

CALFED
BAY-DELTA
PROGRAM

Affected Environment and Environmental Impacts

Visual Resources

Draft Technical Report
September 1997

CALFED/700

Environmental Impacts/Consequences CALFED Bay-Delta Program

TABLE OF CONTENTS

1.0	INTRODUCTION	2
2.0	EXECUTIVE SUMMARY	4
2.1	SUMMARY OF POTENTIAL SIGNIFICANT IMPACTS	4
2.2	SUMMARY OF MITIGATION STRATEGIES	5
2.3	SUMMARY OF SIGNIFICANT UNAVOIDABLE IMPACTS	5
3.0	ASSESSMENT METHODS	7
4.0	SIGNIFICANCE CRITERIA	9
5.0	ENVIRONMENTAL IMPACTS/CONSEQUENCES	10
5.1	DESCRIPTION OF NO ACTION RESOURCE CONDITIONS	10
5.1.1	Summary of No Action Effects	10
5.1.2	No Action Effects by Region	10
5.2	DESCRIPTION OF ALTERNATIVE RESOURCE CONDITIONS	11
5.2.1	Summary of Regional Effects	11
5.2.2	Impacts of Alternatives in the Delta	12
5.2.3	Impacts of Alternatives in the San Francisco Bay Region	12
5.2.4	Impacts of Alternatives in the Sacramento River Region	13
5.2.5	Impacts of Alternatives in the San Joaquin River Region	15
5.2.6	Impacts of Alternatives in the CVP and SWP Service Areas Outside the Central Valley	16
6.0	REFERENCES	17

1.0 INTRODUCTION

This technical appendix presents the visual analysis that was used during the preparation of the impact analysis for the Environmental Impact Report/Environmental Impact Statement (EIR/EIS). The results of this evaluation are summarized in this technical appendix and in the EIR/EIS.

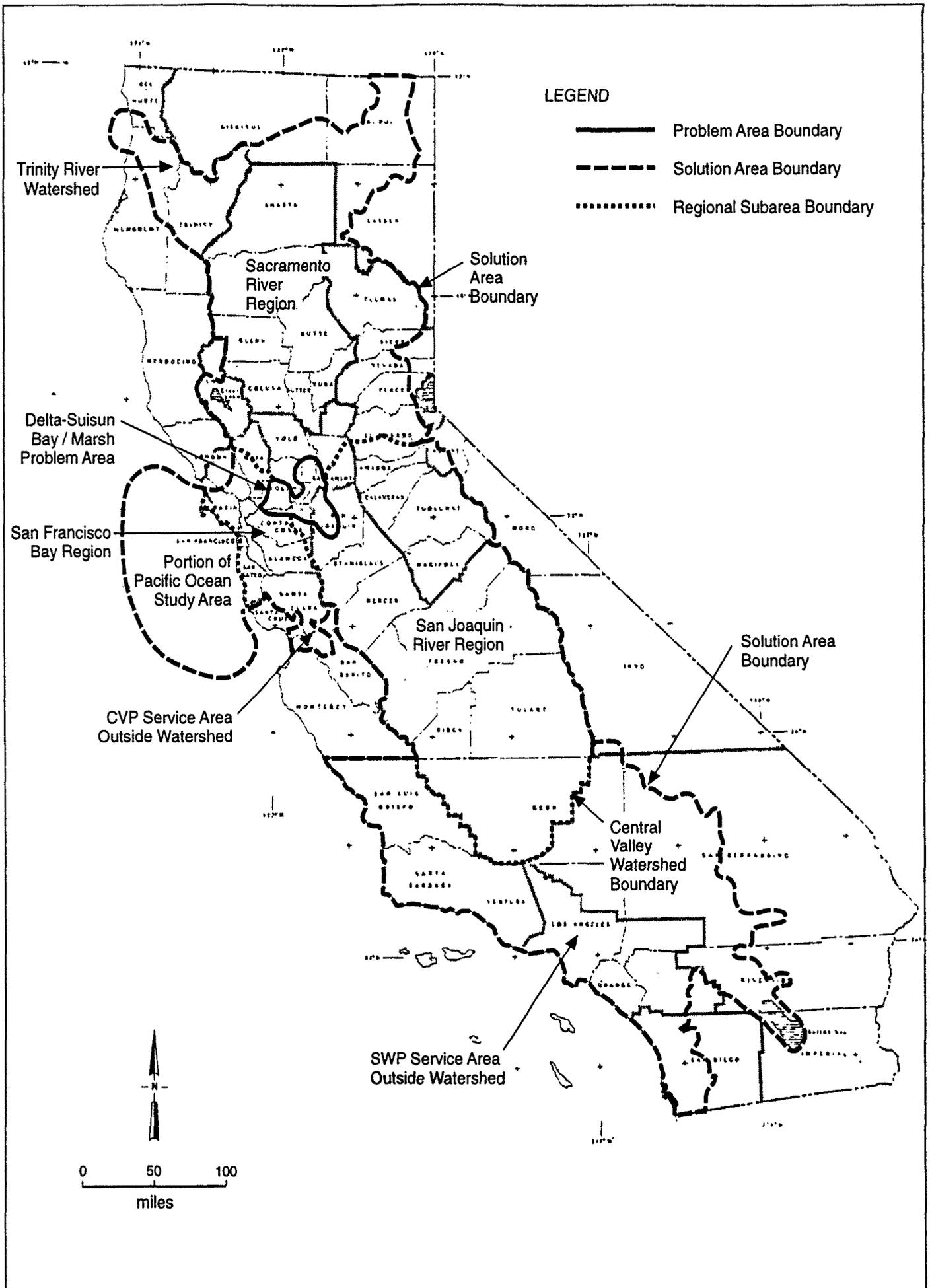
Following the summary of impacts presented in this technical appendix, the assessment methods and significance criteria used to evaluate impacts are discussed. These sections identify assessment tools, methods for impact assessment and the significance criteria used to satisfy California Environmental Quality Act (CEQA) guidelines for establishment of thresholds for impact significance.

The CALFED Bay-Delta Program has developed three comprehensive solution alternatives that meet the program goals. Each alternative is composed of a set of four common programs (ecosystem quality, water quality, levee system vulnerability, and water supply reliability), a relative constant within each alternative, and a set of features unique to each alternative variations. All of the features were developed independently of the alternatives to meet specific goals. Physical differences between the alternatives lie mainly in the method of transporting water through or around the Delta (conveyance), and the amount of additional water storage included in each alternative. Each of the three alternatives includes a variety of potential combinations, or variations of conveyance and storage consistent with the fundamental differences between the three concept constructs (i.e., Variations 1A-1C, 2A-2E, and 3A-3I). While the basic composition of the common programs remains relatively constant in each alternative, they may perform somewhat differently depending on the storage and conveyance components included within a specific alternative formulation. This programmatic approach results in descriptions of alternatives that include various levels of detail. In most cases the physical components are described in some detail while the locations are described in more general terms. Because the specific location for most of the alternative features is not known, a site-specific impact analysis cannot be made.

The impact assessment begins with a summary of potential significant impacts, mitigation strategies and unavoidable impacts (Section 2.0). Section 3.0 describes assessment methodologies and Section 4.0 summarizes significance criteria. Section 5.0 begins by describing the No Action Alternative. Then, impacts from each of the three alternatives is discussed. Each of these discussions is done separately for each of the geographic regions, e.g., Delta, that comprise the CALFED solution area. Under the analysis for each alternative, all four common programs are addressed as well as the storage and conveyance components that vary by alternative.

