

**BUTTE CREEK WATER RIGHTS ACQUISITION FROM  
RESOURCE RENEWAL INSTITUTE**

**ENVIRONMENTAL ASSESSMENT AND  
FINDING OF NO SIGNIFICANT IMPACT**

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**FINAL**

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**November 30, 2001**

**Final**

**Butte Creek Water Rights Acquisition  
from Institute  
Environmental Assessment and  
Finding of No Significant Impact**

*Prepared for:*

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**FONSI**

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**United States Department of the Interior**

**Bureau of Reclamation  
Mid-Pacific Region  
Sacramento, California**

**FINDING OF NO SIGNIFICANT IMPACT**

**BUTTE CREEK WATER RIGHT ACQUISITION  
FROM RESOURCE RENEWAL INSTITUTE**

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Date:

November 30, 2001  
\_\_\_\_\_

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FONSI Number:

01-15-MP  
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**FINAL**

**FONSI-1**

**November 2001**

**FINDING OF NO SIGNIFICANT IMPACT**  
**Butte Creek Water Rights Acquisition**  
**from Resource Renewal Institute**

There is a need to purchase existing water rights from willing sellers on Butte Creek to permanently maintain instream flows that benefit anadromous fisheries. This need is documented in the Revised Draft Restoration Plan for the Anadromous Fish Restoration Plan and is consistent with the overall programmatic goals of the CALFED Bay-Delta restoration program.

Under the Proposed Action, the U.S. Department of the Interior (Interior) would purchase existing water rights on Butte Creek from Resource Renewal Institute (RRI). The Proposed Action results only in a change in ownership of the water rights. It does not change either the authorized place of use or authorized purpose of use of these water rights. The authorized place of use of the subject water rights is Butte Creek between diversion 54 and the confluence of Butte Creek and Butte Slough (Butte Slough outfall), and the purpose of use is the protection of fish and wildlife dependent on instream flows. Once the water is purchased, Interior would hold the subject water rights in perpetuity for purposes of maintaining instream flows to benefit fish and wildlife.

The U.S. Bureau of Reclamation (Reclamation) prepared an Environmental Assessment (EA) that evaluates the potential environmental impacts, both beneficial and adverse, associated with the Proposed Action and a No-Action Alternative. The EA is attached for reference. In accordance with the National Environmental Policy Act of 1969, as amended, Reclamation has found that the acquisition of water rights on Butte Creek from RRI would not result in a significant adverse impact on the environment. Therefore, an Environmental Impact Statement is not required.

This Finding of No Significant Impact (FONSI) is based upon the following:

- # The Proposed Action would not adversely affect surface water resources. No modification, installation, or removal of water control structures is associated with the Proposed Action. Additionally, neither work within the stream channel nor changes in the operations of diversion facilities would be required to implement the Proposed Action.
  
- # The Proposed Action involves only the legal transfer of existing water rights. Under the Proposed Action, the subject water rights would be permanently maintained for instream purposes and therefore would have no effect on groundwater use or quality.

## **FONSI**

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- # Interior's proposed purchase of surface water flows is consistent with the authorized purpose of use of the existing water rights (i.e., the protection of fish and wildlife dependent on instream flows) and would have no adverse effect on fishery, vegetation, or wildlife resources.
- # Energy usage would remain unchanged under the Proposed Action.
- # No activities (e.g., work within the stream channel) that may adversely affect recreational opportunities associated with Butte Creek would be required to implement the Proposed Action. Current fishing regulations would remain in place, and instream flows would not be altered.
- # No modification, installation, or removal of water control structures would occur under the Proposed Action. Additionally, neither work within the stream channel nor changes to streambanks would be required to implement the Proposed Action. Consequently, any cultural resources that may exist in the study area would not be affected under the Proposed Action.
- # The Proposed Action would not result in changes in agricultural commodities, employment opportunities, or housing availability that could affect low-income or minority individuals. Therefore, the Proposed Action would not result in adverse effects related to environmental justice.
- # Implementation of the Proposed Action would not result in any ground-breaking activities affecting any Indian reservations, rancherias, or other legal interests held in trust by the United States for the benefit of Indian tribes or individual Indians.
- # The Proposed Action would not contribute to a cumulatively significant adverse impact when added to other past, present, and reasonably foreseeable future actions, given that the Proposed Action results only in a change in ownership of the water rights and does not change the authorized purpose of use.
- # The Proposed Action would not significantly affect any listed species as no physical changes are proposed. Consultation pursuant to the Endangered Species Act has been completed with the Fish and Wildlife Service and the National Marine Fisheries Service. They have both concurred that the Proposed Action is not likely to adversely affect any Federally-listed species.

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# 1.0 Introduction

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The U.S. Department of the Interior (Interior), through the Bureau of Reclamation (Reclamation), is proposing to permanently acquire water from Resource Renewal Institute (RRI) to maintain existing benefits to anadromous fisheries in Butte Creek, Butte County, California.

The Central Valley Project Improvement Act (CVPIA) directs the Secretary of the Interior to develop and implement "...a program which makes all reasonable efforts to ensure that, by the year 2002, natural production of anadromous fish in Central Valley rivers and streams will be sustainable, on a long-term basis, at levels not less than twice the average levels attained during the period of 1967–1991" (Section 3406 [b][1]). This program is known as the Anadromous Fish Restoration Program (AFRP).

A Revised Draft Restoration Plan (U.S. Fish and Wildlife Service 1997) for the AFRP has identified the top three "high" priority restoration actions for Butte Creek as: (1) obtain instream flows from Parrott-Phelan Diversion, (2) maintain a 40 cubic feet per second (cfs) base flow in Butte Creek below the Centerville Diversion Dam, and (3) purchase existing water rights from willing sellers (U.S. Fish and Wildlife Service 1997). These priorities are directed toward the draft plan's long-term sustainable production target of 2,000 spring-run and 1,500 fall-run chinook salmon in Butte Creek, and reflect a general need to secure a permanent increase in base instream flows to benefit anadromous fisheries.

The CVPIA also directs the Secretary of the Interior to develop and implement a program for water acquisition to contribute to at least a doubling of the natural anadromous fish populations. This program, known as the Water Acquisition Program (WAP), is authorized under Section 3406(b)(3) of the CVPIA.

Interior is pursuing the proposed water rights purchase (Proposed Action) under the authority of the CVPIA, AFRP, and WAP. This purchase is also consistent with the current authorized purpose of use for these water rights, which is the protection of fish and wildlife dependent on instream flows.

## 1.1 NATIONAL ENVIRONMENTAL POLICY ACT COMPLIANCE

As the lead federal agency, Reclamation has prepared this environmental assessment (EA) pursuant to the National Environmental Policy Act (NEPA), as amended, to examine the environmental effects of a change in ownership of existing water rights dedicated for instream uses that benefit anadromous fisheries in Butte Creek.

This EA incorporates material from several documents that address the need for anadromous fisheries restoration actions in the Butte Creek watershed:

- # Mitigated Negative Declaration/Finding of No Significant Impact (Joint California Environmental Quality Act [CEQA] Initial Study and NEPA Environmental Assessment), Butte Creek Bifurcation Structure Replacement Project (Jones & Stokes Associates and Borcalli & Associates 1999);
- # Draft Programmatic Environmental Assessment, Anadromous Fish Restoration Actions in the Butte Creek Watershed (U.S. Fish and Wildlife Service 2000); and
- # Butte Creek Watershed Project – Final Existing Conditions Report (Butte Creek Watershed Conservancy 2000).

