

Chapter 3 Environmental Setting, Impacts, and Mitigation Measures

3.1 Approach to the Environmental Analysis

As discussed in Section 2.7, *Typical Construction, Operation, and Maintenance Activities and Methods*, the Order for Clean Water Act Section 401 Water Quality Certification and Waste Discharge Requirements for Restoration Projects Statewide (Order) does not promote construction or operation of specific facilities or other specific physical actions by the State Water Resources Control Board (State Water Board). The State Water Board also does not propose to construct, operate, or undertake specific physical actions following adoption of the Order. Rather, the Order is designed to permit the actions of other federal, state, and local agencies and organizations that want to construct, operate, and maintain restoration projects in accordance with the sideboards, general protection measures, and other conditions of the Order.

The extent to which the Order would result in any particular action from authorization of individual restoration projects is yet to be determined, and as such, impacts are considered at a programmatic level with a reasonable forecasting of effects. This PEIR assumes that the Order is implemented and that restoration projects would be permitted under the Order. Accordingly, this PEIR evaluates the potential impacts of the types of restoration projects that the Order would encourage and promote in the study area. See Section 1.1, *Introduction and Overview of the Order*, for more information on the use of the PEIR and the CEQA process.

3.1.1 Scope and Assumptions of the PEIR Analysis

Using the approach discussed above, this chapter of the PEIR presents the environmental setting; regulatory setting; significant effects on the environment (impacts); and general protection measures, species protection measures, and mitigation measures, as applicable, for each of the following resource topics, listed in the order in which they are analyzed in this PEIR:

- 3.2 Aesthetics
- 3.3 Agriculture and Forestry Resources
- 3.4 Air Quality and Greenhouse Gas Emissions
- 3.5 Biological Resources—Terrestrial
- 3.6 Biological Resources—Aquatic
- 3.7 Cultural Resources
- 3.8 Energy Resources
- 3.9 Geology and Soils
- 3.10 Hazards and Hazardous Materials
- 3.11 Hydrology and Water Quality
- 3.12 Land Use and Planning
- 3.13 Mineral Resources
- 3.14 Noise
- 3.15 Population and Housing

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- 3.16 Recreation
- 3.17 Transportation
- 3.18 Tribal Cultural Resources
- 3.19 Utilities and Service Systems and Public Services
- 3.20 Wildfire

For definitions of general protection measures, species protection measures, and mitigation measures, see Section 3.1.4, *Terminology*.

The cumulative impacts for each resource topic are analyzed in Chapter 4, *Cumulative Impacts*.

Many types of restoration projects would be permitted under the Order. Specific project details, such as project sizes, configurations, locations, and operations, are not known at this time. Therefore, each resource section addresses the potential range of impacts of the types of restoration projects that could be permitted under the Order.

The impact analysis assumes that the restoration projects or actions would be constructed, maintained, and operated in compliance with the Order and other relevant federal, state, and regional and local regulations and ordinances. (Section 3.1.3, *Impacts and Mitigation Measures*.)

In addition, the individual restoration projects could be constructed, operated, and maintained in many different ways to meet regulatory requirements and guidelines. For this reason, each resource section evaluates a range of potential effects that could result from implementation of these general types of restoration projects.

The following is a partial list of example projects that represent the types of restoration projects that could be permitted under the Order (Table 3.1-1). This list is not exhaustive. Rather, the list is intended to illustrate the types of projects that were considered during development of the impact evaluation, along with the typical types of activities and construction, operations, and maintenance methods that could result from implementation of the restoration projects.

**Table 3.1-1
Example Project Types that Could Be Permitted under the Order**

Project Name	Region	Project Type
Alameda Creek Fish Passage Projects	Region 2—San Francisco	Fish passage
Alamitos Bay Oyster Restoration Project	Region 4—Los Angeles	Tidal wetlands habitat
Aliso Creek Estuary Restoration Project	Region 9—San Diego	Tidal wetlands habitat
American River Gravel Augmentation Projects	Region 5—Central Valley	Stream and side channel habitat

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Table 3.1-1
Example Project Types that Could Be Permitted under the Order