The impact analysis was conducted for five geographic regions including: the Delta Region, Bay Region (North San Pablo Bay and Suisun Marsh), Sacramento River Region, San Joaquin River Region, and the Central Valley Project (CVP) and the State Water Project (SWP) Service Areas

outside the Central Valley. Figure 1-1 shows the boundaries for each of the regions comprising the study area developed by CALFED.



Project No. S9634	CALFED BAY-DELTA PROGRAM Environmental Impact/ Consequences Technical Report	CALFED STUDY AREA AND REGIONS	Figure 1-1
Woodward-Clyde			

S9634-6600/082297/wcd/graphics/mci

2.0 EXECUTIVE SUMMARY

Visual impacts associated with the three alternatives are confined to the Delta Region, the Sacramento River Region and the San Joaquin River Region. Because no water storage or conveyance facilities are proposed within the San Francisco Bay Region and the CVP and SWP service area outside the Central Valley, there would be no adverse visual impacts. The Delta Region could be adversely affected due to conveyance actions and the Sacramento River and the San Joaquin River Regions could equally be affected from proposed water storage facilities. Table 2-1 summarizes potential visual significant impacts associated with project alternatives for the five CALFED Study Area Regions. Activities that could create adverse visual significant impacts are described below.

2.1 Summary of Potential Significant Impacts

There are numerous activities that could produce potential significant impacts. Some of these activities include:

- * Exposure of unvegetated areas along rivers, canals, channels, and reservoirs caused by changes in flow regimes. The contrast with adjacent vegetated areas could be a visual impact.
- * Removal of vegetation along levees, waterways, and roads within visual range.
- * Creation of straight line features such as open channels, enlargement of old channels, pipelines, or temporary roads.
- * Establishment of borrow pits for obtaining riprap.
- * Disposal of dredged materials.
- * Actions to reestablish levee integrity.
- * Construction of new levees.
- * Construction of pump stations for water transfers.
- * Raising dams on existing reservoirs.
- * Construction of new reservoirs.
- * Any other actions that do not borrow from the natural environments' line, form, texture, and color.

**TABLE 2-1
SUMMARY OF POTENTIAL SIGNIFICANT IMPACTS BY REGION¹**

Region	Alternative 1			Alternative 2					Alternative 3								
	A	B	C	A	B	C	D	E	A	B	C	D	E	F	G	H	I
Delta	No	No	Yes	Yes	Yes	No	No	No	Yes	Yes	Yes	Yes	Yes	No	No	Yes	Yes
Sacramento River Region	No	No	Yes	No	Yes	No	No	Yes	No	Yes	No	Yes	Yes	Yes	No	No	No
San Joaquin River Region	No	No	No	No	Yes	No	No	Yes	No	Yes	No	Yes	Yes	Yes	No	No	No
San Francisco Bay Region (west of Carquinez Strait)	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No
Service Area outside Central Valley	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No

¹ Potential significant impacts refer to those actions that are likely to be visible from visually sensitive areas and cannot be mitigated.

2.2 Summary of Mitigation Strategies

Generally, mitigation of visual impacts involves the following: minimizing visual changes associated with the program actions, relocating portions of the project that are major contrasts to the background environment so they are not visible, rehabilitating the environment with landscaping as soon as possible if portions of the project cannot be relocated, or providing off site mitigation (high quality viewing opportunities in another environment). At the programmatic level there are on-site and off-site mitigation measures that might be employed to reduce the significance of impacts.

On-site measures:

- * Revegetating disturbed areas within two years of construction.
- * Coordinating changes in flow regimes, such that "bathtub ring" effects are minimized during times of peak recreation use.
- * Adding visual variety through habitat restoration efforts to areas considered Variety Class C.
- * Minimizing construction activities during the peak use recreation season.
- * Locating visually obtrusive features such as borrow pits and disposal of dredge materials outside of visually sensitive areas.

Off-site measures:

- * Creating viewing opportunities of outstanding features (such as of Mt. Diablo) through vegetation removal, or establishment of roadside viewing areas. For example, Highway 160 provides excellent opportunities for offsite mitigation.
- * Adding vegetation to areas of poor variety class. Many of the habitat restoration actions would fall under this mitigation measure.
- * In conjunction with new water storage and conveyance actions, provide flooding of areas that are visually unattractive, thus increasing visual variety.

2.3 Summary of Potential Significant Unavoidable Impacts

Summary of Potential Unavoidable Significant Impacts

Unavoidable impacts include those associated with project construction activities, since these generally do not harmonize with the natural environment. The presence of heavy equipment, piles of dirt, and gravel, and temporary structures will be noticeable in the foreground and middle ground of some visually sensitive areas. There may also be visual impacts created from glare due to night time construction, and during the day fugitive dust may impair visual quality in some areas. If these impacts persist more than 5 years they may be significant. If any of the construction activities are highly disliked by stakeholder groups they could be significant due to their controversial nature. In terms of specific alternatives, construction of open channels on the east and west sides of the Delta (Alternatives 3H and 3I) have the greatest potential for unavoidable significant impacts, largely due to the potential for controversy. Their effects on

community residents of Discovery Bay are assumed to be more severe than effects of recreation visitors to the Delta. Often the greatest resistance to negative visual effects of projects are not the recreation visitors, but from permanent residents of the area.

3.0 ASSESSMENT METHODS

Impact assessment was guided by the Visual Management System (VMS) developed by the USDA Forest Service (1973b). The VMS uses a combination of distance, variety class, and sensitivity level to establish Visual Quality Objectives (VQOs), and then makes a determination as to whether project actions conform with VQOs. However, at the programmatic level of analysis for this report, determining whether project actions meet VQOs was not readily possible since site specific data are not available on visual sensitivity. A thorough, operational definition of visual sensitivity would not be established until specific project environmental impact statements are required. Therefore, at this stage of assessment, impacts were described at a broad, regional level, focusing on known, sensitive resources and landscapes. The following methods were used:

- * Identify visually sensitive areas. Viewer sensitivity is based on the characteristics and preferences of the viewer group. Sensitivity was considered highest for views seen by people driving to or from recreational activities, or for routes designated as scenic corridors. Views from relatively moderate to high use recreational areas were also considered sensitive. For purposes of this study, highly sensitive areas were those recreation areas that receive at least 10,000 recreation visitor days per year. An average of 27 recreation visitor days per day was chosen to represent moderate use.
- * Consider the distance between the project actions and visually sensitive areas. Only impacts of those project

actions that are three miles or less from the above identified areas were assessed. It is assumed that impacts occurring greater than 3 miles away from visually sensitive areas would not be readily seen or distinguished at a level that would be considered sensitive. This figure was selected because it represents the breakpoint between middleground and background definitions under the VMS. Actions observable at distances greater than three miles generally do not have significant visual impacts (McCulloh 1991). An important consideration for this analysis is that visual range in some major portions of the project area, such as the Delta, are limited to a mile or less.