## 1.2 PURPOSE AND NEED

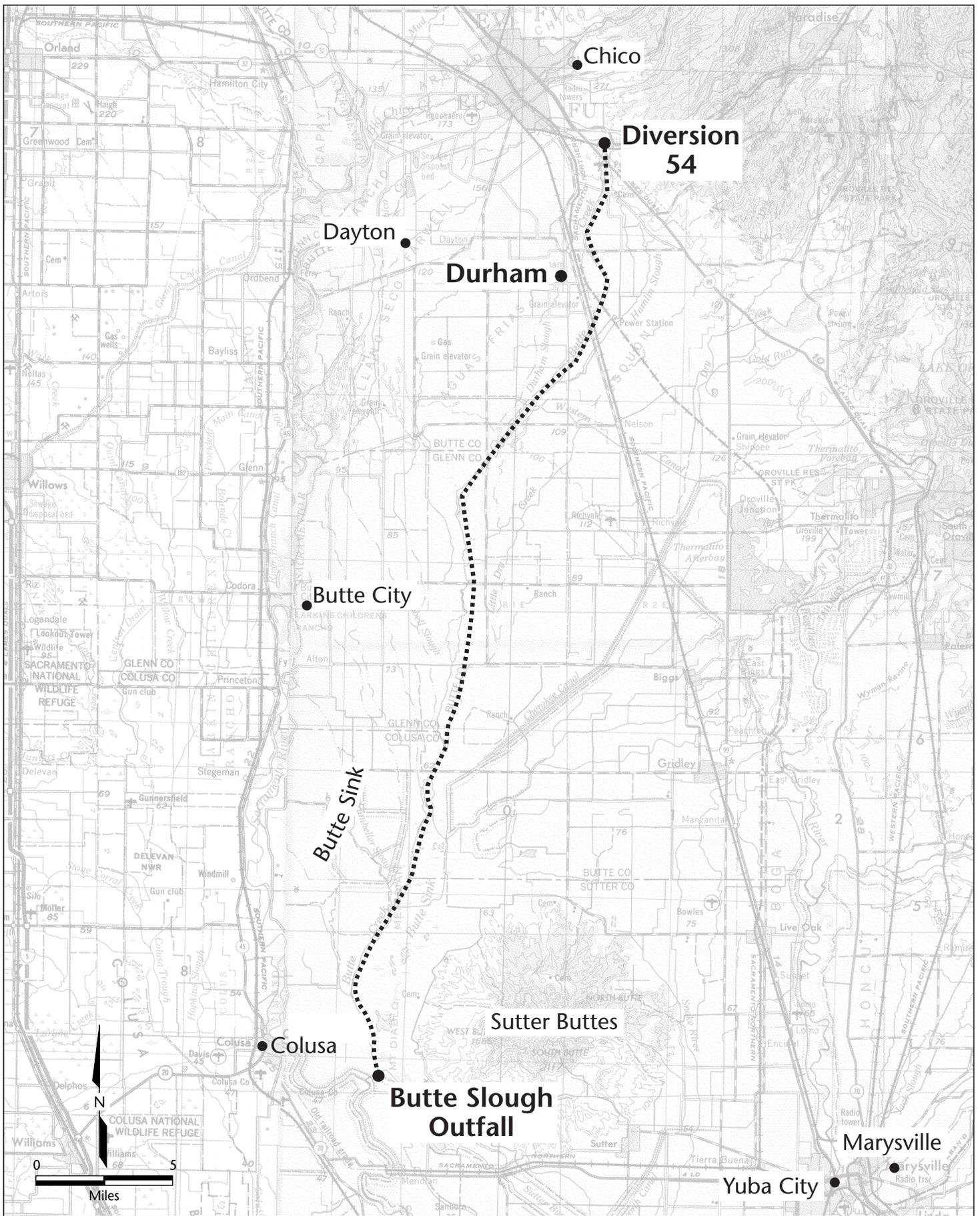
There is a need to purchase existing water rights from willing sellers on Butte Creek to permanently maintain instream flows that benefit anadromous fisheries. The need to purchase water rights for fishery flows on Butte Creek is documented in the Revised Draft Restoration Plan for the AFRP (U.S. Fish and Wildlife Service 1997), and is consistent with the overall programmatic goals of the CALFED Bay-Delta restoration program (CALFED Bay-Delta Program 2000).

Butte Creek supports spring-run and fall/late fall-run chinook salmon (*Oncorhynchus tshawytscha*) and Central Valley steelhead trout (*Oncorhynchus mykiss*). Numerous water diversions on Butte Creek prevent maintenance of sufficient base flows for these anadromous fish during critical low-water periods as well as during critical life history stages.

During dry years, several areas above the Western Canal Dam site (Figure 1) may hinder upstream passage of spawning adult salmon as well as emigration of smolts; migrating adult spring-run chinook salmon and emigrating smolts encounter low, warm flows and may become stranded. Below the Western Canal Dam site, other diversions for agriculture and by private duck hunting clubs also prevent sufficient migration/emigration flows through Sutter Bypass to enhance anadromous fish populations during drier than normal water years. Historical flow records for the Butte Slough outfall indicate several years of minimal to nonexistent flows during spring-run migration and emigration periods.

The Proposed Action, the purchase of water rights from RRI, will contribute to meeting the identified need to acquire permanent instream flows in Butte Creek for anadromous fish. The Proposed Action would assure permanent protection of the subject water rights on Butte Creek between Durham Mutual Dam (diversion number 54) and Butte Slough outfall. (This reach will be hereinafter referred to as the study area [Figure 2].)





Base Map: USGS 15' Series Chico, California quadrangle (1970), (reduced to 85% of original size)

## 1.3 BACKGROUND

### 1.3.1 Anadromous Fisheries in Butte Creek

Butte Creek is one of the more important spring-run chinook salmon streams in the Sacramento River Valley. It also supports fall/late fall-run chinook as well as Central Valley steelhead. Recent management emphasis has been to increase and sustain the spring-run chinook population. As late as the 1960s, Butte Creek supported over 4,000 adult spring-run chinook, a lesser number of fall/late fall-run chinook, and a small number of Central Valley steelhead. More recently, the spring-run chinook populations have ranged from fewer than 200 adults to more than 1,000, although large increases in migrating fish were observed in 1995 and 1998.

Fish surveys indicate that, typically, few adult spring-run salmon reach upper Butte Creek, where conditions are most favorable for holding and spawning. The fall-run chinook salmon population varies from a few fish to as many as 1,000. The numbers of late fall-run chinook and Central Valley steelhead are unknown. Spring-run chinook is listed as threatened under both the federal and California Endangered Species Acts (ESAs). Fall-run chinook is a California species of special concern and a candidate for listing under the federal ESA. Central Valley steelhead is listed as threatened under the federal ESA.

### 1.3.2 Water Rights History

RRI has executed agreements with Hester Patrick and J. Robert and Elizabeth Kennedy to purchase their interests in pre-1914 appropriative water rights on Butte Creek. The California Department of Water Resources (DWR) watermaster records state that Ms. Patrick and Mr. and Mrs. Kennedy were owners of the water rights as listed in the November 5, 1942, Butte Creek judgement and decree “In the Matter of the Determination of the Rights of Various Claimants to the Waters of that Portion of Butte Creek and its Tributaries Situated Above the Western Dam Near Nelson in Butte County, California”.

At Interior’s request, RRI filed a motion with the Butte County Superior Court to change the authorized place of use and point of diversion of these water rights. On May 11, 1998, the Court issued an order instituting the following changes to the water rights:

- a. the authorized purpose of use in these water rights is now protection of fish and wildlife dependent on instream flows in the portions of Butte Creek that is specified as the place of use;
- b. the authorized place of use in these water rights now is Butte Creek between diversion number 54 and the confluence of Butte Creek and Butte Slough (Butte Slough outfall); and
- c. the present authorized point of diversion of these water rights has been eliminated.

## **2.0 Alternatives**

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This chapter describes the No-Action alternative and the option to purchase water rights from RRI to permanently maintain instream flows that benefit fisheries in Butte Creek. Other alternatives considered but rejected include alternate sources of water (i.e., groundwater) and purchase of another water right. Reclamation rejected the alternate source alternative because of greater potential for environmental impacts and access/ownership issues. Because there is need for acquisition of additional water rights on Butte Creek to benefit anadromous fisheries, substitution of another water right for the subject rights is not logical.

### **2.1 NO ACTION**

Under the No-Action alternative, Interior would not purchase the water rights from RRI that currently provide instream flow that benefits anadromous fisheries in the study area. Although RRI has not diverted water from Butte Creek, under the No-Action alternative the potential exists that future diversions for consumptive uses could occur by a modification of the existing governing court order.

### **2.2 PROPOSED ACTION**

Under the Proposed Action, Interior would purchase existing water rights on Butte Creek from RRI. The Proposed Action results only in a change in ownership of the water rights. It does not change either the authorized place of use or authorized purpose of use of these water rights. The authorized place of use of the subject water rights is Butte Creek between diversion 54 and the confluence of Butte Creek and Butte Slough (Butte Slough outfall), and the purpose of use is the protection of fish and wildlife dependent on instream flows. Once the water is purchased, Interior would hold the subject water rights in perpetuity for purposes of maintaining instream flows that benefit fish and wildlife.

Prior to an order issued by Butte County Superior Court on May 11, 1998, the subject water rights authorized year-round diversion of 1.5 cfs at diversion 54 and diversion of an additional 3.5 cfs from April 1 through October 15 of each year (a total of 5.0 cfs between April 1 and October 15). These water rights also authorized diversion of additional water from October 16 of each year through March 31 of the following year at the maximum capacity of a 24-inch pipe at the intake of diversion 54. According to the DWR watermaster, water had generally been available for diversion under these water rights, up to a total amount of 2,460 acre-feet per year. However, in the later summer and early fall months of dry years, the watermaster made pro-rata reductions in the maximum amounts of water available for diversion under all

first priority rights, including the subject water rights. In accordance with the 1998 Court order, the authorized point of diversion of the water rights was eliminated and the water rights were dedicated for instream flows. The Proposed Action would ensure that the subject water rights remain as instream flows in perpetuity.

