

# Chapter 24

## Environmental Justice

### 24.1 Affected Environment

#### 24.1.1 Minority and Low-Income Populations

The environmental setting of a project area can be viewed from both a geographic perspective and a human perspective. The physical environment provides a geographical context for the populations to be evaluated in this Environmental Impact Statement. The human perspective encompasses race, ethnic origin, and economic status of affected groups.

The intent of an environmental justice evaluation under Executive Order 12898, *Federal Actions to Address Environmental Justice in Minority and Low Income Populations* (1994), is to identify communities and groups that meet environmental justice criteria, and suggest strategies to reduce potential adverse impacts of projects on affected groups.

In its guide to environmental justice under NEPA, the Council on Environmental Quality (CEQ) (1997) encourages agencies to consider all of the following groups in the scoping process:

- Religious organizations
- Newspapers, radio, and other media
- Civic associations
- Minority business associations
- Environmental and environmental justice organizations
- Legal aid providers
- Homeowners', tenants', and neighborhood watch groups
- Federal, State, local, and tribal governments
- Rural cooperatives
- Business and trade organizations
- Community and social service organizations
- Universities, colleges, vocational, and other schools
- Labor organizations

- Civil rights organizations
- Local schools and libraries
- Senior citizens' groups
- Public health agencies and clinics

### ***Shasta Lake and Vicinity***

This evaluation reviews minority and low-income communities situated near the reservoir, and those that directly depend on it for social, economic, cultural, historic, occupational, recreational, or other needs deemed significant by these communities.

Table 24-1 depicts a historically white population that is slowly diversifying and income levels consistently below the statewide average, resulting in relatively higher poverty rates among all ethnic groups. In 2005, the population of Shasta County was approximately 14.3 percent minority (nonwhite) and approximately 19.6 percent low-income, compared to statewide populations of 55.6 percent minority and 18.6 percent low-income. The slightly higher local poverty rate is not meaningfully greater than the statewide rate.

**Lakehead-Lakeshore Community** The Lakehead-Lakeshore community is located along Shasta Lake's northernmost reach, the Sacramento River Arm. Lakehead, an unincorporated seasonal community of approximately 1,200 residents (U.S. Census Bureau 2002a), is adjacent to Interstate 5 and includes typical services found near a major interstate highway. Lakehead provides a variety of campgrounds, boat ramps, and marinas. The Lakehead community includes low-income and minority residents and workers who could be affected by project construction and changes in outdoor recreation patterns resulting from the project.

**Tourism and Outdoor Recreation Industry** Shasta Lake and its vicinity are recreation destinations that draw visitors from throughout California. Most facilities in the area depend on Shasta Lake to draw visitors and customers. The tourism and outdoor recreation service industries are included in this discussion because this group includes a community of lower-paid service workers that could be affected by project actions related to Shasta Dam. A change in recreation opportunities could affect employment and revenue patterns, as well as social and recreational opportunities for minority or low-income residents. With the exception of Lakehead, the settlement and recreation-related development along Shasta Lake falls within unincorporated Shasta County. Residents and workers are dispersed throughout Shasta County, and affected minority and low-income communities are reflected in demographic data for Shasta County as shown in Table 24-1.

**Table 24-1. Ethnicity, Income, and Poverty Trends in Shasta and Tehama Counties and California**

Topic		Shasta County	Tehama County	State of California
Race/Ethnicity	White, 2005	153,771	46,375	16,408,477
	White, 2000–2005 (% change)	7.0	4.6	1.7
	Black or African American, 2005	1,278	313	2,255,281
	Black or African American, 2000–2005 (% change)	5.5	2.9	1.6
	American Indian, including Alaskan Natives, 2005	4,477	1,077	215,044
	American Indian, including Alaskan Natives, 2000–2005 (% change)	8.3	4.2	13.5
	Asian or Pacific Islander, 2005	4,600	514	4,393,010
	Asian or Pacific Islander, 2000–2005 (% change)	28.1	1.4	11.9
	Two or more races (total), 2005	5,054	1,468	779,784
	Two or more races (total), 2000–2005 (% change)	18.7	19.3	18.3
	Hispanic Origin (any race), 2005	10,302	11,207	12,905,840
	Hispanic Origin (any race), 2000–2005 (% change)	11.8	21.1	14.3
Income/Poverty	Median Household Income, 2000	\$34,335	\$31,206	\$47,493
	Median Household Income, 2005	\$42,227	\$34,520 <sup>a</sup>	\$53,629
	% Change, 2000–2005	23.0	10.6	12.9
	% of Individuals Below Poverty Level, 2000	15.4	17.3	14.2
	% of Individuals Below Poverty Level, 2005	13.2	14.5 <sup>a</sup>	13.3
	% Change, 2000–2005	-2.2	-2.8	-0.9
	% of Children (< 18) Below Poverty Level, 2000	21.0	24.0	19.0
	% of Children (< 18) Below Poverty Level, 2005	19.6	21.7 <sup>a</sup>	18.6
	% Change, 2000–2005	-1.4	-2.3	-0.4

Sources: U.S. Census Bureau 2002a, 2002b, 2002c, 2006a, 2006b

Note:

<sup>a</sup> Because of limited data availability, income/poverty data for Tehama County are for 2004.

**Areas of Native American Concern** As described in Chapter 14, “Cultural Resources,” the Sacramento River and its major tributaries, particularly the Pit and McCloud rivers, were the focus of intensive Native American occupation during historic times, with a variety of religious, economic, historic, and other values identified here for Native American groups. Ten groups, including those listed by the Native American Heritage Commission, represent Native American interests in the study area. They include Grindstone Indian Rancheria, Paskenta Band of Nomlaki Indians, Pit River Environmental Council, Pit River Tribe of California, Redding Rancheria, Shasta Nation, United Tribe of Northern California, Inc., Winnemem Wintu Tribe, Wintu Educational and Cultural Council, and the Wintu Tribe of Northern California.

The Winnemem Wintu have identified important localities within the study area, many of which are locations where ceremonies are regularly conducted. Along the McCloud River, these include Children’s Rock, Coyote Rock, Dekkas Rock, doctoring pools near Nawtawaket Creek, Eagle Rock and Samwel Cave, Hirz Bay, *Kaibai* village, North Gray Rocks, Puberty Rock, Saddle Rock, and *Watawacket* village and spiritual area. Along the Sacramento River, important localities include the Antlers area, Delta area, Doney Creek, Gregory Creek, LaMoine area, Packers Bay, Pollard’s area, middle Salt Creek, and Sims area. The Winnemem Wintu have strong traditional and contemporary connections with the land, and their ongoing use of many archaeological and religious sites is fundamental to the well-being of their culture, particularly the education of their youth.

The Winnemem Wintu have also documented the location of some 155 ancestral villages within the Shasta Lake area. At least 81 village locations are known along the lower McCloud River and lower Pit River. An additional 73 villages are known to have existed on the east side of the Sacramento River. These village locations once contained between one and 30 houses each, some had associated cemeteries and each had a power place. Some of these villages are already under the waters of Shasta Lake, while others are just above the current Shasta Lake water level. The Winnemem Wintu have estimated that 120 of the known villages are still accessible (above the current high-water line).

Members of the Pit River Madesi Band stated that 22 ethnographic villages and associated burial grounds are located within the existing reservoir and proposed reservoir areas. One Tribal Member also noted that several Traditional Cultural Properties (TCP) exist within the Pit 6 and Pit 7 Dam areas.

***Upper Sacramento River (Shasta Dam to Red Bluff)***

Many social and public services are provided and a range of resource-dependent cultural activities take place in the cities of Shasta Lake, Redding, Anderson, Cottonwood, and Red Bluff. Each of these communities could be affected during project operation as a result of improved flood protection, enhanced water supply reliability, and increased recreational opportunities and spending related to improved salmonid habitat. Redding and Shasta County may be most

affected because local residents, businesses, public services, and fiscal resources likely would also be affected by construction-related spending and activities.

Groups affected by the project could include minority and low-income populations such as transient and seasonal workers, Native American and Hispanic/Latino populations, and low-income water and electric utility customers. In 2005, the population of Tehama County was approximately 23.9 percent minority (nonwhite) and 21.7 percent (2004) low-income, compared to statewide populations of 55.6 percent minority and 18.6 percent low-income (Table 24-1). Poverty levels are declining in Shasta County and are expected to soon reach statewide levels.