- * Focus the assessment on components of the program that might impact the visual environment. The impact analysis focused on the Levee Integrity, Ecosystem Restoration, and Water Storage and Conveyance options. The impacts of other programmatic actions are assumed neutral or only slightly positive. Water efficiency was not emphasized in the analysis because the nature of the management actions (e.g., cropland retirement) would not have any adverse effects on visual resource elements of viewer sensitivity, variety class, and distance zone. If cropland conversion occurs on a substantial scale, the effects to variety class could be slightly beneficial since landscapes with diverse, natural vegetation are more positively rated than monoculture, uniform vegetation types (U.S. Forest Service 1973b). Water quality programmatic actions were also not considered in this analysis. Water quality monitoring actions in the Delta, for example, would not affect visual

sensitivity, variety class, or distance zone. Water storage options were considered only to the extent that they would alter water height and flow regimes in visually sensitive areas.

Variety Classes

Variety Classes are a key component of the Visual Management System, and are used to classify visual features into "Distinctive", "Common", and "Minimal" categories. The Forest Service has developed Variety Classes for each of the seven landscape provinces in California. Provinces have been identified on the basis of similar physiography (i.e., combination of landforms, vegetation, and water bodies). The provinces pertinent to this project are the Central Valley and the Sierra Foothills/Low Coastal Mountains which are described in detail in the Affected Environment technical report.

4.0 SIGNIFICANCE CRITERIA

Two significance criteria were used for this analysis.

1. *Will program actions result in a permanent shift in Variety class of visually important features that are in Variety Classes A and B that can be seen from visually sensitive areas?*

This criterion was chosen because there are relatively few visual resources within, or viewed from, some of the study area regions that meet the standards for Variety Classes A and B. As a result, it was considered important to retain viewing opportunities of these high quality visual features.

2. *Will program actions result in visual contrasts to the existing landscape as viewed from areas with high visual sensitivity that persist for five years or more?*

This criterion was chosen since an answer of 'yes' would imply an irreversible impact.

Visual Resources Affected Environment

TABLE OF CONTENTS

1.0	SUMMARY	1
2.0	INTRODUCTION	2
2.1	STUDY AREA	2
2.2	INFORMATION SOURCES	2
2.3	STRUCTURE OF REPORT	2
3.0	REGULATORY CONTEXT AND ANALYSIS CONSIDERATIONS	4
3.1	REGULATORY REQUIREMENTS	4
3.1.1	Federal Requirements	4
3.1.2	State Requirements	4
3.2	ANALYSIS CONSIDERATIONS	5
3.2.1	Variety Classes	5
4.0	DESCRIPTION OF MAJOR VISUAL RESOURCES	8
4.1	DELTA REGION	8
4.2	BAY REGION INCLUDING SUISUN MARSH, BAY AND CARQUINEZ STRAIGHT	9
4.3	SACRAMENTO RIVER REGION	9
4.4	SAN JOAQUIN RIVER REGION	10
4.5	CVP AND SWP SERVICE AREAS OUTSIDE THE CENTRAL VALLEY	10
5.0	REFERENCES	11

1.0 SUMMARY

The Affected Environment section of the Visual Resources report describes regulations that protect the vistas for particular landscapes throughout the state and the existing visual resources, in order to characterize the visual aesthetics in the CALFED project area. The Visual Management System (VMS) was developed by the U.S. Forest Service that provides a context for visual resources, differentiates viewer sensitivity based on reasons for viewing (e.g., recreationists versus employees), and defines Variety Classes for the different landscape provinces in California. These landscape provinces have been identified on the basis of similar physiography such as the combination of landforms, vegetation, and water bodies. Visual conditions for the five geographical areas in the CALFED study area are described based on historical conditions and current conditions. The landscape of the Delta has changed dramatically over the last century, with the conversion of wetlands and riparian corridors to agricultural lands. The San Francisco Bay region has also undergone a large change in landscape due to heavy urbanization and industrialization. The Sacramento and San Joaquin Valleys have experienced similar changes to the landscape, with natural habitats being converted to agricultural uses. In the CVP and SWP Service areas outside the Central Valley, there are few major visual resources.

2.0 INTRODUCTION

The purpose of this report is to describe the affected environment associated with visual resources in the San Francisco Bay/Sacramento-San Joaquin Delta (Delta) region support of the continuing CALFED Bay-Delta (CALFED) planning efforts and environmental documentation process. This is one in a series of preliminary reports that will be used with other information to develop the affected environment portion of the pending CALFED programmatic Environmental Impact Report/ Environmental Impact Statement (EIR/EIS). This document is consistent with the goals of CALFED, the California Environmental Quality Act (CEQA), and the National Environmental Policy Act (NEPA) and reflects a level of detail appropriate for a programmatic approach to environmental review.

2.1 Study Area

The study area is comprised of five sections. The legally defined Delta is the first and most critical section. It is also referred to as the "problem area". In resolving visual resource issues, CALFED may undertake actions throughout its geographic solution area, as necessary. The CALFED problem and solution areas can be seen in Figure 2. The "solution" areas include: the Bay region, the Sacramento River region, San Joaquin River region, and Central Valley Project/State Water Project (CVP/SWP) service areas outside the Central Valley. West of the legally defined Delta is the Bay area section, which includes Suisun Marsh, Suisun Bay, Carquinez Strait, and San Pablo Bay. The Sacramento River section begins north of the legal Delta and extends north to encompass Trinity, Shasta, and Whiskeytown reservoirs. The eastern boundary is the crest of the Sierra Nevada range, and the western boundary is the crest of the Coast Range. The San Joaquin section begins along the San Joaquin River south of the legally defined Delta and extends south to Bakersfield. The eastern and western boundaries of the Sacramento and San Joaquin River sections are assumed to be the same as for the Sacramento River region. The fifth section, the service areas outside the Central Valley is assumed to encompass the areas from Fresno to Bakersfield.

2.2 Information Sources

There are no comprehensive visual resource inventories available for the study area. Although the Forest Service has undertaken visual resources of lands in California, none of these are included in the project area. The information search focused on those agencies with significant ownership in the project area, especially the California State parks system. As a result, information on visual resources was taken from several sources including: California State Parks, East Bay Regional Parks, and National Park Service sites, and national wildlife refuges.

2.3 Structure of Report

The report is organized in the following manner. Section 2.3 is a description of information sources consulted. Section 3.0 is a regulatory overview of relevant federal and state laws and

policies, and analysis approach. Section 4 is a description of major visual resources by region. References cited are included in Section 5.

3.0 REGULATORY CONTEXT AND ANALYSIS CONSIDERATIONS

The following sections describe the applicable federal and state regulations and guidelines relevant to the project and visual resource protection or evaluation. Visual resource criteria are summarized in Section 3.2.

3.1 Regulatory Requirements

3.1.1 Federal Requirements

National Environmental Policy Act

The National Environmental Policy Act includes a declaration to "assure for all Americans safe, healthful, productive, and esthetically and culturally pleasing surroundings." All agencies of the federal government are to "identify and develop methods and procedures...which will ensure that presently unquantified environmental amenities and values may be given appropriate consideration in decision making along with economic and technical considerations." CALFED activities involve actions that may affect visual/aesthetic resources.

Wild and Scenic Rivers

Congress created the National Wild and Scenic Rivers System in 1968. The purpose of the system is to preserve rivers with outstanding natural, cultural, or recreational features in a free flowing condition. This system recognizes three types of rivers: wild, scenic, and recreational. Federal agencies cannot grant financial assistance, licenses, or otherwise participate in the construction of any water resources projects, such as dams,

water diversions, channelization, rip-rapping that would adversely affect the above mentioned river features. All rivers designated as wild or scenic, or recreational have high scenic quality. As a result visual resource management for wild and scenic rivers is almost always focused on preservation, which prohibits any changes to the natural landscape.