## **3.0 Affected Environment and Environmental Consequences**

This chapter describes the affected environment and potential impacts of the Proposed Action for the following issue areas:

- # Surface water resources
- # Groundwater resources
- # Fisheries resources
- # Vegetation and wildlife resources
- # Energy
- # Recreation
- # Cultural resources
- # Environmental justice
- # Indian trust assets

### **3.1 SURFACE WATER**

#### **3.1.1 Affected Environment**

##### **3.1.1.1 Hydrology**

Butte Creek originates in the Jonesville Basin in Lassen National Forest at an elevation of 7,087 feet. Before descending to the valley floor southeast of Chico, the creek flows first through the Butte Meadows Basin and then through a steep, 25-mile long canyon. Once in the valley, Butte Creek flows through agricultural lands and state wildlife areas and is sometimes contained by levees between Chico and the creek's confluence with Butte Slough (Butte Slough outfall). The creek is divided into two channels (East and West Borrows) as it enters the 40-mile long Sutter Bypass downstream of the Butte Slough outfall. During most periods, Butte Creek enters the Sacramento River via Sacramento Slough just upstream of the mouth of the Feather River near Verona (Butte Creek Watershed Conservancy 2000). Butte Creek's flow is augmented naturally throughout its course (through confluence with other drainages) and artificially in the upper watershed (with water diverted from the Feather River) (U.S. Fish and Wildlife Service 2000).

The study area begins at diversion 54 southeast of Chico. The origin of diversion 54 is an out-of-service control valve on the north bank of the Durham Mutual Dam (Butte Creek Watershed Conservancy 2000). The valve has been disabled pending Interior's proposed water acquisition. The reach of Butte

Creek that may be affected by the Proposed Action is between Durham Mutual Dam and the Butte Slough outfall, east of Colusa (Figure 2).

The hydrology of the Butte Creek watershed is complex. Water diverted from three adjacent watersheds commingles with the natural flows of Butte Creek and often comprises the preponderance of the flow. Feather River water enters Butte Creek via the West Branch Feather River into DeSabra Reservoir. Flow from Little Chico Creek enters Butte Creek, and includes agricultural return flows that drain into Little Butte Creek. Flows from the Sacramento River reach Butte Creek from various diversion points from as far north as the mouth of Big Chico Creek to the Reclamation District 1004 pumps near Princeton. Other agricultural return flows enter Butte Creek in many locations. The creek flows year round and peaks during storm events and spring runoff. Figure 1 shows the entirety of the Butte Creek watershed.

Butte Creek originates from snow and rainfall and gathers flow from many tributaries as it drops through the upper basin. The creek passes through a series of wide meadows in the Butte Meadows area, where it is characterized by a series of pools and riffles. This area is subject to flooding during high, warm precipitation events when snowpack is present. As stated above, Butte Creek flows from the Butte Meadows area for about 25 miles through a steep canyon and enters the Sacramento Valley floor southeast of Chico. Numerous small tributaries and springs enter the creek in the canyon area. Within the canyon section, flows from the West Branch Feather River are diverted into Butte Creek through the Hendricks and Toadtown Canals for power generation.

After leaving the canyon, Butte Creek flows through its valley reach between Chico and Butte Sink. Much of the creek in this reach is constrained by levees. Four dams and numerous diversions allow permittees to take water from Butte Creek, primarily for agricultural uses. The first diversion dam is the Parrott-Phelan Dam, which diverts water into the Comanche Creek delivery system. Farther downstream, the creek passes the Durham Mutual Dam, Adams Dam, and Gorrill Dam, all of which have recently been retrofitted with fish screens and fish ladders. Several other dams have recently been removed: Western Canal Dam (1997), McGowan Dam (1998), McPherrin Dam (1998), and Point Four Dam (1993). The Parrott-Phelan Dam diverts water all year, but most others only divert April–September.

Just downstream of the Durham Mutual Dam, the Little Chico Creek diversion carries excess floodwater from Little Chico Creek into Butte Creek. The levee system on Butte Creek begins at this point and continues downstream for about 14.5 miles. Other major water conveyance channels entering Butte Creek within the valley reach are Hamlin Slough and 1048 Slough just above the former Western Canal Dam site, Western Canal Water District Main Drain just above the former McGowan Dam site, and Howard Slough just above the former McPherrin Dam site.

Below the McPherrin Dam site, Butte Creek is joined by Little Dry Creek before reaching Butte Sink. At the Sanborn Slough Bifurcation in the upper end of Butte Sink, part of Butte Creek's flows are divided east into Sanborn Slough to the North Weir, where it is diverted either to the northern portion of Butte Sink or into the Crosscut Canal to the Reclamation District 833 Main Drain. Remaining Butte Creek water flows west along the western side of Butte Sink. Angel Slough, which carries irrigation flow, enters Butte Creek below the bifurcation. White Mallard Dam, approximately 2 miles downstream of the

Birfurcation Dam, provides for diversion of water through the White Mallard Canal to the White Mallard Gun Club and Reclamation District 1004. Return flows, including Sacramento River water, reenter Butte Creek through the Drumheller Slough outfall.

Immediately below this outfall, water from the Cherokee Canal/Biggs-West Gridley Main Drain reenters the creek after flowing through Butte Sink. More weirs and outfalls occur on Butte Creek before it reaches the Colusa Bypass, where Sacramento River overflows (flood flows) enter the creek. Additional Sacramento River floodflows are diverted into the Butte system from the river's Moulton Weir south of Princeton. Below the last Butte Creek outfall at Tarke Weir, Butte Creek continues unobstructed to its mouth, where it enters Butte Slough about 0.75 mile east of the Butte Slough outfall gates to the Sacramento River at Ward's Landing. In the lower 30 miles of the stream, flows are seasonally influenced by the diversion dams that divert water for agriculture and waterfowl habitat management.

The hydrology of the lower Butte Creek system varies substantially on annual, seasonal, and daily bases. In winter and spring of wet years, the Butte Sink and Sutter Bypass are flooded most of the time. During dry periods, flows are low or even absent in some channels. Water imported from the Sacramento and Feather Rivers substantially augments natural flows during dry years. At times, the Sacramento River rises and spills water at the Colusa and Moulton Weirs with flows that reach the Butte Sink. Appendix A contains historical instream flow data from two gages, one near Durham and one just downstream of the Butte Slough outfall.

The hydraulic capacity of existing waterways in the lower Butte Creek system is small in relation to the runoff associated with significant rainfall or seasonal return flow from agricultural operations. An unmanageable or uncontrollable condition exists when surface flow is so large that structures are inundated and/or operational decisions cannot be made or implemented to affect the stage, rate, or direction of water flow in the system. From fall through spring, when the most significant fish migration occurs, hydraulic conditions can change several times in a season from manageable to unmanageable. The efficiency of fish screens and ladders can be impaired during unmanageable conditions.

### **3.1.1.2 Water Quality**

Poor water quality and high water temperatures adversely affect adult and juvenile salmon and steelhead in Butte Creek. Water quality and temperature can vary seasonally and from year to year, depending on precipitation, hydropower operations, and agricultural activity. Agricultural contaminants potentially enter the stream with irrigation return waters, but such contaminants are largely unmonitored. As flows decline during the diversion season, the ratio of agricultural return flows to the total flow increases, also increasing the potential effects of contaminants on the aquatic community. Water quality can also be degraded by urban runoff and outfalls. Inadequate riparian cover and reduced instream flows have resulted in elevated temperatures in Butte Creek during summer and fall. Adverse temperatures occur during the upstream migration period for spring and fall-run salmon, and during the emigration period for juvenile fish (U.S. Fish and Wildlife Service 2000).

Degraded water quality also results from sedimentation of the stream channel. Erosion and sedimentation are natural stream system processes that can either improve or degrade habitat conditions. Bank erosion can provide beneficial gravel, cobble, boulders, and large woody debris to the stream channel, but fine sediment can produce negative effects by covering gravel and cobble, filling pools, and causing high turbidity. Erosion of streambanks resulting from lack of stabilizing riparian vegetation, cattle grazing, and road crossings can introduce fine sediments. Water runoff through upland areas that are overgrazed, that are damaged by logging and other land uses, or that have exposed soils because of road cuts or hot wildfires can also contribute to sedimentation of the stream channel (U.S. Fish and Wildlife Service 2000.).

