3. ENVIRONMENTAL SETTING, IMPACTS, AND MITIGATION MEASURES

3.1 Introduction

3.1.1 Chapter Organization

Chapter 3 is organized into four broad categories: Shoreline Study, Physical Environment, Biological Environment, and Social and Cultural Environment.

Shoreline Study

Section 3.2, South San Francisco Bay Shoreline Study, generally characterizes the environmental impacts that may be expected if the Shoreline Study potential actions that are briefly described in Section 1.6.1 of this Environmental Impact Statement/Report (EIS/R) were implemented. The discussion presented in Section 3.2 is not intended to provide the public with sufficient information about the potential effects of the Shoreline Study pursuant to the National Environmental Policy Act (NEPA) and California Environmental Quality Act (CEQA) requirements and does not provide program- or project-level coverage of the Shoreline Study pursuant to NEPA and CEQA. The intent of Section 3.2 is to provide full public disclosure regarding a separate but closely related project that will undergo its own separate environmental review. As stated in Section 1.6.1, the Shoreline Study alternatives for the first Interim Feasibility Study phase are currently being developed and will be addressed in a separate project-level EIS/R which will incorporate the South Bay Salt Pond (SBSP) Restoration Project EIS/R by reference. The Corps has not committed to implementing any of the potential actions at this time. Subsequent environmental review will be required for each Interim Feasibility Study once the Shoreline Study alternatives are determined.

SBSP Restoration Project

The remainder of Chapter 3 (Sections 3.3 through 3.17) presents the environmental setting, impacts and mitigation measures for the SBSP Restoration Project. Topics addressed in these sections are required by NEPA) and/or CEQA and are divided into three categories: Physical Environment, Biological Environment, and Social and Cultural Environment. The environmental resource topics for each of these categories are presented below.

Physical Environment

3.3 Hydrology, Flood Management and Infrastructure
3.4 Surface Water, Sediment and Groundwater Quality
3.5 Geology, Soils and Seismicity

Biological Environment

3.6 Biological Resources

Social and Cultural Environment

3.7 Recreation Resources
3.8 Cultural Resources
3.9 Land Use
3.10 Public Health and Vector Management
3.11 Socioeconomics and Environmental Justice
3.12 Traffic
3.13 Noise
3.14 Air Quality
3.15 Public Services
3.16 Utilities
3.17 Visual Resources

Each of the above sections in Chapter 3 (Sections 3.3 through 3.17) is divided into three parts: Physical Setting, Regulatory Setting, and Environmental Impacts and Mitigation Measures. These are described in further detail below. Cumulative effects for each of the environmental topics above are evaluated in Chapter 4.

3.1.2 Environmental Setting and Impact Analysis

Physical Setting

The Physical Setting includes the regional setting as well as the Project setting. The regional setting presents the existing conditions within the greater South Bay for the environmental topic. In most cases, the regional setting covers the SBSP Restoration Project Area as well as the Shoreline Study area. In other cases, the regional setting provides information on a broader area extending beyond the Shoreline Study area (*e.g.*, geology).

The Project setting provides the existing conditions specific to the SBSP Restoration Project Area for the environmental topic. Project setting information is presented for each of the three SBSP Restoration Project pond complexes (Eden Landing, Alviso and Ravenswood).

Regulatory Setting

Where the SBSP Restoration Project Area falls within the jurisdiction of federal, state, and local regulatory agencies, the Project would be subject to the laws, regulations, and policies of those agencies. These regulations are intended to guide development to reduce adverse effects on sensitive resources, or offer general guidance on the protection of such resources. The regulatory framework sections describe the rules that may be applicable to the SBSP Restoration Project for each issue area. These rules may also set the standards (significance criteria or thresholds of significance, as described below) by which potential Project impacts are evaluated.

Environmental Impacts and Mitigation Measures

Significance Criteria

The Environmental Impacts and Mitigation Measures section presents the significance criteria (also referred to as thresholds of significance under CEQA) against which potential effects are evaluated and a discussion of potential effects that would result from implementation (construction and operation) of the SBSP Restoration Project long-term alternatives, Phase 1 No Action, and Phase 1 actions. The significance criteria are primarily based on Appendix G of the CEQA Guidelines. As defined by CEQA Guidelines 15064.7(a), a threshold of significance is an identifiable quantitative, qualitative or performance standard for a particular environmental effect.