3.1.2 State Requirements

California Environmental Quality Act

The California Environmental Quality Act (CEQA) provides policies that address environmental protection, including the requirement to "take all action necessary to provide the people of this State with clean air and water, enjoyment of aesthetic, natural, scenic and historic environmental qualities, and freedom from excessive noise." CALFED activities are required to comply with the provisions of CEQA and consider the impacts of CALFED actions on visual/aesthetic resources. Appendix G of the CEQA guidelines specifies that a project will normally have a significant effect on the environment if it will "have a substantial, demonstrable, negative effect."

Scenic Highways

Scenic highways are roads designated as scenic by the State of California or local agencies. For this analysis, only state designated scenic highways are considered. Scenic highways have exceptional scenic qualities or offer panoramic vistas. The following criteria are used to evaluate the eligibility of routes as scenic highways.

- * The corridor through which a highway passes should have significant scenic

and/or historic amenities.

- * The county should have jurisdiction over the lands adjacent to the route.
- * Routes of historic significance or routes that connect places of interest should be considered even though the route itself may be of marginal scenic value.
- * If possible, significant landscape and topographical areas should be present along the route.
- * A route or corridor that would immediately affect other county programs that manage scenic and historic preservation, should be included.

Once a route is nominated and adopted as a state scenic highway, the county must prepare and adopt a program for protection of it. The plan must contain guidelines for land use that may restrict density and intensity of development, detailed land and site plans, careful attention to and control of earthmoving and landscaping, and designs and appearance of structures and equipment. Plans may include restrictions for placement of powerlines and gas lines.

Routes predominantly used for recreation or vacation travel should be included as scenic highways.

3.2 Analysis Considerations

Visual resources are described in the context of the Visual Management System (VMS) (1973b, 1976) developed and used by the USDA Forest Service to evaluate visual impacts of various management actions. This system uses viewing distance, viewer

sensitivity and variety classes to determine impacts. Project actions that occur at least 3 miles from a viewer are unlikely to cause significant impacts. Analyses tend to focus on "foreground" (less than 1/4 mile from the viewer) and "middleground" (1/4 to 3 miles) effects. The sensitivity of the viewer is based on their awareness of landscape features, and their reasons for viewing features. Generally, recreationists tend to exhibit higher viewer sensitivity than people who view a landscape on a regular basis as part of their job (Jones and Stokes 1996). Variety Classes defined a landscape's visual appeal, and the VMS recognizes three categories; "Distinctive," "Common," and "Minimal."

3.2.1 Variety Classes

The Forest Service has developed Variety Classes for each the seven landscape provinces in California (1976). Provinces have been identified on the basis of similar physiography (i.e., combination of landforms, vegetation, and water bodies). The provinces pertinent to this project are the Central Valley and the Sierra Foothills/Low Coastal Mountains.

Sierra Foothills and Low Coastal Mountains Province

Variety Class A (Distinctive Scenic Quality): Landforms include sharp peaks and ridges, isolated peaks with distinctive form and color contrast that become focal points; deep canyons and distinctive gorges and valleys having vertical or near vertical walls and unusual configurations and rock color; or large rock outcrops, cliffs, or boulders. Vegetation consists of strongly defined patterns or combinations of coniferous

forest, deciduous forest, riparian vegetation, brushland, barren rock and soil, and meadows; dramatic displays of seasonal color; unusual forms such as gnarled, dwarfed, or unusually large species and vegetation with unusual color, form, and texture when compared to surrounding vegetation. Water features include waterfalls, cascades, rapids, and pools with reflecting qualities; areas with variations in water body types, or areas with unusual shoreline character and channel configurations; or areas with high water clarity and high visibility.

Variety Class B (Common Scenic Quality): Landforms include broad slopes that may be steep but stable, with broad valleys and plateaus not dramatically defined by adjacent landforms; rounded hills, ridges, and peaks that lack visual dominance; subordinate lateral canyons lacking distinctive configuration and rock color; or minor rock outcrops, cliffs, and boulders. Vegetation consists of open scattered forest or brush combined with some natural openings and riparian corridors in patterns that offer some visual relief; seasonal color contrast; or stands that exhibit the normal ranges of sizes, forms, colors, textures, and spacings. Water features include rapids, pools, streams, rivers and small ponds; common shoreline character and channel configurations; or medium water clarity and moderate visibility.

Variety Class C (Minimal Scenic Quality): Landforms vary slightly, and include vast expanses of indistinct terrain that provides little spatial definition or landmarks to which viewers can orient themselves. Slopes may be steep, but lack visual interest and variety. Vegetation is unvaried with extensive areas of similar vegetation and

limited variation in color and texture. Water features are lacking or intermittent; and have low water clarity and low visibility so that they are not visually apparent except when in the immediate background.

Central Valley Province

Variety Class A (Distinctive Scenic Quality): Landforms include isolated peaks with distinctive form and color contrast that become focal points; or massive rock outcrops. Vegetation consists of strongly defined patterns or combinations of riparian vegetation, oak woodlands, wetlands, open grasslands and pastureland, and cropland; or displays of seasonal color. Water features include large rivers with meandering channels and natural edges; large reservoirs; marshes; or large aqueducts.

Variety Class B (Common Scenic Quality): Landforms include broad slopes forming broad valleys, flats, basins, and plateaus that are not dramatically defined by adjacent landforms; rounded hills and ridges that are not visually dominant but are surrounded by landforms of similar types; or minor rock outcrops. Vegetation consists of predominant cropland with variation in form, texture, and color common to the region; open oak woodland with some grassland openings that offer some visual relief; or grasslands with stands of oaks that offer some visual relief. Water features consist of small rivers and intermittent streams; or agricultural ponds and drainage/irrigation canals.

Variety Class C (Minimal Scenic Quality): Landforms are unvaried, with vast expanses of flat terrain. Vegetation is unvaried with large expanses of agricultural types having

similar form, texture, and color; large expanses of brush and grassland; large expanses of fallow land and barren soil. Water features are absent.

There are several important considerations about visual resources in the study area that should be used as a context for the impact analysis. One consideration is that there is very little public land within this region, especially in the Central Valley. For example, many portions of the interior Delta are the least disturbed from a visual standpoint, and are not accessible to the public (Jones and Stokes 1996). Another consideration is that in much of the project area topographic relief is poor. Elevation changes within the Central Valley generally do not exceed 500 feet. As a result, visual range (and therefore visual impacts to viewers) is somewhat limited. For individuals using the Delta waterways for recreation, their visual range is limited to the channels in which they are traveling. It is doubtful that these individuals would have viewing opportunities of such outstanding visual features as Mt. Diablo or the Vaca Mountains. For individuals traveling along I-5 their viewing opportunities are similarly limited. Central Valley Areas with outstanding visual quality are not readily observable from I-5. The topographic limits imposed on visual range will diminish the severity of any visual impacts that might occur.

Another consideration is that most of the resources within the project area are probably only Variety Class B or C. There are limited outstanding features, such as rock outcrops, that would be classified as Variety Class A, the highest variety class in terms of visual quality. A final consideration is the project actions themselves. Most actions will not occur at

such a height as to be visible to many of the users, whether viewed from waterways, highways, or residences in the study area. This is in contrast to mining, highway construction actions, and timber harvesting actions that often occur in areas with considerable topographic relief and considerable visual range.