### **3.1.2 Environmental Consequences**

#### **3.1.2.1 Potential Impacts – No-Action Alternative**

Under the No-Action alternative, the subject water rights would remain under the ownership of RRI for at least the immediate future. RRI has the option of retaining the water rights or selling them to a willing buyer. Whether the water rights would remain with RRI in the long term is unknown and speculative. Regardless of the ownership of the subject water rights, they are currently governed by a 1998 court order that dedicates them as instream flows for environmental purposes. The No-Action alternative would therefore have no effect on surface water resources under the current court order.

Whether there would be future modification to the governing court order under the No-Action alternative is unknown and speculative. If the water rights were modified and approved to allow for consumptive use, there would be an incremental decrease in permanent instream flows available for environmental purposes.

#### **3.1.2.2 Potential Impacts – Proposed Action**

The Proposed Action is consistent with the existing authorized purpose of use of these water rights. The Proposed Action involves only the legal transfer of existing water rights; no physical changes are proposed. The Proposed Action would not adversely affect surface water resources. No modification, installation, or removal of water control structures is associated with the Proposed Action. Additionally, neither work within the stream channel nor changes in the operations of diversion facilities would be required to implement the Proposed Action.

#### **3.1.2.3 Potential Cumulative Impacts – Proposed Action**

Under the Proposed Action there would be no adverse impacts on surface water resources and therefore no contribution to a cumulatively adverse condition.

## 3.2 GROUNDWATER RESOURCES

### 3.2.1 Affected Environment

#### 3.2.1.1 Hydrology

The Proposed Action is in the East Butte Subbasin of the lower Butte Creek groundwater system, as designated by DWR (Figure 3). The following overview and description of the aquifer are based on information obtained from DWR's Northern District and DWR's Draft Bulletin 118-98 (Department of Water Resources 1998).

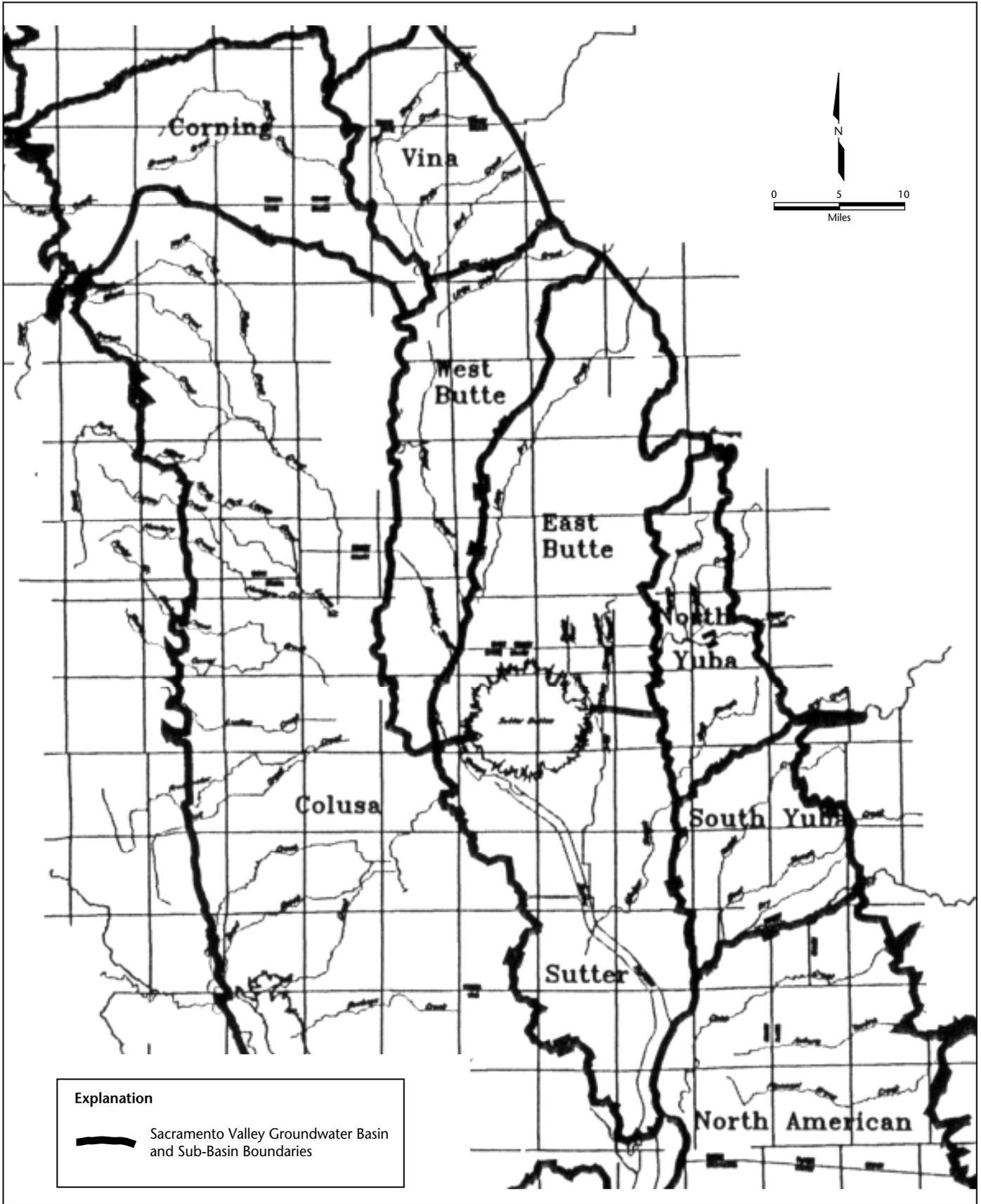
The East Butte Subbasin aquifer system is comprised of fluvial and volcanic continental deposits of Late Tertiary to Quaternary age. Quaternary deposits in the region reach a maximum thickness of about 50 feet. Permeability of the deposits range from low (flood basin deposits and finer grained older alluvium) to high, with alluvial fan and recent stream gravel deposits yielding large quantities (200 to 3,000 gal/min) of groundwater from shallow wells. The East Butte Subbasin characteristically has a perennial zone of shallow or perched groundwater resulting from flood irrigation practices common in the region. Quaternary deposits associated with the shallow groundwater zone are a source of water for many domestic wells.

Tertiary deposits in the subbasin consist of volcanic deposits from the Tuscan Formation and the interbedded alluvial sand, gravel, and silt deposits of the Laguna Formation. Tertiary deposits begin at the surface along the eastern subbasin boundary and reach a maximum thickness of about 2,000 feet. Permeability of the Tuscan Formation ranges from moderate to high. The Laguna Formation consists of interbedded alluvial sand, gravel, and silt deposits that are moderately consolidated and poorly to well cemented. Permeability of the Laguna Formation is generally low, with the exception of scattered gravel in the upper portion. Wells drawing from these deposits range from about 150 to 700 feet deep and are the primary source of groundwater for most irrigation and municipal wells in the East Butte Subbasin.

Groundwater levels fluctuate annually depending on the amount of pumping, recharge from precipitation, stream percolation, infiltration of applied irrigation water, and subsurface inflow and outflow from the watershed. In general, multiple years of lower-than-normal precipitation will cause groundwater levels to decline gradually until a new equilibrium is reached within the system. During years of normal precipitation, groundwater levels should maintain the historic equilibrium level.

Comparison of spring-to-spring groundwater levels for current DWR hydrographs associated with the Butte Basin indicates that:

- # there has been little significant change in groundwater levels in the basin since the 1950s;
- # groundwater levels in most wells declined during the 1976-77 and 1986-94 droughts;



Source: Department of Water Resources, Northern District, 2000.

- # groundwater levels in nearly all wells returned to pre-drought levels during high precipitation years in the early 1980s and 1997-98;
- # seasonal fluctuation in groundwater levels is about 10–20 feet in the northern portions of the basin and approximately 5 feet in the southern portions of the basin; and
- # the basin fully recharges during years of normal precipitation.

### **3.2.1.2 Groundwater Quality**

Groundwater quality in the East Butte Subbasin is generally good for domestic and agricultural use (U.S. Geological Survey 1978, California Department of Water Resources 1992). The groundwater is generally magnesium and calcium bicarbonate. Some areas have waters that are sodium bicarbonate, often resulting in elevated concentrations of sodium, chloride, sulfate, and total dissolved solids.

Nitrogen and phosphorus levels are usually higher in groundwater than in surface water (Department of Water Resources 1992). The U.S. Geological Survey (USGS) found six wells in or near the Butte and Sutter Basins that exceeded the nitrate criterion of 10 milligrams per liter (mg/l) of elemental Nitrogen (U.S. Geological Survey 1978). Concentrations ranging from 11 to 18 mg/l were from shallow wells, indicating that higher concentrations might have resulted from surface contamination.