These groups often share the need for a reliable income and low costs of living, access to steady jobs, the need to protect the profitability of businesses that affect their personal income, access to high-quality public services, access to affordable and diverse housing, and a desire to enjoy a high quality of life.

Minority and low-income populations in the upper Sacramento River portion of the primary study area, many of which are employed by local agricultural operations, are especially susceptible to changes in employment opportunities. Changes in water and power supply reliability or delivery costs can have a major effect on the cost of living and on the operating costs and financial health of local businesses and employers. Changes in the frequency and duration of flooding along the Sacramento River and in the Delta also could affect agricultural operations and business owners and employees.

#### ***Lower Sacramento River and Delta***

As discussed in Chapter 16, “Socioeconomics, Population, and Housing,” this portion of the extended study area includes Red Bluff, the largest city in Tehama County with a population of 13,535 in 2006 (DOF 2007), and nine counties to the south. In 2006, the population of those nine counties totaled 4,056,430. The minority population was 47 percent overall and exceeded 50 percent in Colusa, San Joaquin, and Solano counties. In 2006, poverty levels in the region ranged from 7 percent to 18 percent, with low-income populations exceeding the 13.3 percent state poverty level in Butte, Glenn, San Joaquin, and Yolo counties (U.S. Census Bureau 2006b, 2006c, 2007a, 2007b, 2007c).

Regional employment and labor trends are generally consistent with statewide trends. In 2005, approximately 5.3 percent of the labor force was unemployed, compared to 5.4 percent statewide. Butte, San Joaquin, Glenn, Sutter and Colusa counties registered higher unemployment rates than California as a whole. The counties with the highest unemployment rates in 2005 were characterized by greater dependence on the agricultural industry and less industrial diversity. Four of the five counties with unemployment rates above the statewide average maintained more than 60 percent of their land mass in agricultural production. Unemployment rates tend to be higher in rural areas than in urban areas because farm work is typically seasonal or temporary.

The lower Sacramento River region becomes increasingly urbanized as the river flows past the city of Sacramento and toward the Delta. Along its course, the river passes through low-density agricultural and suburban metropolitan areas and near high-density centers of commerce and culture such as Sacramento. In the Delta, a complex network of highways and urban infrastructure is integrated with canals, dikes, and levees. Heavily engineered water control and conveyance systems have promoted and sustained a successful agriculture industry and protected the region against damaging floods.

**CVP/SWP Service Areas**

The CVP and SWP service areas include 36 of California's 58 counties, accounting for 91 percent (37,444,385 residents) of California's population in 2006 (U.S. Census Bureau 2006b). Minority groups have been steadily increasing and such ethnic diversification is expected to continue. Almost all of the minority groups (except African American) experienced double-digit population growth between 2000 and 2005 (U.S. Census Bureau 2002a, 2006b). Hispanics are the most numerous minority group in California, and many members of this ethnic group work on farms that receive some or all of their water from the CVP. In general, rural agricultural counties have smaller minority populations than urban counties.

Poverty levels for both individuals and children decreased slightly between 2000 and 2005. This trend would not be expected to continue indefinitely. Instead, the percentage of people below the poverty level would be expected to follow national and statewide economic trends. Generally, poverty rates tend to be higher in rural counties than in urban counties. Despite these differences, each of California's major urban areas has pockets of low-income neighborhoods with high poverty (and unemployment) rates. Minority and low-income communities that might be affected by the project include communities adjacent to construction projects, gateway and service communities providing support to construction-related activities, and low-income customers of water and power utilities who might experience higher rates as a result of costs of project-related system improvements.

These residents and workers may be most vulnerable to increases in CVP water and power costs and, conversely, would benefit from improved flood protection and CVP water and power supply reliability. Central Valley farm workers and other workers employed by businesses in the region that supply goods and services to agricultural operations also could benefit.

## 24.2 Regulatory Framework

### 24.2.1 Federal

#### ***Executive Order 12898***

The purpose of Executive Order 12898 (part of which is excerpted in the introduction to this chapter) is to identify and address the disproportionate placement of adverse environmental, economic, social, or health impacts from Federal actions and policies on minority and/or low-income communities. This order requires lead agencies to evaluate impacts on minority or low-income populations during preparation of environmental and socioeconomic analyses of projects or programs that are proposed, funded, or licensed by Federal agencies.

In addition to the direction referenced above, Executive Order 12898 includes the following requirements:

- Each Federal agency shall conduct its programs, policies, and activities that substantially affect human health or the environment, in a manner that ensures that such programs, policies, and activities do not have the effect of excluding persons (including populations) from participation in, denying persons (including populations) the benefits of, or subjecting persons (including populations) to discrimination under, such programs, policies, and activities, because of their race, color, or national origin. (*Section 2-2*)
- Each Federal agency shall work to ensure that public documents, notices, and hearings relating to human health or the environment are concise, understandable, and readily accessible to the public. (*Section 5-5(c)*)

In addition, the presidential memorandum accompanying the executive order states that “(e)ach Federal agency shall analyze the environmental effects, including human health, economic and social effects, of Federal actions, including effects on minority communities and low-income communities, when such analysis is required by the NEPA of 1969.”

Two documents provide some measure of guidance to agencies required to implement Executive Order 12898. The first is *Environmental Justice Guidance Under the National Environmental Policy Act* (December 1997), published by CEQ. The second document, the *Final Guidance for Incorporating Environmental Justice Concerns* (April 1998) published in the U.S. Environmental Protection Agency’s NEPA Compliance Analysis, serves as a guide for incorporating environmental justice goals into preparation of the Environmental Impact Statement under NEPA. These documents provide specific guidelines for assessing environmental justice effects associated with a proposed Federal project.

### **24.2.2 State**

There are no State plans, policies, regulations, or laws related to environmental justice applicable to the project. However, Senate Bill 115 (Chapter 690, Statutes of 1999), signed into law in 1999, defined environmental justice in statute and established the Governor's Office of Planning and Research as the coordinating agency for State environmental justice programs (California Government Code, Section 65040.12). This law further required the California Environmental Protection Agency to develop a model environmental justice mission statement for boards, departments, and offices within the agency by January 1, 2001 (Public Resources Code, Sections 72000 to 72001). The purpose of this program is to inform decision-makers by providing guidance on environmental justice issues.

### **24.2.3 Regional and Local**

There are no regional or local plans, policies, regulations, or laws related to environmental justice applicable to the project.

## **24.3 Environmental Consequences and Mitigation Measures**

This section describes the potential environmental consequences of the project alternatives as they relate to environmental justice. This analysis relies on demographic data provided in the *Socioeconomics, Population, and Housing Technical Report* and incorporates that information as necessary to describe potential effects on minority and low-income communities.

### **24.3.1 Methods and Assumptions**

According to CEQ and U.S. Environmental Protection Agency guidelines established to assist Federal and State agencies, a minority population is present in a project area if (1) the minority population of the affected area exceeds 50 percent, or (2) the minority-population percentage of the affected area is meaningfully greater than the minority-population percentage in the general population or other appropriate unit of geographic analysis. By the same rule, a low-income population exists if the project area consists of 50 percent or more people living below the poverty threshold, as defined by the U.S. Census Bureau, or is meaningfully greater than the poverty percentage of the general population or other appropriate unit of geographic analysis.

The CEQ guidance indicates that when agencies determine whether environmental effects are disproportionately high and adverse, they are to consider whether there is or would be an impact on the natural or physical environment (as defined by NEPA) that would adversely affect a minority population or low-income population.

None of the published guidelines define the term "disproportionately high and adverse," but CEQ includes a nonquantitative definition stating that an effect is

disproportionate if it appreciably exceeds the risk or rate to the general population (CEQ 1997).

The following population characteristics are considered in this analysis:

- Race and ethnicity
- Per-capita income as it relates to the poverty level

The relevant demographic data were obtained from the U.S. Census Bureau and the California Department of Finance. Data are presented at the county level to accommodate the geographic size of each portion of the study area.

In this analysis, a county is considered to have a minority population if its nonwhite population is greater than 50 percent or is meaningfully larger than the general (statewide) nonwhite population. Low-income areas are defined as counties in which the percentage of the population below poverty status exceeds 50 percent, or is meaningfully greater than the general population (average statewide poverty level).