While the Council of Environmental Quality (CEQ) Regulations for Implementing NEPA do not identify any specific criteria for evaluating impacts, NEPA regulations adopted by the federal lead agencies were considered as the significance criteria were developed.

The significance criteria presented in this EIS/R provide rational bases for determining whether the SBSP Restoration Project would have significant environmental effects, and as such are presented prior to the evaluation of potential effects in Sections 3.3 through 3.17.

Characterization of Impact Significance

In determining significance of impacts, many CEQA documents generally categorize impacts as "significant" or "less than significant" based on stated significance criteria. CEQA defines significance as a substantial or potentially substantial adverse change to the environment (Section 15382). The definition of significant in terms of what is a "substantial" or significant effect is left to the lead agencies to determine. In CEQA, the point at which the severity of an impact changes from less than significant to significant is called the significance criterion (see discussion of significance criteria above).

Pursuant to Section 1508.27 of the CEQ Regulations for Implementing NEPA, "significantly" as used in NEPA requires consideration of both context and intensity. Context can include the society as a whole (human, national), the affected region, the affected interests, and the locality. Intensity refers to the severity of impact.

In this EIS/R, the context is explained in the impact discussions presented in Sections 3.3 through 3.17. The intensity or severity of impacts is characterized using CEQA terminology. To determine whether impacts might be significant, potentially adverse impacts are identified and evaluated using the significance criteria developed for each environmental issue.

While CEQA focuses on adverse impacts, NEPA addresses both adverse and beneficial impacts. Section 1508.8 of the CEQ Regulations for Implementing NEPA states that "effects [or impacts] may also include those resulting from actions which may have both beneficial and detrimental effects." Consequently, this EIS/R identifies potentially adverse and beneficial impacts of the SBSP Restoration Project. The following terms are used in this EIS/R to characterize Project impacts:

- Potentially Significant: adverse environmental effects would occur (impacts would exceed the significance criteria or threshold defined for each environmental issue), and no mitigation measures are available to reduce impacts to levels below the significance criteria;
- Less than Significant: environmental effects would not exceed the significance criteria;
- Less than Significant with Mitigation: potentially adverse environmental effects would occur but mitigation measures would be implemented to reduce adverse effects to less-than-significant levels;
- No Impact: no adverse environmental effects would occur; and
- Beneficial: no adverse environmental effects would occur and conditions would improve, creating a beneficial effect.

Both NEPA and CEQA address the potential for mitigation to reduce environmental impacts. CEQA states that "an EIR shall describe feasible measures which could minimize significant adverse impacts" (CEQA Guidelines Section 15126.4[a][1]). According to Section 1508.20 of the CEQ Regulations for Implementing NEPA, mitigation is intended to do one of the following:

- Avoid the impact altogether by not taking a certain action or parts of an action;
- Minimize impacts by limiting the degree or magnitude of the action and its implementation;
- Rectify the impact by repairing, rehabilitating, or restoring the affected environment; or
- Reduce or eliminating the impact over time by preservation and maintenance operations during the life of the action.

Significant impacts that cannot be mitigated to less-than-significant levels are considered unavoidable.

Presentation of Impacts

In Sections 3.3 through 3.17 of this EIS/R, program-level impacts of the SBSP Restoration Project long-term alternatives are presented first, followed by the project-level impact analysis for Phase 1, the first phase of Alternatives B and C. Under the program-level impact evaluation, the long-term alternatives are addressed in the following order for each impact:

- Alternative A No Action
- Alternative B Managed Pond Emphasis
- Alternative C Tidal Habitat Emphasis

Under the project-level impact evaluation, the discussion of Phase 1 is presented as follows for each impact:

- Phase 1 No Action
- Phase 1 Actions

Program-level impacts are presented as ***SBSP* Impact 3.X-Y**, where X is the section number and Y is impact number. Project-level (Phase 1) impacts, on the other hand, are designated as ***Phase 1* Impact 3.X-Y**. Matching impact numbers within each section for SBSP and Phase 1 components indicates coverage of the same environmental impact at different levels of detail (*e.g.*, SBSP Impact 3.3-1 addresses coastal flooding at the program level, while Phase 1 Impact 3.3-1 addresses coastal flooding at the project level).

