restoration is another term often used to describe these actions. Activities implemented to minimize biological impacts to species or habitats may also be included. Mitigation activities vary widely. Some of the most common types are:

- creation, restoration, or enhancement of general habitat types (i.e., wetlands, oak woodlands);
- creation, restoration, or enhancement of specific habitat for sensitive species (i.e., elderberry plantings for the Valley Elderberry Longhorn Beetle, nesting habitat for Least Bell's vireo);
- structural modifications for sensitive species (i.e., wildlife crossings, fisheries enhancements, desert tortoise fencing);
- habitat modifications to remove predators for sensitive species (i.e., cowbird trapping); and
- providing funds for habitat creation or enhancement by others in private preserves or mitigation banks.

This chapter will focus on the first two types of mitigation activities since they are the most common and can be complex for medium to large-scale projects.

5-1.3 Other Resources

Biological habitat mitigation is a complex endeavor. This chapter does not attempt to provide a comprehensive guide to all aspects of designing and monitoring a Caltrans mitigation project. There are numerous publications that detail habitat creation and/or restoration. Many of those references are provided in Section 5-3, Suggested References. The reference section also includes a list of professional associations involved in the study of ecological restoration. Many Caltrans biologists maintain memberships with one or

more of these organizations. Annual and special focus group meetings provide exposure to current methods and theories in this multidisciplinary field.

Networking with other biologists, landscape architects, erosion control specialists, and others within and outside Caltrans is also a valuable way to gain knowledge about ecological restoration.

5-2 MITIGATION DEVELOPMENT TEAM PROCESS

The District Biologist is responsible for providing a complete description of the proposed biological impacts in the Natural Environment Study (NES) and/or a supplemental Wetlands/Waters Delineation Assessment Report (WDAR), where major impacts to wetlands are involved. During project meetings with resource and regulatory agency staff, the biologist gathers suggestions regarding mitigation requirements for permitting purposes. This information is used to prepare preliminary goals and objectives of the mitigation project.

5-2.1 Identification of Goals and Objectives

Goals. The typical overall goal for habitat mitigation is that the mitigation project will replace the functions and values of the habitat affected by the transportation project. An example of a mitigation goal might be as follows:

"Create two acres of elderberry habitat suitable for the Valley Elderberry Longhorn Beetle."

Objectives. Objectives are specific sub-components of goals such as the following example:

"The site shall create two acres of elderberry plants at a planting density of 200 per acre with at least 75% survival over the five year monitoring period."

Specific objectives will be dependent upon the suitability of the proposed mitigation site. Special attention should be paid to the wildlife species for which the habitat is being created. These will be the species affected by the transportation project. If attention is not given to the specific needs of the wildlife species, the mitigation site may only represent the creation of vegetative associations. If the transportation impacts were on nesting habitat, for example, and a vegetative association suitable only for forage is constructed, the mitigation goals will not be met.

Historically, there has been more emphasis on assessment of the functions and values of mitigation sites, through the monitoring process, than assessment of areas to be destroyed by project impacts. Affected areas may be mapped and wetlands delineated. However, the rigor of impact analysis is rarely comparable to mitigation monitoring effort. As a result, the habitat goals of the mitigation site may not be proportional to the actual functions and values of the affected habitat. In order to refine this process and ensure that mitigation matches the project impacts, thorough evaluation of impacted areas should be completed through the Natural Environment Study process. Basic parameters such as cover, density and species frequency should be evaluated in impact analysis as a basis for mitigation site development.

In addition to goals and objectives, a preliminary schedule and budget should be developed in this early stage. Preliminary requirements for the mitigation activity (for example, acreage needed for habitat-scale projects) or the source of funds for banking (State or private), should be identified.

5-2.2 Forming the Mitigation Development Team

The District Biologist may take the lead in forming an informal or formal Mitigation Development Team (MDT). A formal team is most effective for typical projects. The team represents the various disciplines often required in designing and constructing successful mitigation projects. The team should include the Project Manager, Project Engineer, and representatives from Environmental Planning, Landscape Architecture, Hydraulics, Maintenance, and Construction Programs. The team will focus on translating

goals into objectives and developing a conceptual mitigation plan, followed by a detailed project proposal. During this time, the biologist continues as agency liaison for coordinating with the resource and regulatory agency staff. If the project includes any consultants under contract to prepare studies outside the skills of Caltrans staff (hydrology, biostatistics, soil science, fisheries, etc.), these individuals shall also be a part of the team. Although Cultural Resources and Hazardous Waste staff may not be formal members of the team, coordination should be made with these units as a part of the site design process, where appropriate. Resource agency staff should also be team members, although their schedules may only allow for attendance at critical meetings.