#### ***Native American Outreach***

Public and stakeholder coordination meetings were conducted on behalf of Reclamation with Native American tribal groups whose traditional territories overlap the primary study area. Seven tribal groups were invited to an information meeting held on April 4, 2007, in Redding, California. The purpose of the meeting was to provide general information about the project, initiate Section 106 consultation with groups desiring to participate in the project, and introduce Elena Nilsson as the Native American Tribal Coordination study lead. Invitations were sent to the Grindstone Rancheria, Paskenta Rancheria, Pit River Tribe, Redding Rancheria, Shasta Nation, Winnemem Wintu, and the Wintu Tribe and Toyon-Wintu Center. The meeting was attended by representatives from the Winnemem Wintu and the Madesi Band of the Pit River Tribe.

Between August 2007 and March 2008, nine meetings were held with Native American groups whose traditional territories overlap with the primary study area. These included meetings and/or workshops with groups and individuals representing major tribes and/or extended family groups in the Shasta/Redding area regarding potential effects on cultural resources from a plan to enlarge Shasta Dam. The purposes of the meetings were to solicit, clarify, and document major concerns and issues regarding the project, and to establish a preferred method/approach to maintaining effective communication during the remainder of the project study and in future endeavors. Five groups participated in these meetings: Grindstone Indian Rancheria (one meeting), Paskenta Band of Nomlaki Indians (one meeting), Pit River Tribe (three meetings), Shasta Nation (one meeting), and Winnemem Wintu (three meetings).

### 24.3.2 Criteria for Determining Disproportionately High and Adverse Effects

To make a finding that disproportionately high and adverse effects would likely fall on minority or low-income populations, three conditions must be met simultaneously:

- There must be a minority or low-income population in the impact zone.
- A high and adverse impact must exist.
- The impact must be disproportionately high and adverse on the minority or low-income population.

### 24.3.3 Topics Eliminated from Further Consideration

No topics related to environmental justice that are included in the significance criteria listed above have been eliminated from further consideration. All relevant topics are analyzed below.

Effects on sites considered sacred by local Native American communities in the upper Sacramento River portion of the primary study area and the lower Sacramento River and Delta and CVP and SWP service areas have been eliminated from further discussion. No impacts are anticipated to these resources as a result of changes in Shasta Dam operations (i.e., storage and release scenarios). Furthermore, any construction activities near sites considered sacred by local Native American communities would require mitigation as stated in Chapter 14, including compliance with Section 106 of the NHPA. As a result, no disproportionately high and adverse effects on Native American populations would be expected; therefore, potential effects related to this topic in these geographic regions are not discussed further in this PDEIS.

### 24.3.4 Direct and Indirect Effects

#### ***No-Action Alternative***

#### **Shasta Lake and Vicinity**

*Impact EJ-1 (No-Action): Potential Disproportionate Effect on Minority and Low-Income Populations in the Vicinity of Shasta Lake* Communities at Shasta Lake and in the vicinity would remain below minority and low-income thresholds as they relate to environmental justice. Adverse construction-related impacts would be avoided, and construction-related employment opportunities and gains within local economies would not be realized. Existing adverse effects on minority or low-income populations do not constitute a disproportionately high and adverse impact. No disproportionately high and adverse effects on minority or low-income populations would occur.

Shasta County would maintain its steady population growth under the No-Action Alternative. Since 1990, the population has increased by 22.3 percent, with total population projected to reach 224,000 by 2020 (DOF 2007). The

minority (nonwhite) population, including the Winnemem Wintu Tribe and other Native Americans, is projected to account for 16.6 percent of the total population in Shasta County in 2020, slightly more than the current 14.3 percent representation, but less than the 62.5 percent minority population projected statewide for 2020 (DOF 2007; U.S. Census Bureau 2006a).

As described in Table 24-1, the poverty level in Shasta County decreased by 2.2 percent during 2000 to 2005, and unemployment rates in Shasta County were mostly steady during 2000 to 2005, fluctuating between 6.0 and 7.5 percent. This trend should continue as long as statewide trends continue and strong employment opportunities continue to be provided in the region by major employment sectors such as trade, transportation, and utilities; government; educational, and health services; and leisure and hospitality industries (see Chapter 16, “Socioeconomics, Population, and Housing”). Professional and business services and education and health services are projected to be the leading growth industries in Shasta County; these are also the top two anticipated growth industries statewide. No disproportionately high or adverse impacts on minority or low-income communities are anticipated under the No-Action Alternative. Mitigation is not required for the No-Action Alternative.

*Impact EJ-2 (No-Action): Potential Disproportionate Effect on Native American Populations from Disturbance or Loss of Sacred Locations in the Vicinity of Shasta Lake* Shasta Dam would not be enlarged; no infrastructure would be removed, modified, or relocated; and no changes in Reclamation’s Shasta Lake operations would occur. No disproportionately high and adverse effects on Native American populations would occur.

Under the No-Action Alternative, Shasta Dam would not be enlarged; no infrastructure would be removed, modified, or relocated; and no changes in Reclamation’s Shasta Lake operations would occur. Therefore, there would be no effect on several locations in the vicinity of Shasta Lake that are considered sacred by local Native American communities. No disproportionately high and adverse effects on Native American populations would occur. Mitigation is not required for the No-Action Alternative.

### **Upper Sacramento River (Shasta Dam to Red Bluff)**

*Impact EJ-3 (No-Action): Potential Disproportionate Effect on Minority and Low-Income Populations in the Upper Sacramento River Area* Communities in the upper Sacramento River portion of the primary study area would remain below minority and low-income thresholds for environmental justice. The No-Action Alternative would not cause long-term operational changes; therefore, communities adjacent to the Sacramento River would not be affected by long-term changes to environmental and recreational conditions. Construction-related gains within this area would not be realized. Existing adverse effects on minority or low-income populations would not be disproportionately high and adverse. No disproportionately high and adverse effects on minority or low-income populations would occur.

Tehama County would maintain its steady population growth under the No-Action Alternative. Since 1990, the population has increased by 22.9 percent, with total population projected to reach 79,000 by 2020 (DOF 2007). The minority (nonwhite) population is projected to account for 31 percent of the total population in Tehama County in 2020, an increase of nearly 7 percent from the current 23.9 percent level, but less than the 62.5 percent minority population projected statewide for 2020 (DOF 2007).

As described in Chapter 16, “Socioeconomics, Population, and Housing,” during 2000 to 2005, the poverty level in Tehama County decreased by 2.8 percent and unemployment rates in Tehama County fluctuated between 6.4 and 7.6 percent. Tehama County is similar to neighboring Shasta County in employment and income trends, and dominant employment sectors. Projected growth industries differ between the two counties, however; Tehama County is projected to experience strong economic growth in construction and information services (see Chapter 16, “Socioeconomics, Population, and Housing”). These sectors are the third and fifth largest anticipated growth areas statewide.

Because the No-Action Alternative would not change existing or projected future conditions, it would not have a disproportionately high or adverse effect on minority or low-income communities. Mitigation is not required for the No-Action Alternative.

#### **Lower Sacramento River and Delta**

##### *Impact EJ-4 (No-Action): Potential Disproportionate Effect on Minority and Low-Income Populations in the Lower Sacramento River and Delta Area*

Some communities within the lower Sacramento River and Delta portion of the extended study area contain minority and low-income populations above environmental justice thresholds; however, continuing the existing and projected future conditions under the No-Action Alternative would not affect those populations. No disproportionately high and adverse effects on minority or low-income populations would occur.

The lower Sacramento River and Delta portion of the extended study area includes Butte, Colusa, Contra Costa, Glenn, Sacramento, San Joaquin, Solano, Sutter, and Yolo counties. In 2006, the population of the nine-county region was 4,056,430. This number is expected to grow by 24.8 percent to 5,063,392 by 2020 (DOF 2007; U.S. Census Bureau 2006b, 2006c, 2007a, 2007b, 2007c, 2007d, 2007e, 2007f). The minority (nonwhite) population is projected to account for 63.8 percent of the total population in the lower Sacramento River and Delta area by 2020, with minority populations exceeding 50 percent in Colusa, Sacramento, San Joaquin, Solano, Sutter, and Yolo counties. Although the minority population in the lower Sacramento River and Delta area is projected to exceed 50 percent by 2020, the 63.8 percent representation would not be meaningfully greater than the statewide minority population, which is projected to be 62.5 percent.