The program-level evaluation of the long-term alternatives (Alternatives A, B, and C) generally characterizes the impacts of the Project. In most instances, impacts are described qualitatively, not quantitatively, due to lack of baseline data or project description details (*e.g.*, locations of project components, project sequencing, and construction methods). The project-level impacts, on the other hand, are more detailed because specific design information was developed for use in the impact evaluation. To the extent possible, quantitative analyses are provided for the project-level impact analyses. All impact analyses consider changes in the environment over the 50-year planning period.

Adaptive Management Plan and its Relationship to the EIS/R Impact Analysis

As stated in Sections 2.1.3 and 2.3 of this EIS/R, the Adaptive Management Plan is an integral component of the SBSP Restoration Project and allows for lessons learned from earlier phases to be incorporated into subsequent phases as management plans and designs of future actions. This approach to phased tidal restoration acknowledges that uncertainties exist and provides a framework for adjusting management decisions as understanding of the cause-and-effect linkages between management actions and the physical and biological response of the system are more fully understood. Adaptive management is used to maximize the ability to achieve the Project Objectives (benefits). Another key aspect of the adaptive management approach is to avoid adverse environmental impacts by triggering specific pre-planned intervention measures if monitoring reveals the ecosystem is evolving (responding to prior interventions) along an undesirable trajectory.

The staircase approach, when coupled with adaptive management decisions, allows for a range of outcomes between Alternatives B and C.

Monitoring key attributes of the physical, chemical and biological conditions of the South Bay ecosystem may detect early signs of unexpected or uncertain adverse effects. The Adaptive Management Plan identifies management triggers that indicate that restoration actions may cause a significant adverse environmental impact. The management triggers are intended to provide a warning to decisionmakers before a significant impact occurs. If a management trigger is tripped, the restoration would be halted until a focused evaluation is conducted to assess if a potentially significant impact would result from the SBSP Restoration Project or other factors. If the focused evaluation determines that the SBSP Restoration Project would cause a significant impact, an adaptive management action to avoid the significant impact would be implemented. Ongoing monitoring would determine the effectiveness of the adaptive management action. The Project decisionmakers would use these results to determine whether the progression along the restoration "staircase" should continue (*i.e.*, additional tidal restoration should occur). If the focused evaluation and/or monitoring results indicate that a significant impact would still occur, even with implementation of the adaptive management action, then additional tidal restoration

activities would cease. This could happen at any point along the restoration "staircase" between the Alternatives B and C bookends.

As mentioned above, triggers were selected to provide the opportunity to modify the phasing and design of future phases or change pond management before thresholds of significance are exceeded (see Figure 2-2 in Section 2.3.3 of this EIS/R). Consequently, potentially significant impacts identified in this EIS/R for staircase issues would be avoided through implementation of the Adaptive Management Plan.

The adaptive management approach ensures that no significant impacts would occur associated with construction and/or operation of the Project for the staircase issues. As such, the Adaptive Management Plan is not a mitigation measure identified in this EIS/R to reduce potentially significant impacts, but rather it is an *integral* part of the Project that would avoid significant impacts through the restoration triggers-management actions feedback loop.

For other environmental issue areas that the Adaptive Management Plan does not address (*e.g.*, non-staircase issues such as air quality), mitigation measures are identified (as needed) to reduce potentially significant effects to less-than-significant levels. If feasible mitigation measures are not identified for a potentially significant impact concerning a non-staircase issue, the impact would remain significant.

Phase 1 No Action

The Phase 1 No Action impact discussion presents a project-level evaluation of the No Action Alternative (Alternative A).

While the project-level evaluation is closely related to the program-level analysis of Alternative A, the Phase 1 No Action focuses on the Phase 1 ponds and environmental changes that would occur if the Phase 1 actions were not implemented. In some cases, geographic distinctions are identified that are unique to the Phase 1 ponds. Where there are similarities between Alternative A and Phase 1 No Action, Alternative A discussions are referenced. The evaluation of Phase 1 No Action considers potential impacts that could occur in the short term during Phase 1 implementation as well as impacts that could occur over the 50-year planning period.

Phase 1 Actions

The Phase 1 actions are the first phase of long-term Alternatives B and C. Because potential impacts from implementation of the Phase 1 actions would generally be similar to those identified for Alternatives B and C, many of the impacts and mitigation discussions are similar. To reduce redundancy, impact discussions and mitigation measures presented for the SBSP Restoration Project long-term alternatives are referenced in the Phase 1 impact discussions to the extent possible.