4.0 DESCRIPTION OF MAJOR VISUAL RESOURCES

Major resources are described below for each region of the study area. Historic conditions are briefly described, followed by current conditions of "major" visual resources (those areas that are Variety Class A or B, and receive at least 10,000 recreation visitors per year).

4.1 Delta Region

Historic Conditions

The landscape of the Delta has changed dramatically since reclamation began during the 1850's. Large expanses of wetlands, riparian corridors, and open water have been replaced by agricultural lands in low lying tracts surrounded by levees. Local reclamation district activities between 1905 and 1920 resulted in modifications to Delta lands, and these influenced the shape of Delta islands (Jones and Stokes 1996).

By 1930 only a small amount of the natural landscape remained. Levee failures in 1930 resulted in flooding of islands throughout the Delta, several of which have not been converted back to agriculture. Tracts of open water, such as Franks Tract, Mildred Island, and Big Break added to the variety of visual resources. Riparian vegetation persists along the slough edges in some areas or has reestablished since levee construction.

By the 1940s, Stockton, Pittsburgh, Antioch, and Martinez were small communities at the edges of the Delta; a few small settlements existed within the Delta. Most viewing opportunities were from railway lines and boats. Following World War II, the edges

of the Delta became sites of expanding urbanization. Commercial shipping in the Delta increased steadily from 1946 to 1964, and large ships were frequently visible in deep water channels that passed through the Delta. During the same time, boating recreation use in the Delta increased, and the development of numerous marinas followed. From 1975 to present, urbanization has encroached on the Delta from cities in eastern Contra Costa County (Brentwood, Discovery Bay, Stockton) and in Sacramento.

Major visually sensitive areas within the Delta Region include:

- * Bethel Island/Hotchkiss Tract
- * Franks Tract State Recreation Area
- * Brannon Island State Recreation Area
- * Windy Cove State Recreation Area
- * Cliff House fishing access (private)
- * Discovery Bay Yacht Club Marina (private)
- * Sherman Island (private camping and marina)
- * Stone Lake Refuge
- * Consumnes-Mokelumne River confluence wildlife preserve
- * Highway 160 (state designated scenic highway) from Antioch to Freeport
- * Community of Brentwood

Representative Variety Class A and B resources viewed from the Delta include:

- * Mt. Diablo
- * Vaca Mountains

The main roads from which travelers can view the Delta are Highways 160, 4, and 12. In many portions of Highways 4 and 12, it is not possible to view the Delta waterways, but views of features such as Mt. Diablo are possible. Highway 160 is a state designated scenic highway.

4.2 Bay Region including Suisun Marsh, Bay, and Carquinez Strait

Historic Conditions

A similar pattern of development occurred in the area immediately west of Delta that includes Suisun Marsh, Suisun Bay, and Carquinez Strait. By 1930, about half of Suisun Marsh had been converted to agricultural use. However, shortly thereafter commercial agriculture waned and eventually ceased as a result of upstream agricultural diversions that created greater tidal intrusion of saline water. So, much of the land that had been converted to agricultural use was subsequently converted to managed wetland habitat for waterfowl use (Suisun Resource Conservation District, 1980).

Current Conditions

Heavy urbanization and industrial uses characterize the Bay region. Concurrently, heavy recreation pressures exist along many of the waterfront areas in the Bay region. Additionally, recent land use conversions resulting from the closure of Alameda and Treasure Island naval bases will provide additional waterfront recreation opportunities.

Major visual resources in the Bay area include:

- * San Pablo Bay National Wildlife Refuge
- * Benicia State Recreation Area
- * Martinez Shoreline (East Bay Regional Parks)
- * Carquinez Strait Shoreline (East Bay Regional Parks)
- * China Camp State Park
- * Point Pinole (East Bay Regional Parks)
- * Angel Island State Park
- * Golden Gate National Recreation Area
- * Mt. Tamalpais State Park
- * Alcatraz Island

Project actions that affect views of these areas, or views from these areas would be the actions with potential for significant impacts.

4.3 Sacramento River Region

Historic Conditions

Prior to construction of the CVP the visual landscape of this region appeared more natural than in 1995. In the 1940's the valley was comprised of grasslands and scattered oak woodlands. Wetlands, vernal pools, and riparian areas were more prominent. This combination of natural vegetation and water bodies contributed to the visual variety of the landscape.

Current Conditions

The conversion of areas in the valley to cropland, rice fields, and orchards reduced visual variety. As a result, large areas along I-5 and Highway 99 are probably Variety Class C. However, there are important visual resources that would be most likely inventoried as Class A features. These include The Sacramento and Colusa national wildlife refuges and the Colusa River State Recreation Area. During certain times of the year (waterfowl hunting season)

these areas receive high levels of recreation use and therefore exhibit high visual sensitivity. Other important visual resources in the Sierra foothills include: Folsom Lake, Auburn, and Lake Oroville State Recreation areas.

Construction of dams and reservoirs substantially changed the visual landscape. The reservoirs added visual variety, but pump stations and electric transmission lines reduced visual quality. Some examples of reservoirs that have added visual variety include: Whiskeytown, Shasta, and Black Butte Reservoirs. Viewer sensitivity is high in these areas because they are high recreation use areas with easy public access.

Major urban areas include Sacramento, Redding, Red Bluff, and Chico. A section of Highway 36 is a state designated scenic highway. Trinity County is eligible for scenic designation, along with State Route 70. Wild and Scenic Rivers include the middle fork of the Feather River, the north fork of the American River, and the American river reach that flows through Sacramento.

4.4 San Joaquin River Region

Historic Conditions

Prior to the 1940s, open grasslands and scattered oak woodlands were typical. Wetlands, vernal pools, and riparian areas were also common to this region. Some irrigated lands were present, but human settlement was sparse, concentrated mostly in Fresno and Modesto. After development of the CVP, rapid agricultural development and increased human settlement drastically changed the visual landscape. Grasslands

were replaced by irrigated cropland, and extensive wetland, vernal pool, and riparian areas were reduced to scattered segments.

Current Conditions

Major urban communities include Modesto, Stockton, and Fresno. Major highways with high viewer sensitivity include 140, 120, 196, and 41. All of these routes provide access to Yosemite or Kings Canyon-Sequoia National Parks. Most of the urbanized areas along Highways I-5 and 99 are Variety Class C. Important (Variety Class A or B) visual resources in the Central Valley portion of this area include Mendota Wildlife Refuge and the San Luis Reservoir. In the Sierra foothills major visual resources include Millerton Lake, Turlock, McConnell State Recreation areas and Don Pedro Reservoir. Portions of I-5 have been designated as a Scenic Highway, and SR 152 is a Scenic Highway with views of San Luis Reservoir. Wild and Scenic Rivers include the North and South forks of the Kern River, and the South Fork of the Merced River.

4.5 CVP and SWP Service Areas outside the Central Valley

Current Conditions

Between Fresno and Bakersfield there are few major visual resources. Most of the land is dedicated to agricultural use (Variety Class C). The major urban area is Bakersfield. State parks and wildlife areas in this region that are major visual resources include: Colonel Allensworth State Historic Park and the Tule Elk State Reserve, and the Pixley National Wildlife Refuge. Highways eligible for state scenic highways include SR 33, SR 168 (Fresno County), and SR 190 and 198 (Tulare County).