In 2006, poverty levels in the nine-county region ranged from 7 percent to 18 percent, with low-income populations exceeding the 13.3 percent statewide poverty level in Butte, Glenn, San Joaquin, and Yolo counties (U.S. Census Bureau 2006b, 2006c, 2007a, 2007d, 2007g). Employment and labor trends in the lower Sacramento River and Delta portion of the extended study area are generally consistent with statewide trends. In 2005, approximately 5.3 percent of the labor force was classified as unemployed, compared to a statewide total of 5.4 percent. Butte, San Joaquin, Glenn, Sutter, and Colusa counties registered higher unemployment rates than the state as a whole in 2005. Generally, the counties with the highest unemployment rates in 2005 were characterized by greater dependence on the agricultural industry and less industrial diversity. Four of the five counties with unemployment rates above the statewide average maintained more than 60 percent of their land mass in agricultural production. Unemployment rates tend to be higher in rural areas than in urban areas because farm work is typically seasonal or temporary.

The lower Sacramento River and Delta portion of the extended study area has some low-income populations and some counties with a higher unemployment rate than the statewide average. However, the No-Action Alternative would not change the existing or projected future conditions. Therefore, the No-Action Alternative would not have disproportionately high and adverse effects on minority or low-income populations. Mitigation is not required for the No-Action Alternative.

#### **CVP/SWP Service Areas**

*Impact EJ-5 (No-Action): Potential Disproportionate Effect on Minority and Low-Income Populations in the CVP/SWP Service Areas* Some communities within the CVP and SWP service areas contain minority and low-income populations above environmental justice thresholds; however, adverse effects on CVP and SWP customers within these communities do not constitute a disproportionately high and adverse impact. Continuing the existing and projected future conditions under the No-Action Alternative would not affect these populations. No disproportionately high and adverse effects on minority or low-income populations would occur.

The CVP and SWP service areas are so expansive that they may be considered synonymous with the entire state of California for environmental justice purposes. Together, the CVP and SWP service areas include 36 of California's 58 counties, accounting for 91 percent (37,444,385 residents) of California's population in 2006. The state's population has increased by almost 25 percent since 1990 and is projected to increase by approximately 17 percent to more than 44 million people by 2020 (DOF 2007). Continued ethnic diversification is expected. Minority groups have been steadily increasing their proportion of the state population. Almost all minority groups (except African Americans) experienced double-digit population growth between 2000 and 2005 (U.S. Census Bureau 2002a, 2006b). Hispanics are the most numerous minority group in California, and many members of this ethnic group work on farms that

receive some or all of their water from the CVP. In general, rural agricultural counties have smaller minority populations than urban counties.

Poverty levels for both individuals and children in California decreased slightly between 2000 and 2005. This trend would not be expected to continue indefinitely. Instead, the percentage of people below the poverty level would be expected to follow national and statewide economic trends. Generally, poverty rates tend to be higher in rural counties than in urban counties. Despite these overall differences, each of the state's major urban areas has pockets of low-income neighborhoods with high poverty rates.

California's total labor force increased just over 2 percent from 2002 to 2005, adding between 100,000 and 200,000 individuals each year. Between 2004 and 2005, the labor force increased by approximately 188,000 individuals. This was the largest annual increase over the 4-year period. California's total labor force exceeded 17.7 million in 2005. The state's unemployment rate was lowest in 2000 (5.0 percent), and has been increasing since 2003. Unemployment in 2005 registered at 5.4 percent, equal to the state's 2001 unemployment rate. This observed decrease in the unemployment rate at the state level has coincided with similar national employment trends. Like poverty, unemployment rates tend to be lower in urban areas than in rural areas of the state; however, high unemployment rates are often found in low-income neighborhoods of major urban centers.

Although the CVP and SWP service areas have some low-income populations, the No-Action Alternative would not change the existing or projected future conditions. Therefore, no disproportionately high and adverse effects on minority or low-income populations would occur. Mitigation is not required for the No-Action Alternative.

***CP1 – 6.5-Foot Dam Raise, Anadromous Fish Survival and Water Supply Reliability***

**Shasta Lake and Vicinity**

*Impact EJ-1 (CP1): Potential Disproportionate Effect on Minority and Low-Income Populations in the Vicinity of Shasta Lake* Communities adjacent to the project construction site may experience temporary or short-term adverse environmental effects because of construction activities and changes in project conditions and operations. However, neither construction-related nor operational effects would disproportionately affect minority or low-income populations in the vicinity of Shasta Lake. Increased employment and income opportunities could also result from project construction activities, and would not be disproportionately distributed among minority and low-income populations. No disproportionately high and adverse effects on minority or low-income populations would occur.

Under this alternative, the dam would be raised by 6.5 feet over a 36-month construction period. Residents near Shasta Dam, as well as others who may

commute or otherwise travel near construction sites, would be exposed to a range of potentially adverse environmental and public health effects over a 36-month construction period (Reclamation 2007). Temporary and/or short-term adverse noise, visual, and air quality effects could result; in addition, motorists could be delayed, and access to recreation opportunities or local businesses could be temporarily reduced. Negative health effects could also result if hazardous materials were to be accidentally released into the environment during construction.

Nonwhite individuals, including the Winnemem Wintu Tribe and other Native Americans, accounted for 14.3 percent of Shasta County's total population in 2005, well below the 50 percent threshold for a minority population. This percentage is also substantially less than the 2005 statewide nonwhite population of 55.6 percent. Likewise, the poverty rate in Shasta County was 13.2 percent in 2005, well below the 50 percent threshold and slightly less than the 13.3 percent statewide poverty rate. Therefore, the percentages of minority and low-income individuals in populations in Shasta County are well below threshold levels for a minority or low-income population. Therefore, minority and low-income populations would not be disproportionately affected by these adverse effects.

Increased employment and income opportunities may result from construction under CP1, which could benefit minority and low-income populations. Project construction under CP1 could increase the number of jobs available, or could improve business conditions and incomes for workers who are already employed by businesses that would directly or indirectly benefit from project-related construction spending. The project would require a labor force of 350 people drawn directly from the Shasta Lake area. Most (85 percent) of the construction materials and supplies would be purchased in the vicinity; these materials and supplies would constitute 60 percent of total construction costs (Reclamation 2007). As described above, the percentages of minority and low-income individuals in Shasta County populations are well below threshold levels for minority and low-income populations, and employment effects would not be disproportionately distributed among these groups. Selected minority and low-income individuals may be potentially affected. Such economic and job-related impacts would be beneficial. Mitigation for this impact is not needed, and thus not proposed.

*Impact EJ-2 (CP1): Potential Disproportionate Effect on Native American Populations from Disturbance or Loss of Sacred Locations in the Vicinity of Shasta Lake* The local Native American community has identified several locations in the vicinity of Shasta Lake that they consider to be sacred. Notable among these locations are the Winnemem Wintu's Puberty Rock and the doctoring pools near Nawtawaket Creek and the Pit River Madesi Band's ethnographic villages, associated burial grounds, and several TCPs. CP2 would have a substantial adverse effect on several of these locations in the vicinity of Shasta Lake. Because the Winnemem Wintu and Pit River Madesi Band

members attach religious and cultural significance to these locations, the disturbance or loss of resources associated with these locations would result in a disproportionately high and adverse effect on Native American populations in the vicinity of Shasta Lake.

Two tribes, the Winnemem Wintu and the Pit River Madesi Band, live within the vicinity of Shasta Lake, where they continue to actively practice many aspects of their traditional culture. Both groups have related that a complex cultural landscape of village sites, ceremonial areas, sacred sites, burial sites, and resource areas would be affected directly by CP1.

Two particularly important Winnemem Wintu locations that would be affected by CP1 are Puberty Rock and the doctoring pools near Nawtawaket Creek. CP1 could submerge Puberty Rock, restricting the Winnemem Wintu from holding the puberty ceremony at this important location. Relocating the rock to higher ground is not possible; in the Winnemem worldview, its location is preordained and connected with the nearby “two sisters” mountain (Bolliboka Mountain). Puberty Rock also marks the location of an extensive village with housepits and burials, situated at Kabyai Creek, west of the McCloud River near the McCloud Campground. CP1 would inundate additional burials at this location, which would require removal and relocation. The Winnemem Wintu have estimated that 120 ancestral villages are still accessible above the current high-water line of Shasta Lake and would be adversely affected by CP1.

The Pit River Madesi Band members state that 22 ethnographic villages, associated burial grounds, and several TCPs are located within the existing reservoir and proposed inundation or fluctuation areas.

The Winnemem Wintu and Pit River Madesi Band members attach religious and cultural significance to several locations in the vicinity of Shasta Lake; therefore, the disturbance and loss of resources associated with these locations would result in a disproportionately high and adverse effect on Native American populations in the vicinity of Shasta Lake. Mitigation for this impact is not proposed because no feasible mitigation is available.