Project Name	Region	Project Type
American River Sunrise Side Channel Restoration Project	Region 5—Central Valley	Side channel habitat
Arroyo Hondo Creek Steelhead Passage Enhancement	Region 3—Central Coast	Fish passage and stream habitat
Ballona Wetlands Restoration Project	Region 4—Los Angeles	Tidal wetlands habitat
Blackwood Creek Restoration Project	Region 6—Lahontan	Stream habitat
Bouquet Canyon Creek Restoration Project	Region 4—Los Angeles	Stream and riparian habitat
Colorado Lagoon Restoration Project	Region 4—Los Angeles	Tidal lagoon habitat
Devereux Slough Restoration Project	Region 3—Central Coast	Tidal wetlands habitat
Dry Creek Restoration Project	Region 1—North Coast	Stream and riparian habitat
Dutch Slough Tidal Restoration Project	Region 5—Central Valley	Tidal wetlands habitat
Feather and Bear Rivers Levee Setback Project	Region 5—Central Valley	Floodplain habitat
Grizzly Slough Floodplain Restoration Project	Region 5—Central Valley	Floodplain habitat
Hamilton/Bel Marin Keys Wetlands Restoration Projects	Region 2—San Francisco	Tidal wetlands habitat
Napa Creek Restoration Flood Control Improvement Project	Region 2—San Francisco	Stream and riparian habitat
Napa River Restoration Projects (multiple)	Region 2—San Francisco	Stream habitat
Salton Sea Restoration Project	Region 7—Colorado River	Habitat restoration
Santa Ana River Restoration Project	Region 8—Santa Ana	Invasive species removal and riparian habitat
San Francisco Bay Living Shorelines Project	Region 2—San Francisco	Tidal wetlands habitat

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Table 3.1-1
Example Project Types that Could Be Permitted under the Order

Project Name	Region	Project Type
Shasta River Conservation Habitat Enhancement Restoration Project	Region 1—North Coast	Stream habitat and water conservation
Trabuco Creek Fish Passage Project	Region 9—San Diego	Fish passage
Upper Truckee River and Marsh Restoration Project	Region 6—Lahontan	Stream and freshwater marsh habitat
Yuba River Canyon Salmon Habitat Restoration Project	Region 5—Central Valley	Spawning habitat

3.1.2 Section Format

Each PEIR section contains the following elements:

- ◆ Introduction to the analysis contained in the section (including a summary of the nature of comments received in response to the notice of preparation)
- ◆ Environmental setting
- ◆ Regulatory setting
- ◆ Methods of analysis
- ◆ Thresholds of significance used to evaluate the significance of impacts of the types of projects that would be permitted under the Order
- ◆ Impacts not evaluated further (where applicable)
- ◆ Impacts and mitigation measures

The environmental setting and regulatory setting descriptions provide a point of reference for assessing the environmental impacts of the types of projects that would be permitted under the Order.

The study area for the Order is statewide, spanning all nine Regional Water Quality Control Boards (Regional Boards). Specific locations of restoration projects that would be permitted under the Order will be determined on an individual project basis. For this reason, each resource section provides a general discussion of the environmental setting.

The manner in which the environmental setting is described varies by resource area. For example:

- ◆ Section 3.14.2, *Environmental Setting*, for the Noise analysis discusses acoustic fundamentals, the effects of noise on humans, and noise-sensitive land uses.

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However, the section does not provide information about individual restoration projects or their locations relative to sensitive receptors (e.g., residences, library and schools, hospitals) because these sensitive receptors are not known at this time.

- ◆ Section 3.5.2, *Environmental Setting*, and Section 3.6.2, *Environmental Setting*, for the Biological Resources—Aquatic and Biological Resources—Terrestrial analyses, respectively, discuss the environmental setting by ecoregions in the study area. The ecoregions encompass geographic areas with similar patterns of physical and biological characteristics, resulting in similar expected impact mechanisms for restoration projects permitted under the Order.

The environmental setting discussion is followed by a discussion of impacts and mitigation measures. Preceding each impact/mitigation measure discussion is a summary table that lists the impacts identified and the significance conclusions with implementation of general protection measures, and species protection measures.