Minor elements such as iron and magnesium as well as pesticides have been detected in Butte Basin wells. Negligible amounts of toxic trace elements have also been detected. Butte Basin groundwater has been periodically tested for pesticides since 1988. Of those chemicals detected, only the compound Bentazon was found to show relatively widespread contamination. However, the use of Bentazon on rice has been discontinued since management practices could not be developed to prevent movement into groundwater (California Department of Food and Agriculture 1989).

## **3.2.2 Environmental Consequences**

### **3.2.2.1 Potential Impacts – No-Action Alternative**

Under the No-Action alternative, the subject water rights would remain under the ownership of RRI for at least the immediate future. RRI has the option of retaining the water rights or selling them to a willing buyer. Whether the water rights would remain with RRI in the long term is unknown and speculative. Regardless of the ownership of the subject water rights, they are currently governed by a 1998 court order that dedicates them for instream flows for environmental purposes. The No-Action alternative would therefore have no effect on groundwater resources under the current court order.

Whether there would be future modification to the governing court order under the No-Action alternative is unknown and speculative. If the water rights were modified and approved to allow for

consumptive use, there could be a minor affect on groundwater levels. Any increase in surface water withdrawals from Butte Creek for consumptive use could result in a minor decrease in streamside recharge of groundwater. This impact would be offset to the extent that an increase in consumptive use of surface water would decrease existing reliance on groundwater.

### **3.2.2.2 Potential Impacts – Proposed Action**

The Proposed Action involves only the legal transfer of existing water rights. Under the Proposed Action, the subject water rights will be permanently maintained for instream purposes and therefore would have no effect on groundwater use or quality.

### **3.2.2.3 Potential Cumulative Impacts – Proposed Action**

Under the Proposed Action, there would be no adverse impacts to groundwater resources and therefore no contribution to a cumulatively adverse condition.

## **3.3 FISHERIES RESOURCES**

### **3.3.1 Affected Environment**

#### **3.3.1.1 Regulatory Requirements**

**Federal Endangered Species Act.** The U.S. Fish and Wildlife Service (USFWS) (responsible for protecting and managing plants, wildlife, and resident fish) and the National Marine Fisheries Service (NMFS) (responsible for protecting and managing anadromous fish and marine fish and mammals) oversee the federal ESA. Section 7 of the federal ESA mandates that all federal agencies consult with USFWS and/or NMFS to ensure that federal agency actions do not jeopardize the continued existence of any listed species or destroy or adversely modify critical habitat for listed species. Reclamation, as federal lead agency, is required to consult with NMFS regarding the Proposed Action's effect on spring-run chinook salmon and Central Valley steelhead if NMFS determines that the Proposed Action may affect a listed anadromous fish species. Reclamation is required to consult with USFWS regarding Sacramento splittail (*Pogonichthys macrolepidotus*) if this species may be affected by the Proposed Action.

The federal ESA prohibits the take of any species listed as threatened or endangered, as well as the destruction of habitat that prevents species recovery. Take is defined as harassing, harming, pursuing, hunting, shooting, wounding, killing, trapping, capturing, collecting, or attempting to engage in any such conduct. Species federally listed as threatened are also protected from take, but protection of these species may be modified at the time of their listing.

Several fish species that are federally listed as threatened or of special concern have been identified as having habitat in the study area that could be affected by the Proposed Action. Four special-status fish species or evolutionarily significant units (ESUs) occur in the study area:

- # the Central Valley ESU of steelhead, listed as threatened;
- # the Central Valley fall/late fall–run ESU of chinook, listed as a candidate;
- # the spring-run ESU of chinook, listed as threatened; and
- # Sacramento splittail, listed as threatened.

As discussed above, NMFS has governance over actions that affect the anadromous salmonids; USFWS has governance over actions that affect Sacramento splittail.

**National Environmental Policy Act.** NEPA is the regulatory framework that requires federal agencies to disclose and consider the environmental implications of their actions. NEPA generally requires the preparation of an EA and/or environmental impact statement (EIS) to ensure the accomplishment of the law’s purpose; however, some federal actions are exempt from NEPA.

### 3.3.1.2 Biology

**Anadromous Fishes.** Three native spawning runs of chinook salmon occur in Butte Creek: fall, late-fall, and spring. Native steelhead also occur in Butte Creek. Chinook salmon and steelhead are anadromous fishes, which means that juvenile fish migrate to the ocean early in life, grow to maturity in the ocean, and return to freshwater streams to spawn. Steelhead is the anadromous strain of the resident rainbow trout. Steelhead may live to spawn more than one year, whereas mature chinook salmon die shortly after spawning.

More than 30 other species of fish also inhabit Butte Creek, including Sacramento splittail (refer to discussion below); brook, brown, and rainbow trout; lamprey; large- and small-mouth, spotted, and striped bass; catfish; minnows; and sculpins (Appendix B).

Spring-run chinook is the most numerous salmon run in Butte Creek (U.S. Fish and Wildlife Service 1998). Spring-run salmon migrate upstream into Butte Creek during March–June and hold over primarily in pools from the confluence of Little Butte Creek upstream to Centerville Dam (U.S. Fish and Wildlife Service 1998). Downstream of the Western Canal, spring-run adults generally have sufficient water to migrate upstream. Upstream of the Western Canal, these fish often encounter reduced flows and elevated water temperatures. Spring-run chinook spawn from late September through early October (U.S. Fish and Wildlife Service 1998, Hill and Webber 1999), primarily upstream from the Parrot-Phelan Dam (Butte Creek Watershed Conservancy 2000). Most spring-run juveniles emigrate as fry beginning in mid-November and peaking between December and April (Hill and Webber 1999). A lesser number emigrate later in spring or early summer. Some spring-run salmon emigrate as yearlings during the following fall or winter.

During the CVPIA baseline period between 1967 and 1991, escapement of fall-run chinook salmon ranged from as many as 1,000 fish in 1975 and 1983 to as few as 5 fish in 1989 (U.S. Fish and Wildlife Service 1995). The average run size for this period was estimated to be 418 fish. Adjusted for harvest, the estimated natural fall-run production was about 760 fish. Fall-run salmon generally enter lower Butte Creek during late September–October (U.S. Fish and Wildlife Service 1998). Upstream of the Western Canal, several barriers have impeded the adult migration until high flows occurred. Most fall-run fish spawn in the area from Durham to the Parrot-Phelan Dam during October–December. Fall-run fry emigrate December–March, and older juveniles emigrate April–June (Butte Creek Watershed Conservancy 2000). Emigrating juveniles are affected by diversion and poor water quality (U.S. Fish and Wildlife Service 1998). In 1999, NMFS determined that the listing of fall-run chinook salmon was unwarranted but that it should remain a candidate due to concerns over specific risk factors (64 FR 50394-50415, September 16, 1999).

Abundance of late fall–run chinook salmon is unknown, but is probably low (U.S. Fish and Wildlife Service 1998). Only a few fish are thought to use Butte Creek during favorable flow conditions. Late fall–run salmon likely enter Butte Creek during December–February and spawn upstream of the Parrot-Phelan Dam during January–March. Instream barriers are not expected to impede upstream passage of late fall–run salmon except in extremely dry years. Juvenile fish likely emigrate during April–June and experience the same potential losses to diversions and poor water quality as spring and fall-run juvenile emigrants.

Steelhead population sizes also are unknown (U.S. Fish and Wildlife Service 1998). Spawning steelhead are currently restricted to lower Butte Creek canyon and some tributaries (e.g., Dry Creek and Little Butte Creek). Steelhead enter Butte Creek during late fall and winter and spawning occurs in winter and spring. Steelhead fry and smolts in the upper Sacramento Valley tributaries generally emigrate March–June, whereas juveniles 1 year or older generally emigrate September–March. Juvenile steelhead emigrants experience the same problems as do juvenile salmon.

The Butte Sink area of Butte Creek provides an important migratory pathway for chinook salmon and steelhead that spawn in the upper reaches of Butte Creek. These fish use this area primarily for passage. When flooded, adjacent wetlands and smaller sloughs may also provide winter and spring refugia and juvenile rearing habitat. The canals, sloughs, and flooded lands of Butte Slough and Sutter Bypass are also in an important migratory and nursery area for salmon and steelhead of Butte Creek and the upper Sacramento River and its tributaries, especially during high water years. During high water years, many salmon and steelhead migrate to and from the upper Sacramento River and its tributaries through Butte Slough and the Sutter Bypass via overflows from the Tisdale, Colusa, Moulton, 3 Bs, and Goose Lake Weirs. Diversions in Butte Sink, Butte Slough, and Sutter Bypass are unscreened.