### **Upper Sacramento River (Shasta Dam to Red Bluff)**

*Impact EJ-3 (CP1): Potential Disproportionate Effect on Minority and Low-Income Populations in the Upper Sacramento River Area* Effects from project-related construction are not anticipated in the upper Sacramento River area downstream from Shasta Dam. In the long term, operational changes resulting from CP1 could reduce the risk of flooding and enhance environmental and recreational conditions in this area. These operational effects would not constitute a disproportionately high and adverse impact on minority and low-income populations. No disproportionately high and adverse effects on minority or low-income populations would occur.

In Tehama County, nonwhite individuals accounted for 23.9 percent of the total population in 2005. This is roughly half of the 50 percent threshold for a minority population. This level also is substantially less than the statewide nonwhite population of 55.6 percent. The poverty level in Tehama County was 14.5 percent in 2005, also well below the 50 percent threshold and slightly higher than the 13.3 percent statewide poverty rate. From 2000 to 2004, poverty levels in Tehama County decreased at a rate of 2.8 percent, outpacing the statewide poverty reduction rate (0.9 percent) by 1.9 percent over approximately the same time. If this trend continues, poverty levels will soon be lower than statewide levels (if they are not already). Based on this trend, and the comparatively consistent poverty rates between Tehama County and the statewide population, poverty levels in Tehama County are not meaningfully greater than poverty levels statewide. Therefore, the percentages of minority and low-income individuals in populations in Tehama County are well below threshold levels for minority and low-income populations. Thus, disproportionately high and adverse effects on minority or low-income populations would not occur.

Communities along the upper Sacramento River portion of the primary study area would not be exposed to direct construction-related impacts associated with CP1.

Raising Shasta Dam would add 256,000 acre-feet of cold-water storage to the overall capacity of the reservoir. This operational change would be beneficial for two reasons. CP1 would reduce the risk of flooding downstream from Shasta Dam and consequently reduce potentially adverse social, economic, and environmental effects because of flooding for property owners, businesses, and workers. In addition, CP1 would improve environmental and recreational conditions by enhancing habitat for fish and wildlife, benefiting anglers, hunters, and wildlife viewers.

These beneficial impacts would not be disproportionately distributed among minority and low-income populations, because representation of these groups in the population of Tehama County is well below threshold levels. Selected minority and low-income individuals may be potentially affected; however, these environmental and recreational effects would be beneficial. Mitigation for this impact is not needed, and thus not proposed.

#### **Lower Sacramento River and Delta**

##### *Impact EJ-4 (CP1): Potential Disproportionate Effect on Minority and Low-Income Populations in the Lower Sacramento River and Delta Area*

Operational effects of CP1 would be similar to those described for the upper Sacramento River portion of the primary study area under Impact EJ-2 (CP1). However, because the beneficial effects (reduction of flooding risk and improved environmental and recreational conditions) would diminish with distance from the project site, the benefits in this area would be less. No

disproportionately high or adverse effects on minority or low-income populations would occur.

Operational effects of CP1 on minority and low-income populations in the lower Sacramento River and Delta portion of the extended study area would be similar to those described for the upper Sacramento River portion of the primary study area under Impact EJ-2 (CP1). However, benefits in the lower Sacramento River and Delta area resulting from the reduced risk of flooding and improved environmental and recreational conditions would be less than described for the upper Sacramento River area because the lower Sacramento River and Delta is located at a greater distance from the project site. Minority and low-income populations would not be disproportionately affected. No disproportionately high or adverse effects on minority or low-income populations would occur. Mitigation for this impact is not needed, and thus not proposed.

### **CVP/SWP Service Areas**

*Impact EJ-5 (CP1): Potential Disproportionate Effect on Minority and Low-Income Populations in the CVP/SWP Service Areas* Direct construction-related impacts are not anticipated in the CVP and SWP service areas. The project could result in adverse indirect impacts because of water and power rate increases for customers within the CVP and SWP service areas. Employment opportunities and personal incomes may increase because of operational changes that improve the reliability of the water supply and power for businesses and others. Minority and low-income populations would not be disproportionately affected. No disproportionately high and adverse effects on minority or low-income populations would occur.

Utility customers in communities within the CVP and SWP service areas may experience indirect, adverse effects through rate increases as a result of CP1. Project-related water storage and hydroelectric facility improvements may be funded partly through increased rates for water and power services. However, such adverse effects would not disproportionately affect minority or low-income populations.

Operational changes resulting from CP1 may increase employment opportunities and water and power reliability in the CVP and SWP communities, which would be beneficial for individual utility customers and businesses. Selected minority and low-income individuals may be beneficially affected by increased employment opportunities. Such beneficial employment-related impacts would not disproportionately affect minority and low-income populations. Thus, no disproportionately high and adverse effects on minority or low-income populations would occur. Mitigation for this impact is not needed, and thus not proposed.

**CP2 – 12.5-Foot Dam Raise, Anadromous Fish Survival and Water Supply Reliability**

**Shasta Lake and Vicinity**

*Impact EJ-1 (CP2): Potential Disproportionate Effect on Minority and Low-Income Populations in the Vicinity of Shasta Lake* Communities adjacent to the project construction site may experience temporary and/or short-term adverse environmental effects because of construction activities and changes in project conditions and operations. However, neither construction-related nor operational effects would disproportionately affect minority or low-income populations in the vicinity of Shasta Lake. Therefore, no disproportionately high and adverse effects on minority or low-income populations would occur.

Effects on minority and low-income populations would be similar to those described above for Impact EJ-1 (CP1), except that the dam would be raised by 12.5 feet and the construction period likely would extend for up to 6 additional months. The beneficial effects and less than significant adverse impacts would be similar to those described under Impact EJ-1 (CP1) because the types of work and the predicted workforce would be similar under each alternative. As described under Impact EJ-1 (CP1), the percentages of minority and low-income individuals in populations in Shasta County are well below threshold levels for a minority or low-income population. Therefore, disproportionately high and adverse effects on minority or low-income populations would not occur. Mitigation for this impact is not needed, and thus not proposed.

*Impact EJ-2 (CP2): Potential Disproportionate Effect on Native American Populations from Disturbance or Loss of Sacred Locations in the Vicinity of Shasta Lake* The local Native American community has identified several locations in the vicinity of Shasta Lake that they consider to be sacred. Notable among these locations are the Winnemem Wintu's Puberty Rock and the doctoring pools near Nawtawaket Creek and the Pit River Madesi Band's ethnographic villages, associated burial grounds, and several TCPs. CP2 would have a substantial adverse effect on several of these locations in the vicinity of Shasta Lake. Because the Winnemem Wintu and Pit River Madesi Band members attach religious and cultural significance to these locations, the disturbance or loss of resources associated with these locations would result in a disproportionately high and adverse effect on Native American populations in the vicinity of Shasta Lake.

This impact would be similar to but slightly greater than Impact EJ-2 (CP1) because the inundation area under CP2 would be slightly greater than under CP1. A disproportionately high and adverse effect on Native American populations would occur. Mitigation for this impact is not proposed because no feasible mitigation is available.

**Upper Sacramento River (Shasta Dam to Red Bluff)**

*Impact EJ-3 (CP2): Potential Disproportionate Effect on Minority and Low-Income Populations in the Upper Sacramento River Area* Effects from project-

related construction are not anticipated in the upper Sacramento River area downstream from Shasta Dam. In the long term, operational changes resulting from CP2 could reduce the risk of flooding and enhance environmental and recreational conditions in this area. These operational effects would not constitute a disproportionately high and adverse impact on minority and low-income populations. No disproportionately high and adverse effects on minority or low-income populations would occur.

This impact would be similar to Impact EJ-3 (CP1). CP2 would provide 187,000 acre-feet more cold-water storage capacity than CP1. Greater storage capacity would reduce the risk of flooding and, along with increased cold water, would benefit downstream fisheries and recreation resources and users. Also, as described under Impact EJ-3 (CP1), the percentages of minority and low-income individuals in populations in Tehama County are well below threshold levels for minority and low-income populations. Thus, disproportionately high and adverse effects on minority or low-income populations would not occur. Mitigation for this impact is not needed, and thus not proposed.