3.1.3 Impacts and Mitigation Measures

Each impact discussion includes the following elements:

- ◆ An impact statement
- ◆ An explanation of the impact
- ◆ An analysis of the significance of the impact before implementation of general protection measures, species protection measures, and identification of feasible mitigation measures, if appropriate
- ◆ An evaluation of whether the identified general protection measures, species protection measures, and/or mitigation measures would reduce the identified impact to a less-than-significant level

Cumulative impacts are discussed in Chapter 4 of this PEIR. Chapter 6, *Alternatives*, discusses a range of reasonable alternatives to the Order.

The Order would improve the efficiency of the State and/or Regional Board regulatory reviews of restoration projects throughout the state that would restore aquatic and riparian habitat and improve water quality. This PEIR may also provide efficiencies for other agencies that can choose to utilize it during individual projects' CEQA analyses. (For descriptions of the restoration projects, see Section 2.6, *Categories of Restoration Projects in the Order*.)

The impact analysis for resource areas involved reviewing existing information about similar actions and activities to allow the evaluation of a range of "big-picture effects" of multiple projects, consistent with the level of detail appropriate for a program-level analysis. Given the programmatic nature of the Order, individual project details are yet to be determined; impacts and assumptions are identified at a programmatic level, with the reasonable forecasting of construction and operation effects of projects permitted under the Order. For example, conducting detailed modeling (e.g., for noise, traffic, or

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hydrology and water quality) would lead to an inaccurate sense of precision and imply that such details are known, when in fact they are not.

The number of projects that may be implemented, project times and locations, and design and operation will be determined on an individual project basis. Some assumptions could be adopted from existing studies and environmental documents. In most cases, however, these assumptions are not available, and defining them would be speculative and would not reasonably forecast potential impacts. Further, an effort to simulate multiple integrated projects would entail testing and iteratively modifying many of these assumptions, which would compound the difficulty and subjectivity of the modeling effort. Therefore, this PEIR does not include individual restoration projects modeling or quantitative analysis when evaluating impacts.

The impact analysis for each resource area has determined the nature and significance of each impact before incorporation of appropriate general protection measures and species protection measures. As described in Section 2.8.2, *General Protection Measures*, all restoration projects permitted under the Order would incorporate applicable general protection measures (Appendix E) and species protection measures as described in Section 2.10, *Species Protection Measures*, and in Appendix F to ensure avoidance and minimization of impacts on sensitive resources. However, review of project plans by State Water Board or Regional Board staff will ensure that the project proponent (as defined in Section 1.1, *Introduction and Overview of the Order*) has incorporated all necessary and appropriate general protection measures and species protection measures relevant to the individual restoration project before permitting of the project under the Order. For the purposes of this PEIR, general protection measures and species protection measures are intended to be implemented and enforced in the same way as mitigation measures consistent with Section 15126.4 of the State CEQA Guidelines. In addition, as stated above, the impact analysis assumes that the proposed restoration projects would be constructed and operated in compliance with relevant federal, state, and local regulations and ordinances.

If the analysis has determined that incorporating one or more general protection measures and/or species protection measures into the restoration project would reasonably mitigate an impact, then the impact conclusion is less than significant.

If the analysis has determined that an impact would remain significant after the incorporation of appropriate general protection measures and species protection measures, then the impact conclusion is significant, and mitigation measures have been recommended to further reduce the magnitude of the impact. It is possible that implementing additional mitigation measures could reduce a significant impact to less than significant; however, the individual locations, scale, and timing of possible future restoration projects are not known at this time, nor is it known what specific resources might be present within a future restoration project's footprint. The factors necessary to identify specific impacts include the project's design and footprint, and the type and precise locations of the proposed construction activities. Therefore, it is not possible to conclude that every potentially significant adverse impact would be avoided or reduced to a less-than-significant level with implementation of mitigation measures. Some impacts would remain significant and unavoidable.

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As part of the State Water Board or Regional Board's issuance of a Notice of Applicability (NOA) for a restoration project under the Order, compliance with the general protection measures, species protection measures, and mitigation measures listed in the impact section for each resource area would be required when applicable to a given project. The applicability of the general protection measures, species protection measures, and mitigation measures would depend on the restoration activities, project location, and the potentially significant impacts of the individual restoration project. For example, mitigation measures would not be required for impacts determined by the lead agency to be less than significant for an individual restoration project. The project proponent (as defined in Section 1.1, *Introduction and Overview of the Order*) for each restoration project would be responsible for implementing the general protection measures, species protection measures, and mitigation measures pursuant to Section 15097 of the State CEQA Guidelines.