Declines in anadromous fish populations and degradation of associated aquatic and riparian habitat in the Butte Creek watershed have been attributed primarily to inadequate instream flows, unscreened diversions, inadequate passage over diversion dams, entrainment and stranding of adult fish at agricultural return flows (outfalls), poor water quality, and poaching (California Department of Fish and Game 1993, CALFED 1999). Several diversion dams on Butte Creek above Butte Slough supply water for power generation, irrigation, gun clubs, and domestic use (California Department of Fish and Game 1993). Some

diversion dams have recently been removed or have been modified with new fish ladders to facilitate fish migration. Fish screens have been installed at several diversion structures. Recent Butte Creek enhancement efforts have been significant and will facilitate population increases. Other dams and diversions, however, are still known to impair and delay migration of fish with impassable barriers and unscreened diversions. In Butte Slough, the outfall gates and culverts to the Sacramento River may produce problems for migrating fish. The nature and magnitude of fish passage problems in Butte Sink, Butte Slough, and Sutter Bypass at any given time are very much dependent on levels of flows and the regime of agricultural operations.

**Sacramento Splittail.** Sacramento splittail is a freshwater fish capable of tolerating moderate levels of salinity (10–18 parts per thousand) (59 FR 862; June 5, 1994). Food includes opossum shrimp, earthworms, clams, insect larvae, and other benthic invertebrates (Moyle et al. 1995). Sacramento splittail can grow to approximately 16 inches in length and reach 5–7 years of age. Both males and females become sexually mature by their second winter, when they are about 4 inches in length. Sacramento splittail spawn during late April and May in Suisun Marsh, and from early March through May in the upper Delta and lower reaches of the Sacramento and San Joaquin Rivers (Moyle et al. 1989). However, spawning has been observed as early as January and as late as July. Eggs are adhesive and are deposited over flooded streambanks or aquatic vegetation when water temperatures are 9–20EC (Moyle 1976; Wang 1986). Spawning generally occurs in the lower reaches of rivers or large or dead-end sloughs (Moyle et al. 1995). Larvae initially rear near spawning sites in shallow, weedy areas. As they grow, they move into deeper water (Wang 1986).

In the Butte Creek drainage, juvenile Sacramento splittail have been collected in Little Butte Creek near the Western Canal, approximately 12 miles upstream from the Butte Creek bifurcation structure (Ward pers. comm.). Butte Sink immediately downstream of the bifurcation structure is potential spawning habitat because it contains extensive areas of flooded vegetation in winter and spring (Ward pers. comm.). These locales are within the study area.

### **3.3.2 Environmental Consequences**

#### **3.3.2.1 Potential Impacts – No-Action Alternative**

Under the No-Action alternative, the subject water rights would remain under the ownership of RRI for at least the immediate future. RRI has the option of retaining the water rights or selling them to a willing buyer. Whether the water rights would remain with RRI in the long term is unknown and speculative. Regardless of the ownership of the subject water rights, they are currently governed by a 1998 court order that dedicates them as instream flows for environmental purposes. The No-Action alternative would therefore have no effect on fishery resources under the current court order.

Whether there would be future modification to the governing court order under the No-Action alternative is unknown and speculative. If the water rights were modified and approved to allow for

consumptive use, there would be an incremental decrease in permanent instream flows available for fishery purposes.

### **3.3.2.2 Potential Impacts – Proposed Action**

The Proposed Action would permanently maintain instream flows that benefit Butte Creek fisheries resources. Existing fishery benefits of flows associated with the subject water rights are identified in Table 3-1. Late fall–run chinook salmon and steelhead are not included in the table owing to limited data on the status of populations and associated flow limitations (Thomson pers. comm.).

The Proposed Action involves only the legal transfer of existing water rights; no physical changes are proposed. No modification, installation, or removal of water control structures is associated with the Proposed Action. Additionally, neither work within the stream channel nor changes in the operations of diversion facilities would be required to implement the Proposed Action.

Interior’s proposed purchase of surface water flows is consistent with the authorized purpose of use of the existing water rights (i.e., the protection of fish and wildlife dependent on instream flows). The Proposed Action would have no adverse or beneficial effect on fishery resources, but would assure permanent maintenance of the existing water rights for instream uses that benefit Butte Creek fisheries resources.

### **3.3.2.3 Potential Cumulative Impacts - Proposed Action**

The Proposed Action results only in a change in ownership of the water rights and does not change the authorized purpose of use of the water rights (i.e., the protection of fish and wildlife dependent on instream flows). The Proposed Action would make no contribution to a cumulatively adverse or beneficial condition for fishery resources.

## **3.4 VEGETATION RESOURCES**

### **3.4.1 Affected Environment**

#### **3.4.1.1 Vegetation and Wildlife Communities**

**Plant Communities.** Riparian plant communities throughout the watershed, in association with their aquatic component, are some of the highest quality habitats in the Sacramento Valley in terms of wildlife diversity and abundance. Riparian habitat is an important transition zone between aquatic and upland habitats, and strongly influences the health of the aquatic ecosystem. Riparian areas provide multiple layers of woody and herbaceous vegetation, moist soils, surface water, and a humid microclimate. Riparian

Table 3.1 Fishery Benefits Resulting from RRI Purchase

Species/Race	Life-History Stage	Benefit
Spring Run Chinook Salmon	Adult migration (March-June)	Additional 5.0 cfs would increase attraction flow and improve fish passage
	Holding/spawning (June-October)	Additional 5.0 cfs would improve fish passage and decrease water temperature
	Incubation and rearing (November-February)	Additional 1.5 cfs would marginally improve fish passage and decrease water temperature
	Smolt emigration (March-June)	Additional 5.0 cfs would improve flows for downstream passage
Fall Run Chinook Salmon	Adult migration/spawning (October-December)	Additional 1.5 cfs would marginally increase attraction flows and improve fish passage
	Incubation and rearing (January-March)	Additional 1.5 cfs would marginally improve fish passage and decrease water temperature
	Fry and smolt outmigration (April-May)	Additional 5.0 cfs would improve flows for downstream passage

vegetation provides temperature-reducing shade, nutrient cycling, input of invertebrates (an important food item for many species), bank cohesion, woody debris used for instream cover, and a buffer zone for impacts originating in adjacent upland areas.

The vegetated near-shore zone (i.e., shaded riverine aquatic habitat) is important to a wide range of aquatic and terrestrial wildlife. Riparian corridors provide dispersal and migration pathways for those wildlife species that could not otherwise traverse drier or more open adjacent areas. Riparian vegetation functions in reducing water velocities, bank shear stress, and soil erosion; increasing visual aesthetics and shade; and buffering human disturbance near streams. Much of the riparian habitat in the Butte Creek watershed has been fragmented, removed, and degraded as a result of flood control activities, agriculture, and urbanization.

In addition to the riparian corridor, lands nearby and adjacent to the study area contain important aquatic habitats, including riverine, palustrine emergent, palustrine forested, and farmed wetlands. Each habitat type contains features that support a variety of valuable plant and wildlife communities.

*Riverine wetlands* consist of slow-moving streams (e.g., Butte Creek) with mud/sand bottoms and banks. Little submergent vegetation exists due to the low water clarity, but abundant emergent vegetation often lines the banks down to the low water mark.

*Palustrine emergent wetlands* consist of perennial and annual herbaceous vegetation including cattail, bulrush, and smartweed interspersed with areas of open water. These habitats exist where the elevation and hydroperiod prevent trees from establishing.

*Palustrine forested wetlands* are found primarily along stream banks, ditches, and higher elevation areas. Riparian plant associations are characterized by willow, cottonwood, Oregon ash, valley oak, and western sycamore. Many of these are mature trees whose understory consists of shade-tolerant shrubs, vines, and forbs including mints, nightshades, horsetail, elderberry, and alder.

*Farmed wetlands* are wetlands that were drained, dredged, or filled for the purpose of agricultural production but still retain wetland characteristics. These areas are typically seasonally ponded or flooded for an extended period during the growing season, and occur in areas with characteristics similar to those of palustrine emergent wetlands.

**Wildlife and Special-Status Species.** The Butte Sink subarea of the Butte Creek watershed and adjacent agricultural lands are among the most heavily used waterfowl habitats in the Pacific Flyway. It is common to record 1–2 million waterfowl there during the peak of fall migration. Though Butte Sink is not a major waterfowl nesting area, there is significant local reproduction of mallards, wood ducks, and cinnamon teal. Butte Sink also provides wetland habitat at the critical period of spring migration when most of the rice fields and duck clubs are dry.

Other waterbirds found in Butte Sink include great blue, little green, and black-crowned night herons; great and snowy egrets; and American bittern. There are several egret and heron rookeries in the

taller groves of mature trees. At least 20 species of shorebirds use Butte Sink, especially on flood-up and draw-down, and rails, coots, and moorhens are found throughout the area.

Large colonies of greater sandhill cranes are present throughout the Butte Basin. The cranes use flooded areas for foraging, courting, and roosting.