#### **Lower Sacramento River and Delta**

##### *Impact EJ-4 (CP2): Potential Disproportionate Effect on Minority and Low-Income Populations in the Lower Sacramento River and Delta Area*

Operational effects of CP2 would be similar to those described for the upper Sacramento River portion of the primary study area under Impact EJ-4 (CP2). However, because the beneficial effects (reduction of flooding risk and improved environmental and recreational conditions) would diminish with distance from the project site, the benefits in this area would be less. No disproportionately high or adverse effects on minority or low-income populations would occur.

This impact would be similar to Impact EJ-4 (CP1). Under CP2, reduced flooding and beneficial effects on fisheries and recreation resources also would occur in the lower Sacramento River and Delta portion of the extended study area. However, the beneficial effects would be less than along the upper Sacramento River because benefits would diminish with increasing distance from the project site. As in the upper Sacramento River portion of the primary study area, the additional 187,000 acre-feet of reservoir storage would provide somewhat greater benefits under CP2 than under CP1. Minority and low-income populations would not be disproportionately affected. No disproportionately high or adverse effects on minority or low-income populations would occur. Mitigation for this impact is not needed, and thus not proposed.

#### **CVP/SWP Service Areas**

*Impact EJ-5 (CP2): Potential Disproportionate Effect on Minority and Low-Income Populations in the CVP/SWP Service Areas* Direct construction-related impacts are not anticipated in the CVP and SWP service areas. The project could result in adverse indirect impacts because of water and power rate

increases for customers within the CVP and SWP service areas. Employment opportunities and personal incomes may increase because of operational changes that improve the reliability of the water supply and power for businesses and others. Minority and low-income populations would not be disproportionately affected. No disproportionately high and adverse effects on minority or low-income populations would occur.

This impact would be similar to Impact EJ-5 (CP1). Construction costs under CP2 would be greater than under CP1, because of the increased need for construction materials and an additional 12 months of construction. These increased costs would result in slightly greater increases in water and power rates than under CP1. However, such adverse effects would not disproportionately affect minority and low-income populations. Operational benefits would be similar to those of CP1, and minority or low-income populations would not be disproportionately affected. Therefore, no disproportionately high and adverse effects on minority or low-income populations would occur. Mitigation for this impact is not needed, and thus not proposed.

**CP3 – 18.5-Foot Dam Raise, Anadromous Fish Survival and Water Supply Shasta Lake and Vicinity**

*Impact EJ-1 (CP3): Potential Disproportionate Effect on Minority and Low-Income Populations in the Vicinity of Shasta Lake* Communities adjacent to the project construction site may experience temporary and/or short-term adverse environmental effects because of construction activities and changes in project conditions and operations. However, neither construction-related nor operational effects would disproportionately affect minority or low-income populations in the vicinity of Shasta Lake. No disproportionately high or adverse effects on minority or low-income populations would occur.

This impact would be similar to Impact EJ-1 (CP1). Under CP3, the effects on minority and low-income populations would be similar to those described above for Impact EJ-1 (CP1), except that the dam would be raised by 18.5 feet and the construction period would extend for at least 12 additional months. The beneficial impacts and less than significant adverse impacts would be similar to those described under CP1 because the types of work and the predicted workforce would be similar under each alternative. As described under Impact EJ-1 (CP1), the percentages of minority and low-income individuals in populations in Shasta County are well below threshold levels for a minority or low-income population. Therefore, disproportionately high effects on minority or low-income populations would not occur (nor would disproportionately high and beneficial effects). Mitigation for this impact is not needed, and thus not proposed.

*Impact EJ-2 (CP3): Potential Disproportionate Effect on Native American Populations from Disturbance or Loss of Sacred Locations in the Vicinity of Shasta Lake* The local Native American community has identified several

locations in the vicinity of Shasta Lake that they consider to be sacred. Notable among these locations are the Winnemem Wintu's Puberty Rock and the doctoring pools near Nawtawaket Creek and the Pit River Madesi Band's ethnographic villages, associated burial grounds, and several TCPs. CP3 would have a substantial adverse effect on several of these locations in the vicinity of Shasta Lake. Because the Winnemem Wintu and Pit River Madesi Band members attach religious and cultural significance to these locations, the disturbance or loss of resources associated with these locations would result in a disproportionately high and adverse effect on Native American populations in the vicinity of Shasta Lake.

This impact would be similar to but slightly greater than Impact EJ-2 (CP2) because the inundation area under CP3 would be slightly greater than under CP2. A disproportionately high and adverse effect on Native American populations would occur. Mitigation for this impact is not proposed because no feasible mitigation is available.

#### **Upper Sacramento River (Shasta Dam to Red Bluff)**

*Impact EJ-3 (CP3): Potential Disproportionate Effect on Minority and Low-Income Populations in the Upper Sacramento River Area* Effects from project-related construction are not anticipated in the upper Sacramento River area downstream from Shasta Dam. In the long term, operational changes resulting from CP3 could reduce the risk of flooding and enhance environmental and recreational conditions in this area. These beneficial operational effects would not be disproportionately distributed among minority and low-income populations. No disproportionately high and adverse effects on minority or low-income populations would occur.

This impact would be similar to Impact EJ-3 (CP1). CP3 would provide 378,000 acre-feet more cold-water storage capacity than CP1. Greater storage capacity would reduce the risk of flooding and, along with increased cold water, would benefit downstream fisheries and recreation resources and users. Also, as described under Impact EJ-3 (CP1), the percentages of minority and low-income individuals in populations in Tehama County are well below threshold levels for minority and low-income populations. Thus, disproportionately high and adverse effects on minority or low-income populations would not occur. Mitigation for this impact is not needed, and thus not proposed.

#### **Lower Sacramento River and Delta**

*Impact EJ-4 (CP3): Potential Disproportionate Effect on Minority and Low-Income Populations in the Lower Sacramento River and Delta Area* Operational effects of CP3 would be similar to those described for the upper Sacramento River portion of the primary study area under Impact EJ-3 (CP3). However, because the beneficial effects (reduction of flooding risk and improved environmental and recreational conditions) would diminish with distance from the project site, the benefits in this area would be less. No

disproportionately high or adverse effects on minority or low-income populations would occur.

This impact would be similar to Impact EJ-4 (CP1). Under CP3, reduced flooding and beneficial effects on fisheries and recreation resources also would occur in the lower Sacramento River and Delta portion of the extended study area. However, the beneficial effects would be less than along the upper Sacramento River because benefits would diminish with increasing distance from the project site. As in the upper Sacramento River portion of the primary study area, the additional 378,000 acre-feet of reservoir storage would provide somewhat greater benefits under CP3 than under CP1. Minority and low-income populations would not be disproportionately affected. No disproportionately high or adverse effects on minority or low-income populations would occur. Mitigation for this impact is not needed, and thus not proposed.

#### **CVP/SWP Service Areas**

*Impact EJ-5 (CP3): Potential Disproportionate Effect on Minority and Low-Income Populations in the CVP/SWP Service Areas* Direct construction-related impacts are not anticipated in the CVP and SWP service areas. The project could result in adverse indirect impacts because of water and power rate increases for customers within the CVP and SWP service areas. Employment opportunities and personal incomes may increase because of operational changes that improve the reliability of the water supply reliability and power for businesses and others. Minority and low-income populations would not be disproportionately affected. No disproportionately high or adverse effects on minority or low-income populations would occur.

This impact would be similar to Impact EJ-5 (CP1). Construction costs under CP3 would be greater than under CP1 because of the increased need for construction materials and an additional 12 months of construction. These increased costs would result in slightly greater increases in water and power rates than under CP1. However, such adverse effects would not disproportionately affect minority and low-income populations. Operational benefits would be similar to those of CP1, and minority and low-income populations would not be disproportionately affected. Therefore, no disproportionately high and adverse effects on minority or low-income populations would occur. Mitigation for this impact is not needed, and thus not proposed.

#### **CP4 – 18.5-Foot Dam Raise, Anadromous Fish Focus with Water Supply Reliability**

##### **Shasta Lake and Vicinity**

*Impact EJ-1 (CP4): Potential Disproportionate Effect on Minority and Low-Income Populations in the Vicinity of Shasta Lake* Communities adjacent to the project construction site may experience temporary and/or short-term adverse environmental effects because of construction activities and changes in

project conditions and operations. However, neither construction-related nor operational effects would be disproportionately distributed among minority or low-income populations in the vicinity of Shasta Lake. No disproportionately high and adverse effects on minority or low-income populations would occur.