For some restoration projects, the impact conclusion presented in this PEIR may be conservative. Project proponents that propose restoration projects for coverage under the Order have a legal duty under CEQA to mitigate impacts to the extent feasible. In addition, many of the mitigation measures identified in this PEIR are standard types of mitigation, are considered generally feasible for most projects, and would reduce impacts to a less-than-significant level in many cases.

Impact Discussion Format

Each impact discussion includes an impact statement (in bold text) and is assigned a number based on the resource section and the order in which it appears (for example, 3.2-1, 3.2-2, etc.).

The impact discussions are organized as follows:

1. Each discussion begins with an impact statement and analysis for two types of impacts:
 - a. Construction-related impacts: These are impacts of preconstruction (e.g., site preparation) and site development activities for restoration projects. Construction-related impacts are often temporary.
 - b. Effects of constructed facilities (natural or artificial infrastructure) and operations and maintenance (O&M) of those facilities impacts: These are impacts of the project itself, once completed, and include O&M activities (e.g., monitoring). These impacts are generally considered permanent or ongoing. Routine O&M activities may be of short duration but are usually reoccurring.
2. The discussion identifies an impact conclusion before the implementation of general protection measures and species protection measures.
3. Appropriate general protection measures and species protection measures are identified and presented along with their effectiveness to reduce the magnitude of the impact.
4. Mitigation measures are proposed, as applicable, to reduce impacts.

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5. The mitigation measures are discussed and a significance conclusion is provided.

3.1.4 Terminology

This PEIR uses the following terminology:

- ◆ **Thresholds of Significance:** The set of criteria used by the State Water Board to determine the level or “threshold” at which an impact would be considered significant. The thresholds of significance used in this PEIR fall into the following categories:
 - Discussed in Appendix G of the State CEQA Guidelines
 - Based on factual or scientific information
 - Based on regulatory standards of federal, state, and local agencies
 - Adopted by the State Water Board

In determining the level of significance, the analysis assumes that the restoration projects permitted under the Order would comply with relevant federal, state, and local regulations and ordinances.

- ◆ **Less-than-Significant Impact:** An impact is considered less than significant when it does not reach the threshold of significance and would therefore cause no substantial adverse change in the physical environment. No mitigation is required for less-than-significant impacts. However, this determination may include implementation of applicable general protection measures and/or species protection measures.
- ◆ **Significant Impact:** An impact is considered significant if it would result in a substantial adverse change in the physical conditions of the environment. Significant impacts are identified by evaluating the effects of the project (in this case, the restoration projects permitted under the Order) in the context of specified thresholds of significance. Mitigation measures and/or project alternatives are identified to reduce these effects on the environment where feasible.
- ◆ **Significant and Unavoidable Impact:** An impact is considered significant and unavoidable if it would result in a substantial adverse change in the environment that cannot be feasibly avoided or mitigated to a less-than-significant level. A statement of overriding considerations must be adopted if impacts cannot be mitigated to a less-than-significant level.
- ◆ **General protection measures** (Appendix E) are the best management practices developed to support avoidance and/or minimization of effects on all covered species and their habitats and other resource areas (e.g., air quality, hazards and hazardous materials, geology and soils). These measures are designed to be applied, as appropriate, based upon the type of restoration project being undertaken and the specific tools being used to accomplish the restoration project.
- ◆ **Species protection measures** (Appendix F) are avoidance and/or minimization measures developed specifically to address individual covered species or covered species guilds, based upon unique life history and habitat requirements. Applicable species protection measures are to be implemented in addition to

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applicable general protection measures, described above, when suitable habitat exists within the currently occupied range of the species and/or a species is determined to be present.

- ◆ **Mitigation Measures:** The State CEQA Guidelines (Section 15370) define mitigation as all of the following:
 - Avoiding the impact 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 (Section 15370[b]).
 - Rectifying the impact by repairing, rehabilitating, or restoring the affected environment.
 - Reducing or eliminating the impact over time by conducting preservation and maintenance operations during the life of the action.
 - Compensating for the impact by replacing or providing substitute resources or environments, including through permanent protection of resources in the form of conservation easements.