The responsibility for preparing a central file for project information is often overlooked. A central project file should be established. All team members should be required to file copies of meeting notes, project plans, consultations, project decisions, etc. in a central location to provide an institutional or corporate memory in case of staff changes on the team.

Since there are no Caltrans policies that clearly describe the responsibilities of a MDT, it is imperative that team member roles are clarified early in the process. The Project Manager must provide approval of the mitigation concept and preliminary budget. The Landscape Architect and other team members may work primarily to address the practicality of translating the concept to reality. Typically, staff from Project Development, Landscape Architecture, or their contractors, prepare project plans for construction.

Whether working as lead, co-lead, or team member, the District Biologist must provide input on the habitat aspects of the proposal. It is imperative that the commitments made in the environmental document are used to direct mitigation design.

For wetland and upland habitat projects, the biologist may provide a proposed plant species list, planting densities and layout, and site elevations to accommodate species requirements. The biologist should also present an aquatic species list, where applicable. Key information about target wildlife species and their habitat requirements is included in the preliminary input to the team. For aquatic habitat projects, detailed information on water depth, riffle to pool ratio, temperature, velocity, and substrate characteristics may be required. When fish passage is an issue, water depths, water velocities, swimming ability of fish, culvert length, and jump heights should be a part of the information supplied by the biologist. For a project that requires modifications in aquatic stream habitat it is imperative that a hydrologist/stream morphologist be involved in the process.

When the District Biologist is not knowledgeable about a particular species or habitat, assistance should be sought from other Caltrans biologists, resource agencies, or a consultant. Proposed designs for wildlife crossings and other structural mitigation should be reviewed by biologists knowledgeable about such devices.

5-2.3 Mitigation Alternatives Analysis

The MDT should analyze the methods available to meet the mitigation goals. Species-specific improvements may involve planning activities such as predator trapping, wildlife crossings and/or fences, or the creation of nesting habitat. Where available, mitigation banks are another option for general habitat mitigation. Caltrans is actively developing mitigation banks throughout the state.

Since habitat restoration, general or species-specific, is one of the most common mitigation activities, the following sections detail considerations to be made in a feasibility study analyzing potential mitigation sites.

The site selection process for mitigation project location includes the following considerations:

- conservation easements as an alternative to right of way purchase;
- avoid purchasing or improving habitat on small isolated sites;
- habitat restoration on lands managed by conservation agencies;

- acquiring sites that are adjacent to other lands that are managed for conservation purposes; and
- developing mitigation banks when appropriate opportunities exist.

Potential mitigation sites should be evaluated regarding physical factors as well as consider future development plans which may affect those sites. Written approval of mitigation site selection by the Project Manager may reduce future conflicts regarding implementation of a site design. Caltrans departments involved in plan review/approval include, but are not limited to, Maintenance; Landscape Architecture; Right of Way and Hydraulics.

The MDT must also consider how mitigation development on prospective sites affect neighboring properties. For example, urban neighbors may have concerns about potential effects of mosquitoes from a wetland development. Rural neighbors may have concerns about effects on agricultural crops by wildlife attracted to a mitigation site.

Onsite mitigation is usually limited to small, low habitat value, mitigation activities. Offsite mitigation usually occurs where large acreage is required. Submissions for suitable sites may be obtained from a variety of sources. Right of Way Program staff may be able to provide a list of excess lands which should be considered for mitigation since no acquisition costs are required. Right of Way agents may know of parcels available in the project area through foreclosures or otherwise. Local, State, or Federal agencies may have lands where mitigation could be implemented with Caltrans under a Memorandum of Agreement or Memorandum of Understanding. All reasonable considerations should be taken into account to select the best mitigation site option.

Mitigation banking may be an option where Caltrans has planned in advance for potential impacts to specific habitat types. Private mitigation banks are also an option that has recently become available for some habitat types. The ACOE has developed a banking agreement procedure which should be used where mitigation for impacts to wetlands and other aquatic resources is involved (ACOE, et al. 1995).

Evaluation of possible sites for project mitigation should focus on habitat considerations, ownership specifics, and acquisition costs. Maintenance of the mitigation site in perpetuity should be fully addressed. Internal agreements with the Maintenance Program should be signed, as appropriate. Where Caltrans is unable to take the responsibility of long-term maintenance, the terms of temporary and permanent site management must be made in writing with any other parties involved.