This impact would be similar to Impact EJ-1 (CP1). Under CP4, the effects on minority and low-income populations would be similar to those described above for Impact EJ-1 (CP1), except that the dam would be raised by 18.5 feet and the construction period would extend for at least 12 additional months. The beneficial effects and less than significant adverse impacts would be similar to those described under CP1 because the types of work and the predicted workforce would be similar under each alternative. As described under Impact EJ-1 (CP1), the percentages of minority and low-income individuals in populations in Shasta County are well below threshold levels for a minority or low-income population. Therefore, adverse and beneficial effects would not be disproportionately distributed among minority or low-income populations. No disproportionately high and adverse effects on minority or low-income populations would occur. Mitigation for this impact is not needed, and thus not proposed.

*Impact EJ-2 (CP4): Potential Disproportionate Effect on Native American Populations from Disturbance or Loss of Sacred Locations in the Vicinity of Shasta Lake* The local Native American community has identified several locations in the vicinity of Shasta Lake that they consider to be sacred. Notable among these locations are the Winnemem Wintu's Puberty Rock and the doctoring pools near Nawtawaket Creek and the Pit River Madesi Band's ethnographic villages, associated burial grounds, and several TCPs. CP2 would have a substantial adverse effect on several of these locations in the vicinity of Shasta Lake. Because the Winnemem Wintu and Pit River Madesi Band members attach religious and cultural significance to these locations, the disturbance or loss of resources associated with these locations would result in a disproportionately high and adverse effect on Native American populations in the vicinity of Shasta Lake.

This impact would be similar to Impact EJ-2 (CP3), but the frequency and timing of inundation may vary. Disproportionately high and adverse effects on Native American populations would occur. Mitigation for this impact is not proposed because no feasible mitigation is available.

**Upper Sacramento River (Shasta Dam to Red Bluff)**

*Impact EJ-3 (CP4): Potential Disproportionate Effect on Minority and Low-Income Populations in the Upper Sacramento River Area* Effects from project-related construction are not anticipated in the upper Sacramento River area downstream from Shasta Dam. In the long term, operational changes resulting from CP4 could reduce the risk of flooding and enhance environmental and recreational conditions in this area. These beneficial operational effects would not constitute a disproportionately high and adverse impact on minority and

low-income populations. No disproportionately high and adverse effects on minority or low-income populations would occur.

This impact would be similar to Impact EJ-3 (CP1). CP4 would provide 378,000 acre-feet more cold-water storage capacity than CP1. Greater storage capacity would reduce the risk of flooding and, along with increased cold water, would benefit downstream fisheries and recreation resources and users. Also, as described under Impact EJ-3 (CP1), the percentages of minority and low-income individuals in populations in Tehama County are well below threshold levels for minority and low-income populations. Minority and low-income populations would not be disproportionately affected. No disproportionately high and adverse effects on minority or low-income populations would occur. Mitigation for this impact is not needed, and thus not proposed.

### **Lower Sacramento River and Delta**

#### *Impact EJ-4 (CP4): Potential Disproportionate Effect on Minority and Low-Income Populations in the Lower Sacramento River and Delta Area*

Operational effects of CP4 would be similar to those described for the upper Sacramento River portion of the primary study area under Impact EJ-3 (CP4). However, because the beneficial effects (reduction of flooding risk and improved environmental and recreational conditions) would diminish with distance from the project site, the benefits in this area would be less. No disproportionately high and adverse effects on minority or low-income populations would occur.

This impact would be similar to Impact EJ-4 (CP1). Under CP4, reduced flooding and beneficial effects on fisheries and recreation resources also would occur in the lower Sacramento River and Delta portion of the extended study area. However, the beneficial effects would be less than along the upper Sacramento River because benefits would diminish with increasing distance from the project site. As in the upper Sacramento River portion of the primary study area, the additional 378,000 acre-feet of reservoir storage would provide somewhat greater benefits under CP4 than under CP1. Minority and low-income populations would not be disproportionately affected. No disproportionately high or adverse effects on minority or low-income populations would occur. Mitigation for this impact is not needed, and thus not proposed.

### **CVP/SWP Service Areas**

#### *Impact EJ-5 (CP4): Potential Disproportionate Effect on Minority and Low-Income Populations in the CVP/SWP Service Areas*

Direct construction-related impacts are not anticipated in the CVP and SWP service areas. The project could result in adverse indirect impacts because of water and power rate increases for customers within the CVP and SWP service areas. Employment opportunities and personal incomes may increase because of operational changes that improve the reliability of the water supply and power to businesses and others. Minority and low-income populations would not be

disproportionately affected. No disproportionately high and adverse effects on minority or low-income populations would occur.

This impact would be similar to Impact EJ-5 (CP1). Construction costs under CP4 would be greater than under CP1 because of the increased need for construction materials and an additional 12 months of construction. These increased costs would result in slightly greater increases in water and power rates than under CP1. However, such adverse effects would not disproportionately affect minority and low-income populations. Operational benefits would be similar to those under CP1, and minority and low-income populations would not be disproportionately affected. Therefore, no disproportionately high and adverse effects on minority or low-income populations would occur. Mitigation for this impact is not needed, and thus not proposed.

**CP5 – 18.5-Foot Dam Raise, Combination Plan  
Shasta Lake and Vicinity**

*Impact EJ-1 (CP5): Potential Disproportionate Effect on Minority and Low-Income Populations in the Vicinity of Shasta Lake* Communities adjacent to the project construction site may experience temporary adverse environmental effects because of construction activities and changes in project conditions and operations. However, the construction activity in any specific area would be short-term, and neither construction-related nor operational effects would constitute a high and adverse impact on minority or low-income populations in the vicinity of Shasta Lake. No disproportionately high and adverse effects on minority or low-income populations would occur.

This impact would be similar to Impact EJ-1 (CP1). Under CP5, the effects on minority and low-income populations would be similar to those described above for Impact EJ-1 (CP1), except that the dam would be raised by 18.5 feet and the construction period would extend for at least 12 additional months. The beneficial effects and less than significant adverse impacts would be similar to those described under CP1 because the types of work and the predicted workforce would be similar under each alternative. As described under Impact EJ-1 (CP1), the percentages of minority and low-income individuals in populations in Shasta County are well below threshold levels for a minority or low-income population. Therefore, minority and low-income populations would not be disproportionately affected. No disproportionately high and adverse effects on minority or low-income populations would occur. Mitigation for this impact is not needed, and thus not proposed.

*Impact EJ-2 (CP5): Potential Disproportionate Effect on Native American Populations from Disturbance or Loss of Sacred Locations in the Vicinity of Shasta Lake* The local Native American community has identified several locations in the vicinity of Shasta Lake that they consider to be sacred. Notable among these locations are the Winnemem Wintu's Puberty Rock and the doctoring pools near Nawtawaket Creek and the Pit River Madesi Band's

ethnographic villages, associated burial grounds, and several TCPs. CP2 would have a substantial adverse effect on several of these locations in the vicinity of Shasta Lake. Because the Winnemem Wintu and Pit River Madesi Band members attach religious and cultural significance to these locations, the disturbance or loss of resources associated with these locations would result in a disproportionately high and adverse effect on Native American populations in the vicinity of Shasta Lake.

This impact would be the same as Impact EJ-2 (CP3). Disproportionately high and adverse effects on Native American populations would occur. Mitigation for this impact is not proposed because no feasible mitigation is available.

### **Upper Sacramento River (Shasta Dam to Red Bluff)**

*Impact EJ-3 (CP5): Potential Disproportionate Effect on Minority and Low-Income Populations in the Upper Sacramento River Area* Effects from project-related construction are not anticipated in the upper Sacramento River area downstream from Shasta Dam. In the long term, operational changes resulting from CP5 could reduce the risk of flooding and enhance environmental and recreational conditions in this area. These operational effects would not constitute a disproportionately high and adverse impact on minority and low-income populations. No disproportionately high and adverse effects on minority or low-income populations would occur.

This impact would be similar to Impact EJ-3 (CP1). CP5 would provide 378,000 acre-feet more cold-water storage capacity than CP1. Greater storage capacity would reduce the risk of flooding and, along with increased cold water, would benefit downstream fisheries and recreation resources and users. Also, as described under Impact EJ-3 (CP1), the percentages of minority and low-income individuals in populations in Tehama County are well below threshold levels for minority and low-income populations. Therefore, minority and low-income populations would not be disproportionately affected. No disproportionately high and adverse effects on minority or low-income populations would occur. Mitigation for this impact is not needed, and thus not proposed.