5.0 REFERENCES

East Bay Regional Parks. 1996. Draft Master Plan.

California Department of Transportation. 1992. California State and County Scenic Highways.

California State Parks Guide. 1986. Olympus Press: Santa Barbara, CA.

Jones and Stokes Associates. 1996. Visual/Aesthetic Resources in the Delta Region. Draft Affected Environment Technical Report, CALFED Bay Delta Program.

U.S.D.A. Forest Service. 1973b. Visual Resource Management Guides. Visual Quality Standard Determination and Application, California Region, Washington, DC, GPO.

U.S.D.A. Forest Service. 1976. National Forest Landscape Management, Volume 2, Chapter 1, The Visual Management System, California Region Landscape Character Types and Variety Class Criteria, Washington, DC, GPO.

5.0 ENVIRONMENTAL IMPACTS/CONSEQUENCES

This section describes the impacts of the CALFED Program for the No Action and action alternatives, by region. Impacts are summarized in Tables 5-1 through 5-5 for each region.

5.1 Description of No Action Resource Conditions

5.1.1 Summary of No Action Effects

There would not be any significant impacts to visual resources in any region as a result of implementing the No Action alternative. Not implementing the ecosystem restoration actions however, would eliminate opportunities to have beneficial effects on visual resources.

5.1.2 No Action Effects by Region

Delta Region

The No Action alternative would allow a number of projects to move forward. The effects of these projects on the Delta region can be classified as: newly negotiated flows on the Mokelumne River, increased CVP demands, and increased SWP demands. Newly negotiated flows could have adverse and beneficial effects. Beneficial effects would occur if degraded riparian areas received more water resulting in some habitat restoration. If increased CVP and SWP demands remove water from the Delta, their effects would be negative due to more degradation in the natural plant communities.

Bay Region

There would be no significant adverse impacts to visual resources in the Bay region. Views of Variety Class A visual resources, such as Mt. Tamalpais, would not be affected by programs that would be implemented under the No Action alternative.

Sacramento River Region

There would be no significant impacts to visual resources in the Sacramento River region. Meeting SWP and CVP demands may change river levels and expose unvegetated areas. If river levels change during the summer (high recreation use) season it would affect visual quality in areas such as the Colusa Sacramento River State Recreation area. However, these impacts would be temporary so they would not be significant (see significance criteria, section 4). Increased refuge demands would have beneficial effects due to the development of a more natural landscape. Land retirement would also have a beneficial effect on visual resources, since it is assumed that it would add variety to the existing visual setting.

San Joaquin River Region

There would be no significant impacts to visual resources in the San Joaquin River region. Meeting SWP and CVP demands may change river levels and might expose unvegetated areas. However, these impacts would be temporary so they would not be significant. Beneficial impacts to wildlife refuges would be the same in this region as described for the Sacramento River Region.

**TABLE 5-1
SUMMARY OF POTENTIAL SIGNIFICANT IMPACTS BY PROGRAM ACTION
DELTA REGION**

Program	Alternative 1			Alternative 2					Alternative 3								
	A	B	C	A	B	C	D	E	A	B	C	D	E	F	G	H	I
Ecosystem Restoration Program	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No
Water Quality Program	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No
Water Use Efficiency Program	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No
Levee Integrity Program	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No
Storage Facilities	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No
Conveyance Facilities	No	No	Yes	Yes	Yes	No	No	No	Yes	Yes	Yes	Yes	Yes	No	No	Yes	Yes

C-0003726

**TABLE 5-2
SUMMARY OF POTENTIAL SIGNIFICANT IMPACTS BY PROGRAM ACTION
SAN FRANCISCO BAY REGION**

Program	Alternative 1			Alternative 2					Alternative 3				
	A	B	C	A	B	C	D	E	F	G	H	I	
Ecosystem Restoration Program	No	No	No	No	No	No	No	No	No	No	No	No	
Water Quality Program	No	No	No	No	No	No	No	No	No	No	No	No	
Water Use Efficiency Program	No	No	No	No	No	No	No	No	No	No	No	No	
Levee Integrity Program	No	No	No	No	No	No	No	No	No	No	No	No	
Storage Facilities	No	No	No	No	No	No	No	No	No	No	No	No	
Conveyance Facilities	No	No	No	No	No	No	No	No	No	No	No	No	

**TABLE 5-3
SUMMARY OF POTENTIAL SIGNIFICANT IMPACTS BY PROGRAM ACTION
SACRAMENTO RIVER REGION**

Program	Alternative 1			Alternative 2					Alternative 3								
	A	B	C	A	B	C	D	E	A	B	C	D	E	F	G	H	I
Ecosystem Restoration Program	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No
Water Quality Program	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No
Water Use Efficiency Program	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No
Levee Integrity Program	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No
Storage Facilities	No	No	Yes	No	Yes	No	No	Yes	No	Yes	No	Yes	Yes	Yes	No	No	No
Conveyance Facilities	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No

C-0003728

TABLE 5-4
SUMMARY OF POTENTIAL SIGNIFICANT IMPACTS BY PROGRAM ACTION
SAN JOAQUIN RIVER REGION

Program	Alternative 1			Alternative 2					Alternative 3								
	A	B	C	A	B	C	D	E	A	B	C	D	E	F	G	H	I
Ecosystem Restoration Program	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No
Water Quality Program	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No
Water Use Efficiency Program	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No
Levee Integrity Program	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No
Storage Facilities	No	No	No	No	Yes	No	No	Yes	No	Yes	No	Yes	Yes	Yes	No	No	No
Conveyance Facilities	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No

C-003729

**TABLE 5-5
SUMMARY OF POTENTIAL SIGNIFICANT IMPACTS BY PROGRAM ACTION
SWP AND CVP SERVICE AREAS OUTSIDE THE CENTRAL VALLEY**

Program	Alternative 1			Alternative 2					Alternative 3								
	A	B	C	A	B	C	D	E	A	B	C	D	E	F	G	H	I
Ecosystem Restoration Program	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No
Water Quality Program	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No
Water Use Efficiency Program	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No
Levee Integrity Program	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No
Storage Facilities	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No
Conveyance Facilities	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No

C-0003730

CVP and SWP Service areas outside the Central Valley

There would be no significant impacts to visual resources in CVP and SWP service areas outside the Central Valley. Changes in river levels to meet CVP or SWP demands might expose unvegetated areas. However, these impacts would be temporary so they would not be significant.

5.2 Description of Alternative Resource Conditions

5.2.1 Summary of Regional Effects

Tables 5-6 through 5-8 summarize potential significant impacts by alternative for the Delta Region. Potentially significant impacts are the greatest for the Delta region, primarily because of the water conveyance actions that would occur here. Both the Sacramento and San Joaquin regions would be equally affected by potentially significant impacts. The potentially significant impacts pertain to water storage and conveyance options (groundwater and surface storage) that may require construction of permanent features such as pumps, electric transmission lines, and dams. If these permanent features are visible from visually sensitive impacts they could be significant. There would be no potentially significant impacts in the Bay region or the CVP/SWP service areas outside the Central Valley because water storage and conveyance options would not be implemented in these areas.