Team members may benefit from creating a checklist for each project to assure that all important factors are considered at this early stage. Site selection should not be approved until team members have assurance that the site has the potential to meet the project goals. This preliminary investigation should include cultural resources and hazardous waste investigation. Using this process, site selection will match project needs. Onsite and offsite proposals should receive equal scrutiny. The availability of areas within the right of way should not influence the selection process such that an inappropriate site is chosen simply because it is available. Areas within Caltrans' right of way have often been compacted and otherwise altered resulting in areas inappropriate for habitat restoration or creation. Ongoing maintenance activities in the right of way and their potential impacts to habitat restoration are other important considerations, as previously mentioned.

One or more reference data sites should be evaluated in the development of the monitoring plan. A reference site contains the same habitat type and is within the region of the mitigation site. Such sites may be mature habitat and can be used for developing mitigation goals. Some references of early stage habitats may also be assessed to determine interim mitigation site goals. Performance criteria for the project are developed following collection of field data of plant species and/or other aspects at reference sites.

The following list adapted from Rieger and Traynor (1994) shows site factors that should be considered in any evaluation of potential mitigation sites.

General Factors:

- Political considerations
- Regulatory agency approval
- Historical context
- Hazardous waste
- Resource constraints
- Historical/Archeology
- Wildlife
- Vegetation
- Water rights
- Human use patterns
- Current and ultimate site ownership
- Constraints
 - Easements, rights of entry
 - Agricultural quarantines
- Land use compatibility
- Acquisition cost
- Site stewardship, short and long-term

Physical Factors:

- Hydrology
 - Groundwater
 - Surface water
- Soil characteristics
 - Organic matter
 - Texture
 - pH
 - Water capacity
- Topography
 - Elevation
 - Slope and aspect
- Water quality

Biological factors:

- Historic evolution of existing vegetation
- Habitat values and features
- Degree of degradation

Wildlife resources (existing and/or proposed)
Plant species (existing and/or proposed)
Sensitive species (existing and/or proposed)
Vegetation succession
Potential predators, weed species (existing and/or potential)
Habitat buffer zones

Following consideration of site factors, a conceptual mitigation plan, including cost estimates, should be prepared for the selected site. The Project Manager is responsible for providing preliminary approval. The biologist should ensure that the concept and location are acceptable to the Federal Highway Administration (FHWA), if Federal funds are involved in the mitigation.

The regulatory and resource agencies responsible for approving the permit action requiring the mitigation should also approve the mitigation proposal. The conceptual plan should be made available for their review so any important issues can be considered prior to site acquisition or approval. This agency review step would also apply to projects where structures are being designed. The MDT should prepare a written feasibility report, including the conceptual plan and a preliminary budget that includes funding for post-construction monitoring, maintenance, and stewardship costs. The Project Manager is responsible for providing the biologist with final written approval of the plan. Future design changes should also require written approval from the Project Manager. This approval represents an in-house procedure that helps to assure compliance.

5-2.4 Design Development

Following written approval of the mitigation plan, the MDT leader should direct the team to assemble all required resources for preparing a detailed project design. Detailed design may require input from a wide variety of specialists. Typical areas of responsibility are:

Plant Ecologist:

Suitability of the plant species and planting plans for the desired plant community; plant succession; current methods of designing and monitoring ecological restoration projects.

Wildlife Ecologist:

Habitat requirements of target wildlife species; field monitoring design and implementation.

Agronomist/Horticulturist:

Matching planting techniques to unique site characteristics.

Fisheries Biologist:

Habitat requirements of target fish species; field monitoring design and implementation.

Statistician:

Statistical aspects of post-construction monitoring; reference site sampling design.

Landscape Architect:

Planting design preparation (grading, fill); irrigation; weeding techniques; all aspects of plant establishment and monitoring.

Hydrologist:

Hydrodynamics in natural stream and open water systems.

Fluvial Geomorphologist:

Specific aspects of stream morphology and evolution.

Erosion Control Specialist:

Design and monitoring of erosion control specifications.

Geologist:

Suitability of subsurface conditions for proposed grading or filling activities.

Soil Scientist:

Determination of soil properties which affect project design, such as texture and water holding capacity.

Civil Engineer:

Design of roadways, bridges, water structures, and other similar features.

During the design phase, the MDT may perform and/or direct detailed site studies to collect information for design purposes. These activities may include groundwater monitoring, stream surveys, vegetation inventories, climatic data, and many other types of information.