Among the birds of prey that frequent Butte Sink are white-tailed kite, Cooper's and sharp-shinned hawks, several species of *Buteo*, golden and bald eagles, and osprey. Occasional use by prairie falcons and peregrines has been observed, often during the fall and winter waterfowl and shorebird migration periods.

Mammals that frequent Butte Sink include coyote, red and grey fox, skunk, badger, mink, river otter, raccoon, beaver, muskrat, cottontail rabbit, jackrabbit, and black-tailed deer. Small mammals include mice, ground squirrels, moles, and shrews.

### **3.4.2 Environmental Consequences**

#### **3.4.2.1 Potential Impacts – No Action Alternative**

Under the No-Action alternative, the subject water rights would remain under the ownership of RRI for at least the immediate future. RRI has the option of retaining the water rights or selling them to a willing buyer. Whether the water rights would remain with RRI in the long-term is unknown and speculative.

Regardless of the ownership of the subject water rights, they are currently governed by a 1998 court order that dedicates them for instream flows for environmental purposes. The No-Action alternative would therefore have no effect on vegetation and wildlife resources under the current court order.

Whether there would be future modification to the governing court order under the No-Action alternative is unknown and speculative. If the water rights were modified and approved to allow for consumptive use, there would be an incremental decrease in permanent instream flows. Under this scenario, the existing benefits of the instream flows, including beneficial effects on vegetation and wildlife resources, would not be lost.

#### **3.4.2.2 Potential Impacts – Proposed Action**

The Proposed Action involves only the legal transfer of existing water rights; no physical changes are proposed. No modification, installation, or removal of water control structures is associated with the Proposed Action. Additionally, neither streambank modification nor removal of riparian vegetation would be required to implement the Proposed Action.

Interior's proposed purchase of surface water flows is consistent with the authorized purpose of use (i.e., the protection of fish and wildlife dependent on instream flows). The Proposed Action would have no adverse or beneficial impact on vegetation and wildlife resources, but would assure permanent maintenance of the existing water rights that benefit an existing riparian ecosystem along Butte Creek.

### **3.4.2.3 Potential Cumulative Impacts - Proposed Action**

The Proposed Action results only in a change in ownership of the water rights and does not change the authorized purpose of use (i.e., the protection of fish and wildlife dependent on instream flows). The Proposed Action would make no contribution to a cumulatively adverse or beneficial condition for vegetation resources.

## **3.5 ENERGY**

### **3.5.1 Affected Environment**

The canyon reach of upper Butte Creek supports diversions or dams with hydroelectric power facilities owned and operated by Pacific Gas & Electric Company and others. Diversion structures in the valley reach of the creek, however, divert water for wildlife and agricultural purposes only. Accordingly, no energy resources are associated with the Proposed Action.

### **3.5.2 Environmental Consequences**

#### **3.5.2.1 Potential Impacts – No-Action Alternative**

Under the No-Action alternative, the subject water rights would remain under the ownership of RRI for at least the immediate future. RRI has the option of retaining the water rights or selling them to a willing buyer. Whether the water rights would remain with RRI in the long term is unknown and speculative. Regardless of the ownership of the subject water rights, they are currently governed by a 1998 court order that dedicates them for instream flows for environmental purposes. The No-Action alternative would therefore have no energy resources impacts under the current court order.

Whether there would be future modification to the governing court order under the No-Action alternative is unknown and speculative. If the water rights were modified and approved to allow for consumptive use, there could be an incremental increase in energy use for pumping costs. Because of the relatively small volume of water involved (i.e., 5 cfs), any resultant increase in energy use is considered less than significant.

### **3.5.2.2 Potential Impacts – Proposed Action**

The Proposed Action is intended to permanently maintain instream flows that benefit Butte Creek. The Proposed Action involves only the legal transfer of existing water rights; no physical changes or diversions are proposed. Energy usage would remain unchanged under the Proposed Action.

### **3.5.2.3 Potential Cumulative Impacts – Proposed Action**

Under the Proposed Action there would be no impacts on energy resources and therefore no contribution to a cumulatively adverse condition.

## **3.6 RECREATION**

### **3.6.1 Affected Environment**

Recreational opportunities in the study area can be categorized as developed and undeveloped/dispersed. Developed recreational opportunities are presented by sites that are built and managed to enhance specific types of outdoor recreation, and to provide for varied degrees of resource protection. Undeveloped/dispersed recreational opportunities are presented by areas not developed specifically for recreational use. Dispersed recreation can be described as patterns of use in generally defined areas and landscapes. Examples of dispersed recreation are fishing, cycling, hiking, and picnicking or camping in undeveloped areas.

Developed recreation sites along the creek are minimal, and surrounding land ownership is primarily private. However, several wildlife areas and numerous private hunting clubs are located on lands in the study area, including:

- # Sacramento River National Wildlife Refuge;
- # Upper Butte Basin Wildlife Area;
- # Gray Lodge Wildlife Area; and
- # The Butte Sink Waterfowl Association, representing 45 private hunting clubs in the Sacramento Valley and Butte Sink section of the lower Butte Creek watershed.

Many undeveloped/dispersed recreational opportunities also exist in the study area. Accessible roads and trails that structure the patterns of dispersed recreation in the Valley and Butte Basin area include numerous county roads and Highway 162. Attractions in this area include wildlife, waterways, and generally uncrowded roadways. Typical recreation activities include hunting, fishing, nature study, cycling, and driving for pleasure. Recreational fishing is currently regulated in Butte Creek. The stretch of Butte

Creek between the Oro-Chico Road Bridge and diversion number 54 is within a reach of Butte Creek that is open to trout and salmon fishing with artificial lures having barbless hooks from November 15 through February 15. The remainder of Butte Creek within the study area is closed to trout and salmon fishing but is open to fishing for other species year round.

### **3.6.2 Environmental Consequences**

#### **3.6.2.1 Potential Impacts – No-Action Alternative**

Under the No-Action alternative, the subject water rights would remain under the ownership of RRI for at least the immediate future. RRI has the option of retaining the water rights or selling them to a willing buyer. Whether the water rights would remain with RRI in the long term is unknown and speculative. Regardless of the ownership of the subject water rights, they are currently governed by a 1998 court order that dedicates them for instream flows for environmental purposes. The No-Action alternative would therefore have no impacts on recreation under the court order.

Whether there would be future modification to the governing court order under the No-Action alternative is unknown and speculative. If the water rights were modified and approved to allow for consumptive use, there could be loss of existing recreation benefits. Diversion of existing flows could affect existing opportunities for fishing or other recreation activities.

#### **3.6.2.2 Potential Impacts – Proposed Action**

The Proposed Action is intended to permanently maintain instream flows that provide both fisheries and related recreation benefits. The Proposed Action involves only the legal transfer of existing water rights; no physical changes or diversions are proposed. No activities that may adversely affect recreational opportunities associated with Butte Creek (e.g., work within the stream channel) would be required to implement the Proposed Action. Current fishing regulations would remain in place, and instream flows would not be altered. The Proposed Action would have no adverse or beneficial effect on recreation resources, but would assure permanent maintenance of the existing water rights for instream uses that benefit recreation resources.

#### **3.6.2.3 Potential Cumulative Impacts**

The Proposed Action results only in a change in ownership of the water rights and does not change the authorized purpose of use of the water rights (i.e., the protection of fish and wildlife). The Proposed Action would make no contribution to a cumulatively adverse or beneficial condition for recreation resources.

## **3.7 CULTURAL RESOURCES**

### **3.7.1 Affected Environment**

The Butte Creek watershed is within the historical territory of the Northwest Maidu, or Knokow (Riddell 1978 cited in Butte Creek Watershed Conservancy 2000). They lived mainly in family units in small villages along streams. Gathering and hunting occurred in nearby foothills and higher elevations. Use of salmon as food was highly significant. The arrival of Euro-Americans in the 1800s brought great changes to the area. Gold mining, ranching, logging, and crop production were the initial major industries. Hydropower was developed in the area at the turn of the century. A detailed history of these events has been documented by the Butte Creek Watershed Conservancy (2000). These land use activities produced an abundance of roads, railroads, bridges, dams, canals, flumes, mills, levees, debris piles, residential and industrial buildings, and other infrastructure, many of which are now cultural artifacts.

### **3.7.2 Environmental Consequences**

#### **3.7.2.1 Potential Impacts – No-Action Alternative**

Under the No-Action alternative, the subject water rights would remain under the ownership of RRI for at least the immediate future. RRI has the option of retaining the water rights or selling them to a willing buyer. Whether the water rights would remain with RRI in the long term is unknown and speculative. Regardless of the ownership of the subject water rights, they are currently governed by a 1998 court order that dedicates them for instream flows for environmental purposes. The No-Action alternative would have no effect on cultural resources under the current court order because it would not alter existing flows.