5.2.2 Impacts of Alternatives in the Delta Region

Tables 5-6 through 5-8 describe the impacts of the no action and action alternatives on

visual resources within the Delta for each of the program alternatives, and those outstanding visual features that can be viewed from the Delta. Temporary impacts during construction are not considered significant.

5.2.2.1 Alternative 1

Ecosystem Restoration. Visual impacts from this program could be beneficial due to proposed agricultural land retirement.

Water Quality Program. There would be no impacts from water quality programmatic actions, because monitoring and source control would not change the visual landscape in the Delta.

Water Use Efficiency Program. Water efficiency actions would not have significant impacts, because they would not alter views of visually sensitive areas.

Levee System Integrity Program. There will be no visual significant impacts associated with this program in the Delta Region.

Storage Facilities. There will be no significant visual impacts associated with this program in the Delta Region.

Conveyance Facilities. Alternatives 1A and 1B are not within visual range of any visually sensitive areas, so they would not have any impacts (see Table 5-6). Alternative 1C could have potentially significant impacts on boaters originating from the Marina at Discovery Bay. Proposed channel enlargements will occur less than 3 miles from the Marina and would probably be visible to many of the boaters.

TABLE 5-6

**IMPACTS OF NO-ACTION AND ALTERNATIVE 1
DELTA REGION**

Region	No Action Alternative	Alternative 1		
		A	B	C
Number of Sensitive Sites Within Visual Range (3 miles or less) of Proposed Project Actions ¹	11	0	0	1 (Discovery Bay Marina)
Potential Significant Impact on Sensitive Sites ²	N/A	No	No	Yes
Comments	Greatest visual impacts to No-Action conditions are agricultural use and increased urbanization along Delta boundaries			Mitigation (revegetation) may be required to reduced impacts to boaters from Discovery Bay.

¹ These are sites within visual range of project actions likely to have some effect on visual resources such as levee system integrity actions, ecosystem restoration actions, and storage and conveyance options.

² A "Yes" in this column implies mitigation measures are necessary to reduce potentially significant impacts that are not significant. Otherwise, effects of project actions may persist for 5 years or more.

TABLE 5-7

**IMPACTS OF ALTERNATIVE 2
DELTA REGION**

Region	Alternative 2				
	A	B	C	D	E
Number of Sensitive Sites Within Visual Range (3 miles or less) of Proposed Project Actions¹	2 (Discovery Bay Marina, Highway 160 at Hood)	1 (Discovery Bay Marina)	1 (Franks Tract State Recreation Area)	2 (Discovery Bay Marina, Highway 160 at Hood)	2 (Highway 160, Consumnes- Mokelumne Confluence preserve)
Potential Significant Impact on Sensitive Sites²	Yes	Yes	No	No	No
Comments	Mitigation (revegetation) may be required to reduced impacts to boaters from Discovery Bay and along the Sacramento River.	Mitigation may be required	Temporary construction only	Possible short term impacts to boaters from Discovery, but habitat improvement Actions along Highway 12 beneficial, due to improved visual quality.	Visual range at preserve is restricted, so there may be no adverse or positive effects. Beneficial effects along Highway 160.

¹ These are sites within visual range of project actions likely to have some effect on visual resources such as levee system integrity actions, ecosystem restoration actions, and storage and conveyance options.

² A "Yes" in this column implies mitigation measures are necessary to reduce potentially significant impacts that are not significant. Otherwise, effects of project actions may persist for 5 years or more.

TABLE 5-8

**IMPACTS OF ALTERNATIVE 3
DELTA REGION**

Region	Alternative 3								
	A	B	C	D	E	F	G	H	I
Number of Sensitive Sites Within Visual Range (3 miles or less) of Proposed Project Actions¹	1-2 (Stone Lake, maybe Consumnes-Mokelumne Confluence Preserve)	Same as 3A	3 (Discovery Bay Marina, Stone Lake Refuge, Consumnes-Mokelumne Preserve)	Same as 3B and 3C	2 (Highway 160 at Hood, Consumnes Mokelumne Preserve)	Uncertain, dependent on where lakes would be located	1 (residents of Brenetwood)	Same as Alternative 3A	4 (Highway 160 at Hood, Stone Lake Refuge, Franks Tract Recreation Area, Discovery Bay Marina)
Potential Significant Impact on Sensitive Sites²	Yes, at Stone Lake	Same as 3A	Yes	Same as above 3B, 3C	Yes	No	No	Same as above, Alternative 3A	Yes
Comments	Mitigation (revegetation) at Stone Lake would be required. At Preserve visual range is restricted; no beneficial or adverse affects.	Same as 3A	Same mitigation required as for alternatives. 1C and 3A.	Same as above.	Revegetation, or alternative alignment near preserve for the open channel.	Effects would be beneficial, increasing overall visual quality of the Delta		Same as Alternative 3A	Will need to mitigate the likely downward shift in visual variety class at Stone Lake Refuge. Bathtub Ring" effects may persist in area used by residents of Discovery Bay and recreation users of Franks Tract.

¹ These are sites within visual range of project actions likely to have some effect on visual resources such as levee system integrity actions, ecosystem restoration actions, and storage and conveyance options.

² A "Yes" in this column implies mitigation measures are necessary to reduce potentially significant impacts that are not significant. Otherwise, effects of project actions may persist for 5 years or more.

5.2.2.2 Alternative 2

Ecosystem Restoration. There will be no significant visual impacts associated with this program in the Delta Region.

Water Quality Program. There would be no impacts from water quality programmatic actions, because monitoring and source control would not change the visual landscape in the Delta.

Water Use Efficiency Program. Water efficiency actions would not have significant impacts, because they would not alter views of visually sensitive areas.

Levee System Integrity Program. There will be no significant visual impacts associated with this program in the Delta Region.

Storage Facilities. There will be no significant visual impacts associated with this program in the Delta Region.

Conveyance Facilities. Alternative 2A would be visible from two visually sensitive areas. Most of the action alternatives would only affect one visually sensitive site, so there would not be any cumulative impacts.

Actions associated with alternatives that disturb the earth creating visual contrasts lasting greater than five years (significance criteria #2) could potentially have significant visual impacts (Table 5-7). However, if mitigation measures are applied (such as revegetation) the impacts could be reduced to less than significant.

5.2.2.3 Alternative 3

Ecosystem Restoration. Visual impacts

from this program would be beneficial due to proposed agricultural land retirement.

Water Quality Program. There would be no impacts from water quality programmatic actions, because monitoring and source control would not change the visual landscape in the Delta.

Water Use Efficiency Program. Water efficiency actions would not have significant impacts, because they would not alter views of visually sensitive areas.

Levee System Integrity Program. There will be no significant visual impacts associated with this program in the Delta Region.

Storage Facilities. There will be no significant visual impacts associated with this program in the Delta Region.

Conveyance Facilities. Impacts from this alternative would be similar to those summarized for Alternative 2.

5.2.3 Impacts of Alternatives in the San Francisco Bay Region

5.2.3.1 Alternative 1

Ecosystem Restoration. Ecosystem restoration actions would have a mix of positive and negative impacts. The short term construction impacts of creating set back levees and constructing new channels would have negative visual effects if they occur in the Suisun Bay/Suisun Marsh areas. Since these actions are assumed to occur for less than 5 years they would not be significant. The long term effects of ecosystem restoration would be beneficial, since they would restore a more natural

landscape in an area that is highly developed (Variety Class C). Some areas would probably shift from Variety Class B to A.