Projects that involve vegetation planting commonly deal with the following factors at different stages of the site design process (adapted from Rieger and Traynor 1994):

Site Preparation Stage:

Grading and drainage

Weed control, removal of invasive non-native plants

Soil ripping

Soil augmentation

Topsoiling

Seed bank

Over excavation (removing upper soil layer with weed seed)

Erosion control

Plant Materials Selection Stage:

Plant species list

Quantities required

Preferred type of planting stock

Appropriateness to wildlife species involved

Recommended sources of plant material

Localities for collection of materials

Material appropriate to the locality or region (gene pool)

Lead-time required for procurement

Recommended planting time

Planting Design and Layout Stage:

- Planting zones
- Desired percent composition for plant species
- Plant mixes/planting associations
- Planting spacing and density
- Seed mix and application rate

Irrigation System Design Stage:

- Plant species water requirements
- Demand analysis
 - Location of water source
- Preferred type of irrigation
- Control and monitoring systems
- Irrigation schedule

Plant Protection Design Stage:

- Vandalism protection
- Environmental factors
 - Staking
 - Sun protection
 - Insect protection
 - Weed control
 - Fungal protection
 - Browse protection

5-2.5 Final Plans, Specifications, and Estimates

The final Plans, Specifications, and Estimates (PS&E) may be prepared by the Landscape Architect and Project Engineer with assistance from the other MDT members. PS&E includes staging, scheduling, specifications, and special provisions of the mitigation construction project.

5-2.6 Construction Monitoring

After project plans have been prepared and/or approved by Caltrans staff or its contractors, implementation of the design becomes the responsibility of Caltrans' Construction Program. Members of the mitigation team will be responsible for advising Construction staff if, during field reviews, they determine that all components of the plan have not been constructed as designed. In some planting projects, the Landscape Architect may serve as the lead in plan development and act as the Resident Engineer in the construction phase.

The Landscape Architect conducts oversight of the landscape contractor and implementation of plant establishment. The plant establishment period is defined as the time when plants are watered, weeded, and otherwise maintained for survival. It may vary from one to three years, depending on the project.

5-2.7 Post-Construction Monitoring

The District Biologist is responsible for developing and implementing a monitoring plan to determine whether the mitigation meets the agreed upon goals and objectives of the project outlined in the environmental document. Monitoring for a minimum of five years is a standard amount of time for general habitat mitigation; however, regulatory agencies often require more time for large, controversial wetland projects. Where wetland habitat is affected, the ACOE guidance entitled *Habitat Mitigation and Monitoring Proposal Guidelines* should be followed. Each ACOE district has its own version of the guidelines; therefore, the District Biologist should ensure that they are using those guidelines appropriate for their district.

Monitoring habitat mitigation projects is a complex subject. There are diverse opinions as to what activities should be performed, as well as how and when they should be done. There is general agreement, however, that the reason for monitoring is to evaluate the mitigation project in order to take the necessary remedial actions and ensure project success. The District Biologist should work closely with other district and headquarters staff to determine whether the proposed mitigation meets standards set by previous Caltrans work. Regulatory agency requirements far above these informal standards should be scrutinized. Justification should be provided for extensive monitoring proposals.

Post-construction monitoring in ecological restoration will determine whether a site is trending toward development of mature habitat. In addition, valuable information may be obtained to aid in planning and design of future projects. Since monitoring funds are very limited, it is important that the monitoring activities are closely aligned with the original mitigation goals.

Monitoring activities should be clarified to determine if information is being gathered for general purposes or for specific site management. General purpose information includes information that is of interest, but may not be directly connected with managing the site. Monitoring thresholds are an example of a specific site management issue. If a threshold is not met within a certain time, then a specific management action would be performed. For example, if the threshold of 40% vegetative cover of target species is not met at the second year, weeding practices would be modified.

Monitoring may involve the collection of quantitative and/or qualitative data. Specific quantitative criteria may be developed, or qualitative activities, such as photographic documentation, may be used. Many monitoring plans focus entirely on evaluation of vegetation. Plant cover, density, vigor, and species composition are commonly measured. However, there is a trend toward measuring whether the target wildlife species have actually inhabited the mitigation site. Biologists should work with resource agency staff to give full consideration to collecting trend data as an alternative to quantitative performance criteria. If the data show that the project is trending toward habitat development, negotiated resource agency approvals may be obtained.

Annual monitoring reports are prepared by the District Biologist and are submitted to the appropriate regulatory and resource agencies.

5-3 SUGGESTED REFERENCES

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5-3.3 Ecosystem Monitoring

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5-3.5 Regulatory Issues

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5-3.6 General References

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5-3.7 Professional Associations

American Fisheries Society

Association of State Wetland Managers

California Exotic Pest Plant Council

California Native Grass Association

California Native Plant Society

Society for Ecological Restoration

Society of Wetland Scientists

The Wildlife Society