### **Lower Sacramento River and Delta**

*Impact EJ-4 (CP5): Potential Disproportionate Effect on Minority and Low-Income Populations in the Lower Sacramento River and Delta Area* Operational effects of CP5 would be similar to those described for the upper Sacramento River portion of the primary study area under Impact EJ-3 (CP5). However, because the beneficial effects (reduction of flooding risk and improved environmental and recreational conditions) would diminish with distance from the project site, the benefits in this area would be less. No disproportionately high and adverse effects on minority or low-income populations would occur.

This impact would be similar to Impact EJ-4 (CP1). Under CP5, reduced flooding and beneficial effects on fisheries and recreation resources also would occur in the lower Sacramento River and Delta portion of the extended study area. However, the beneficial effects would be less than along the upper Sacramento River because benefits would diminish with increasing distance from the project site. As in the upper Sacramento River portion of the primary study area, the additional 378,000 acre-feet of reservoir storage would provide somewhat greater benefits under CP5 than under CP1. Minority and low-income populations would not be disproportionately affected. No disproportionately high or adverse effects on minority or low-income populations would occur. Mitigation for this impact is not needed, and thus not proposed.

#### **CVP/SWP Service Areas**

*Impact EJ-5 (CP5): Potential Disproportionate Effect on Minority and Low-Income Populations in the CVP/SWP Service Areas* Direct construction-related impacts are not anticipated in the CVP and SWP service areas. The project could result in adverse indirect impacts because of water and power rate increases for customers within the CVP and SWP service areas. Employment opportunities and personal incomes may increase because of operational changes that improve the reliability of the water supply and power for businesses and others. Minority and low-income populations would not be disproportionately affected. Therefore, no disproportionately high and adverse effects on minority or low-income populations would occur.

This impact would be similar to Impact EJ-5 (CP1). Construction costs under CP5 would be greater than under CP1 because of increased materials and an additional 12 months of construction. These increased costs would result in slightly greater increases in water and power rates than under CP1. However, such adverse effects would not disproportionately affect minority and low-income populations. Operational benefits would be similar to those under CP1, and minority and low-income populations would not be disproportionately affected. Therefore, no disproportionately high and adverse effects on minority or low-income populations would occur. Mitigation for this impact is not needed, and thus not proposed.

#### **24.3.5 Mitigation Measures**

Table 24-2 presents a summary of effects and mitigation measures for environmental justice.

**Table 24-2. Summary of Mitigation Measures for Environmental Justice**

Impact	No-Action Alternative	CP1	CP2	CP3	CP4	CP5
Impact EJ-1: Potential Disproportionate Effect on Minority and Low-Income Populations in the Vicinity of Shasta Lake	Effect before Mitigation	NDHA	NDHA	NDHA	NDHA	NDHA
	Mitigation Measure	None needed; thus, none proposed.				
Impact EJ-2: Potential Disproportionate Effect on Native American Populations in the Vicinity of Shasta Lake	Effect after Mitigation	NDHA	NDHA	NDHA	NDHA	NDHA
	Effect before Mitigation	DHA	DHA	DHA	DHA	DHA
Impact EJ-3: Potential Disproportionate Effect on Minority and Low-Income Populations in the Upper Sacramento River Area	Mitigation Measure	None required.				
	Effect after Mitigation	NDHA	DHA	DHA	DHA	DHA
Impact EJ-4: Potential Disproportionate Effect on Minority and Low-Income Populations in the Lower Sacramento River and Delta Area	Effect before Mitigation	NDHA	NDHA	NDHA	NDHA	NDHA
	Mitigation Measure	None required.				
Impact EJ-5: Potential Disproportionate Effect on Minority and Low-Income Populations in the CVP/SWP Service Areas	Effect after Mitigation	NDHA	NDHA	NDHA	NDHA	NDHA
	Mitigation Measure	None needed; thus, none proposed.				
	Effect before Mitigation	NDHA	NDHA	NDHA	NDHA	NDHA
	Effect after Mitigation	NDHA	NDHA	NDHA	NDHA	NDHA

Key:  
DHA = Disproportionately high and adverse  
NDHA = Not disproportionately high and adverse

***No-Action Alternative***

No mitigation measures are needed for this alternative.

***CP1 – 6.5-Foot Dam Raise, Anadromous Fish Survival and Water Supply Reliability***

No mitigation measures are needed for Impacts EJ-1 (CP1), EJ-3 (CP1), EJ-4 (CP1), or EJ-5 (CP1). No feasible mitigation is available for Impact EJ-2 (CP1). The disturbance or loss of resources associated with locations considered by the Winnemem Wintu and Pit River Madesi Band members to have religious and cultural significance would result in an unmitigable disproportionately high and adverse effect on Native American populations in the vicinity of Shasta Lake.

***CP2 – 12.5-Foot Dam Raise, Anadromous Fish Survival and Water Supply Reliability***

No mitigation measures are needed for Impacts EJ-1 (CP2), EJ-3 (CP2), EJ-4 (CP2), or EJ-5 (CP2). No feasible mitigation is available for Impact EJ-2 (CP2). The disturbance or loss of resources associated with locations considered by the Winnemem Wintu and Pit River Madesi Band members to have religious and cultural significance would result in an unmitigable disproportionately high and adverse effect on Native American populations in the vicinity of Shasta Lake.

***CP3 – 18.5-Foot Dam Raise, Anadromous Fish Survival and Water Supply Reliability***

No mitigation measures are needed for Impacts EJ-1 (CP3), EJ-3 (CP3), EJ-4 (CP3), or EJ-5 (CP3). No feasible mitigation is available for Impact EJ-2 (CP3). The disturbance or loss of resources associated with locations considered by the Winnemem Wintu and Pit River Madesi Band members to have religious and cultural significance would result in an unmitigable disproportionately high and adverse effect on Native American populations in the vicinity of Shasta Lake.

***CP4 – 18.5-Foot Dam Raise, Anadromous Fish Focus with Water Supply Reliability***

No mitigation measures are needed for Impacts EJ-1 (CP4), EJ-3 (CP4), EJ-4 (CP4), or EJ-5 (CP4). No feasible mitigation is available for Impact EJ-2 (CP4). The disturbance or loss of resources associated with locations considered by the Winnemem Wintu and Pit River Madesi Band members to have religious and cultural significance would result in an unmitigable disproportionately high and adverse effect on Native American populations in the vicinity of Shasta Lake.

***CP5 – 18.5-Foot Dam Raise, Combination Plan***

No mitigation measures are needed for Impacts EJ-1 (CP5), EJ-3 (CP5), EJ-4 (CP5), or EJ-5 (CP5). No feasible mitigation is available for Impact EJ-2 (CP5). The disturbance or loss of resources associated with locations considered by the Winnemem Wintu and Pit River Madesi Band members to have religious and cultural significance would result in an unmitigable disproportionately high and adverse effect on Native American populations in the vicinity of Shasta Lake.

### 24.3.6 Cumulative Effects

In the primary study area (i.e., Shasta Lake and vicinity and the upper Sacramento River from Shasta Dam to Red Bluff), minority and low-income populations are not disproportionately represented. Identified construction effects would be less than significant, and minority and low-income populations would not be disproportionately affected.

Some communities within the extended study area (i.e., the lower Sacramento River and Delta and the CVP and SWP service areas) exceed minority and low-income thresholds. These communities, along with the general population, would benefit from project effects that would reduce future water shortages by improving water supply reliability for both average and drought years. The greatest benefit would be provided by CP3, CP4, and CP5, which would provide an additional 634,000 acre-feet of storage capacity. CP1 and CP2 would provide only 256,000 and 443,000 acre-feet of increased storage capacity, respectively, with correspondingly reduced benefits.

Alternatives that would incorporate the greatest increase to dam height would result in the greatest project cost because of higher costs for construction materials and longer construction periods. These increased costs may be reflected in increased utility rates that could be combined with other utility rate increases. Such rate increases would be incremental and would be experienced by the general population, along with minority and low-income communities.

Therefore, the project would not contribute to disproportionate placement of environmental impacts on low-income and minority populations or communities, and no cumulatively considerable impacts would result.

The disturbance or loss of resources associated with locations considered by the Winnemem Wintu and Pit River Madesi Band members to have religious and cultural significance would result in a disproportionately high and adverse effect on Native American populations in the vicinity of Shasta Lake. Therefore, the project would contribute to disproportionate placement of environmental impacts on Native American populations and would result in a cumulatively considerable incremental contribution to a significant and unavoidable cumulative impact.

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