Water Quality Program. There would be no impacts from water quality programmatic actions, because monitoring and source control would not change the visual landscape in the Bay.

Water Use Efficiency Program. Water efficiency actions would not have significant impacts, because they would not alter views of visually sensitive areas.

Levee System Integrity Program. There would be no impacts from levee integrity actions, since these would not be implemented outside of (west of) the legally defined Delta.

Storage Facilities. There will be no visual impacts associated with this program in the San Francisco Bay Region.

Conveyance Facilities. Conveyance options would not have adverse impacts, since they would occur only in the Delta Region.

5.2.3.2 Alternative 2

Ecosystem Restoration. Visual impacts from this program would be the same as Alternative 1.

Water Quality Program. Visual impacts from this program would be the same as Alternative 1.

Water Use Efficiency Program. Visual impacts from this program would be the same as Alternative 1.

Levee System Integrity Program. Visual

impacts from this program would be the same as Alternative 1.

Storage Facilities. Visual impacts from this program would be the same as Alternative 1.

Conveyance Facilities.

5.2.3.3 Alternative 3

Ecosystem Restoration. Visual impacts from this program would be the same as Alternative 1.

Water Quality Program. Visual impacts from this program would be the same as Alternative 1.

Water Use Efficiency Program. Visual impacts from this program would be the same as Alternative 1.

Levee System Integrity Program. Visual impacts from this program would be the same as Alternative 1.

Storage Facilities. Visual impacts from this program would be the same as Alternative 1.

Conveyance Facilities. Visual impacts from this program would be the same as Alternative 1.

5.2.4 Impacts of Alternatives in the Sacramento River Region

5.2.4.1 Alternative 1

Ecosystem Restoration. Ecosystem Restoration actions on the whole would be positive since they would add visual variety to the landscape and possibly result in an "upgrade" of the Variety Class. Some actions would be negative, such as

establishment of fencing on creeks to protect riparian vegetation. These impacts could be significant if they persist for 5 years or more and occur in visually sensitive recreation areas. If vegetation eventually screens the fence from the view of passing recreationists, then the impact would be mitigated.

Water Quality Program. There would be no adverse impacts from water quality programmatic actions, because actions such as water quality monitoring, pollutant source control, and implementation of Best Management Practices (BMP's) would not change the visual landscape in the Sacramento River valley.

Water Use Efficiency Program. Water efficiency programs would not have significant impacts since the types of programs to be undertaken would not alter views of visually sensitive areas.

Levee System Integrity Program. There will be no visual impacts associated with this program because there are no actions in the Sacramento River Region.

Storage Facilities. If water storage options were visible to high numbers of recreationists in areas such as the Sacramento Wildlife Refuge they could have potentially significant impacts if they cause a downward shift in Variety Class, or persist for five years or more. The water storage options that have potential to cause significant impacts include establishment of new storage facilities, and flooding caused by raising dams on existing storage structures. Since water bodies enhance visual quality the establishment of new surface water storage facilities would have a positive impact overall. However, the immediate construction related impacts

would be negative, since they would create visual contrasts to the natural landscape, but would not be significant unless they persist for 5 years or more.

Conveyance Facilities. Conveyance options would not have adverse impacts, since they only occur in the Delta Region.

5.2.4.2 Alternative 2

Ecosystem Restoration. Visual impacts from this program would be the same as Alternative 1.

Water Quality Program. Visual impacts from this program would be the same as Alternative 1.

Water Use Efficiency Program. Visual impacts from this program would be the same as Alternative 1.

Levee System Integrity Program. Visual impacts from this program would be the same as Alternative 1.

Storage Facilities. Visual impacts from this program would be the same as Alternative 1.

Conveyance Facilities. Conveyance options would not have adverse impacts, since they only occur in the Delta Region.

5.2.4.3 Alternative 3

Ecosystem Restoration. Visual impacts from this program would be the same as Alternative 1.

Water Quality Program. Visual impacts from this program would be the same as Alternative 1.

Water Use Efficiency Program. Visual impacts from this program would be the same as Alternative 1.

Levee System Integrity Program. Visual impacts from this program would be the same as Alternative 1.

Storage Facilities. Visual impacts from this program would be the same as Alternative 1.

Conveyance Facilities. Visual impacts from this program would be the same as Alternative 1.

5.2.5 Impacts of Alternatives in the San Joaquin River Region

Impacts of action alternatives in the San Joaquin River Region would be similar as those for the Sacramento River Region.

5.2.5.1 Alternative 1

Ecosystem Restoration. Impacts from the Ecosystem Restoration actions such as gravel replacement (by creating borrow pits in visually sensitive areas) and from installing fish screens in areas with high visual sensitivity. These impacts could be easily mitigated through revegetation programs and are not considered significant. Impacts from this program will be similar to those in the Sacramento River Region.

Water Quality Program. Impacts from this program will be similar to those in the Sacramento River Region.

Water Use Efficiency Program. Impacts from this program will be similar to those in the Sacramento River Region.

Levee System Integrity Program. Impacts

from this program will be similar to those in the Sacramento River Region.

Storage Facilities. There would be no impacts from this program because there are no storage facilities near visually sensitive areas for this alternative.

Conveyance Facilities. Impacts from this program will be similar to those in the Sacramento River Region.

5.2.5.2 Alternative 2

Ecosystem Restoration. Impacts from this program will be the same as for Alternative 1.

Water Quality Program. Impacts from this program will be similar to those in the Sacramento River Region.

Water Use Efficiency Program. Impacts from this program will be similar to those in the Sacramento River Region.

Levee System Integrity Program. Impacts from this program will be similar to those in the Sacramento River Region.

Storage Facilities. The areas where potential significant impacts may occur are the high use recreation areas in the Sierra foothills, such as Don Pedro Reservoir. Impacts from this program are dependent on the locations chosen. If water storage options are not implemented within visual range of high use recreation areas, (areas south of Merced) it would eliminate the potential for significant impacts.

Conveyance Facilities. Impacts from this program will be similar to those in the Sacramento River Region.

5.2.5.3 Alternative 3

Ecosystem Restoration. Impacts from this program will be the same as for Alternative 1.

Water Quality Program. Impacts from this program will be similar to those in the Sacramento River Region.

Water Use Efficiency Program. Impacts from this program will be similar to those in the Sacramento River Region.

Levee System Integrity Program. Impacts from this program will be similar to those in the Sacramento River Region.

Storage Facilities. Impacts from this program will be the same as Alternative 2.

Conveyance Facilities. Impacts from this program will be similar to those in the Sacramento River Region.

5.2.6 Impacts of Alternatives in the SWP and CVP Service Area Outside the Central Valley

No changes in the visual environment are predicted in the SWP and CVP service area outside the Central Valley.

6.0 REFERENCES

California Department of Transportation. 1992. California State and County Scenic highways.

McCulloh, P. 1991. Visual resource analysis for Final Environmental Impact Statement for proposed mining operations on the Angeles National Forest.

Jones and Stokes Associates. 1996. Draft environmental impact statement affected environment for visual resources, CALFED report.

U.S. Forest Service. 1973b. Visual Resource Management Guides. Visual Quality Standard Determination and Application, California Region, Washington, DC.

U.S. Forest Service. 1976. California Landscape Provinces.

*Printed by
Department of Water Resources
Reprographics*

C - 0 0 3 7 4 1

C-003741