Additional Mitigation for Less than Significant Impacts

As discussed above, impacts of the SBSP Restoration Project are characterized as potentially significant, less than significant, less than significant with mitigation, no impact, or beneficial. Where potential impacts are considered less than significant, effects would not exceed the identified thresholds and

mitigation measures were not identified for further reduction in Chapter 3, Sections 3.3 through 3.17. According to NEPA's Forty Most Asked Questions, "mitigation measures must be considered even for impacts that by themselves would not be considered 'significant'."

Three categories of less-than-significant impacts are identified in Chapter 3 of the EIS/R and are described below. This section discusses the availability or absence of mitigation measures that would further reduce less-than-significant impacts.

- **Impacts that would be reduced to less-than-significant levels with the implementation of management actions identified in the Adaptive Management Plan.** The Adaptive Management Plan, presented in Appendix D and summarized in Section 2.3 of Chapter 2, Description of Alternatives, identifies management actions that are intended to optimize environmental resources affected by the Project as well as reduce impacts to acceptable, less-than-significant levels. These management actions address sediment dynamics, water quality, biological resources, and recreation and public access. The Adaptive Management Plan identifies management triggers that would be tripped before a significant environmental impact occurs in order to warn decisionmakers and give them time to implement the appropriate management actions to address the potential impact. These management actions could be applied even if management triggers are not tripped, to further improve environmental conditions for the resource areas addressed by the Adaptive Management Plan.
- **Impacts that would be considered less than significant with implementation of mitigation measures identified in the EIS/R.** Certain impacts that are identified as potentially significant would be reduced to less-than-significant levels with implementation of mitigation measures. These include impacts such as increased runoff and dust generated during construction activities. In these instances, mitigation measures would not only reduce impacts to less-than-significant levels, but they would also improve conditions. For example, implementation of a Stormwater Pollution Prevention Plan and dust control measures would reduce potentially significant construction-related impacts to less-than-significant levels. Because these mitigation measures include a variety of best management practices that would cumulatively achieve greater reduction than the minimum acceptable to reach the less-than-significant threshold, the implementation of these mitigation measures would likely be effective in further reducing the impact.
- **Impacts that are so minor that additional mitigation measures are not warranted, or impacts where no additional measures would be feasible.** This category of impacts covers the remaining less-than-significant impacts of the Project that cannot be further reduced. For example, construction-related traffic generated by the Project is a less-than-significant impact where further reduction could not be achieved. Haul trucks are necessary for the transport of material and equipment, and a reduction of such truck trips would not be feasible. Odor generated from restored areas is another less-than-significant impact that could not be further reduced. Odors are a naturally occurring phenomenon in wetlands and cannot be eliminated.

3.1.3 Program vs. Project Level Analysis

As described in Section 2.1.2 of this EIS/R, this environmental document is both a programmatic EIS/R covering the SBSP Restoration Project 50-year long-range plan as well as a project-level EIS/R addressing the specific components and implementation of Phase 1. The SBSP long-term alternatives are

evaluated at the program level in the EIS/R because they are broadly defined and cover a series of phased actions in a coherent geographic area. Phase 1 (the first phase of both Alternatives B and C) is evaluated at a project level because site-specific information about the proposed actions was developed to conduct a detailed analysis.

3.1.4 Baseline Conditions

The baseline conditions are typically "the physical environmental conditions in the vicinity of the Project, as they exist at the time the notice of preparation is published" (CEQA Guidelines Section 15125(a). However, given that the NOP was published in November 2004, more than two years before the Public Draft EIS/R is scheduled to be released, and monitoring of the Project Area ponds is ongoing, modifying the baseline to reflect conditions after the release of the NOP is reasonable. For the purposes of this EIS/R, the baseline conditions are set at Fall 2006. Based on this timeline, the ISP actions are assumed to be complete and are included in the baseline conditions, except as noted earlier in the document (see Section 1.4.4 of this EIS/R for a description of the ISP actions). In addition, other projects are included in the baseline conditions, including the Eden Landing Ecological Reserve (ELER) Restoration Project and the Lower Guadalupe River Flood Protection Project (see Section 1.6 for a description of these projects). PG&E's Pond A6 Tower and Boardwalk Modification Project, which is described in Section 4.2.2, is also included in the baseline conditions.