Whether there would be future modification to the governing court order under the No-Action alternative is unknown and speculative. If the water rights were modified and approved to allow for consumptive use, there would be an incremental decrease in permanent instream flows in comparison to the Proposed Action. However, instream flows would still fluctuate within their historical range; impacts on cultural resources would therefore be less than significant.

#### **3.7.2.2 Potential Impacts – Proposed Action**

The Proposed Action involves only the legal transfer of existing water rights dedicated for instream uses; no physical changes or diversions are proposed. No modification, installation, or removal of water control structures is associated with the Proposed Action. Additionally, neither work within the stream channel nor changes to streambanks would be required to implement the Proposed Action. Any cultural resources that may exist in the study area would therefore not be affected under the Proposed Action.

### 3.7.2.3 Potential Cumulative Impacts – Proposed Action

Under the Proposed Action there would be no impacts on cultural resources and therefore no contribution to a cumulatively significant adverse condition.

## 3.8 ENVIRONMENTAL JUSTICE

### 3.8.1 Affected Environment

Executive Order 12898 requires each federal agency to achieve environmental justice as part of its mission by identifying and addressing disproportionately high adverse human health or environmental effects, including social and economic effects, of its programs and activities on minority and low-income populations of the United States.

Butte, Colusa, Sutter, and Glenn Counties have varying populations of Hispanic residents. Percentages of Hispanic residents in each county are:

Butte County	7.5%
Colusa County	33%
Sutter County	16%
Glenn County	24.4%

In 1993, median household income for the four counties ranged from \$22,776 to \$28,230 per year. A sampling of Hispanic households in 1990 indicated that between 64% and 67% earn less than \$25,000 per year. Between 19% and 33% of all persons exist below poverty level. (Oregon State University 1998.)

### 3.8.2 Environmental Consequences

#### 3.8.2.1 Potential Impacts – No-Action Alternative

Under the No-Action alternative, the subject water rights would remain under the ownership of RRI for at least the immediate future. RRI has the option of retaining the water rights or selling them to a willing buyer. Whether the water rights would remain with RRI in the long term is unknown and speculative. Regardless of the ownership of the subject water rights, they are currently governed by a 1998 court order that dedicates them for instream flows for environmental purposes. The No Action alternative would therefore have no effect on environmental justice under the current court order.

Whether there would be future modification to the governing court order under the No-Action alternative is unknown and speculative. If the water rights were modified and approved to allow for consumptive use, there could be minor beneficial effects on environmental justice. Benefits could include additional water available for agriculture or development that could provide employment and housing opportunities. Given the relatively small amount of water involved (i.e., 5 cfs), this impact is considered less than significant.

### **3.8.2.2 Potential Impacts – Proposed Action**

The Proposed Action involves only the legal transfer of existing water rights. The Proposed Action would not result in changes in agricultural commodities, employment opportunities, or housing availability that could affect low-income or minority individuals. Therefore, the Proposed Action would not result in adverse effects related to environmental justice.

### **3.8.2.3 Potential Cumulative Impacts**

Under the Proposed Action there would be no impacts on environmental justice and therefore no contribution to a cumulatively adverse condition.

## **3.9 INDIAN TRUST ASSETS**

### **3.9.1 Affected Environment**

It is Reclamation's policy to protect Indian trust assets from adverse impacts of its programs and activities whenever possible. Types of actions that could affect Indian trust assets include an interference with the exercise of a reserved water right, degradation of water quality where there is a water right, impacts on fish and wildlife where there is a hunting or fishing right, or noise near a land asset where it adversely affects uses of the reserved land (U.S. Bureau of Reclamation 1997).

### **3.9.2 Environmental Consequences**

#### **3.9.2.1 Potential Impacts – No-Action Alternative**

Implementation of the No-Action alternative would not affect any Indian reservations, rancherias, or other legal interests held in trust by the United States for the benefit of Indian tribes or individual Indians.

### **3.9.2.2 Potential Impacts – Proposed Action**

Implementation of the Proposed Action would not result in any ground-breaking activities affecting any Indian reservations, rancherias, or other legal interests held in trust by the United States for the benefit of Indian tribes or individual Indians.

### **3.9.2.3 Potential Cumulative Impacts – Proposed Action**

Implementation of the Proposed Action would not affect Indian Trust Assets and therefore would not create or contribute to a cumulatively adverse condition.

## 4.0 Consultation and Coordination

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### 4.1 PUBLIC INVOLVEMENT

Public involvement began on August 25, 2000, with a news release (Appendix C) to notify the public of the proposal, announce the preparation of an EA, and solicit comments on the scope of the environmental document. This news release was posted on the Reclamation web site at <http://www.mp.usbr.gov/mp140/news/2000/mp-00-68.html>, and was mailed to over 550 interested parties, including federal, state, and local agencies; local radio and television stations; and private organizations and individuals.

### 4.2 CONSULTATION AND COORDINATION

This EA has been prepared in accordance with the requirements of NEPA, as amended (42 USC 4321 et seq.). Reclamation is also complying with other applicable laws, including the Clean Water Act of 1977; Clean Air Act of 1970; Endangered Species Act; Fish and Wildlife Coordination Act; National Historic Preservation Act of 1966; Executive Order 11988 – Flood Plain Management; Executive Order 11990 – Protection of Wetlands; the Farmland Protection Policy Act; and the Wild and Scenic Rivers Act.

**Clean Air Act of 1972, as amended (42 USC 7401 et seq.).** Section 176(c) of this act prohibits federal action or support of activities that do not conform to a State Implementation Plan. The Proposed Action is not expected to violate any standard, increase violations in the project area, exceed the Environmental Protection Agency’s general conformity *de minimis* threshold, or hinder the attainment of air quality objectives in the local air basin.

**Clean Water Act of 1972, as amended (33 USC 1251 et seq.).** The Proposed Action is in compliance with Section 401 of the Clean Water Act. The Proposed Action would not result in placement of fill material into waters of the United States or their associated wetlands.

**Endangered Species Act of 1973, as amended (16 USC 1531 et seq.).** Listed species are not likely to be adversely affected as a result of the Proposed Action. Reclamation will consult with both USFWS and NMFS to ensure that any agency concerns regarding impacts on listed species have been addressed.

**Fish and Wildlife Coordination Act of 1958, as amended (16 USC 661 et seq.).** USFWS is a partner in implementing the WAP. As a partner, USFWS has been involved in establishing and defining the purpose and need for the Proposed Action. Close and continuing coordination with USFWS during implementation of the WAP meets applicable requirements of the Fish and Wildlife Coordination Act.

**National Environmental Policy Act of 1969, as amended (42 USC 4321 et seq.).** This EA was prepared pursuant to and in accordance with NEPA and Council on Environmental Quality (CEQ) regulations on implementing NEPA (40 CFR 1500-1508).

**National Historic Preservation Act of 1966, as amended (16 USC 470).** It has been determined that the Proposed Action would not have an effect on historic properties. If it is discovered that historic properties would be affected as the result of the Proposed Action, Reclamation would consult with the State Historic Preservation Officer and the Advisory Council on Historic Preservation in compliance with Section 106 of the National Historic Preservation Act.

**Farmlands Protection Policy Act.** The Proposed Action would not affect Prime or Unique Agricultural Lands.

**Executive Order 11988 – Floodplain Management (1977); and Executive Order 11990 – Protection of Wetlands (1977).** Executive Order 11988 requires federal agencies to evaluate the potential effects of any actions they might take in a floodplain and to ensure that planning, programs, and budget requests reflect considerations of flood hazards and floodplain management. The Proposed Action would contribute to the preservation and enhancement of the natural and beneficial values of the floodplains and wetlands present along Butte Creek.

**Wild and Scenic Rivers Act of 1968 (Public Law 90-542).** Under the Wild and Scenic Rivers Act, a federal agency may not assist in the construction of a water resources project that would have a direct and adverse effect on the free-flowing, scenic, or natural values of a wild or scenic river. The Proposed Action would not affect flows in any designated wild and scenic rivers.

#### 4.3 LIST OF PREPARERS

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Susan Lee, Jones & Stokes  
Susan Oldland, Jones & Stokes

##### Agency Preparers

John Burke, U.S. Bureau of Reclamation  
Dan Meier, U.S. Bureau of Reclamation  
Dick Jewell, U.S. Fish and Wildlife Service  
Andy Hamilton, U.S. Fish and Wildlife Service

## 5.0 Citations

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## PERSONAL COMMUNICATIONS

Thomson, John. U.S. Fish and Wildlife Service, Sacramento, CA. September 15, 1999 – fax containing draft language for Butte Creek Water Rights Acquisition Environmental Assessment, fisheries section.

Ward, Paul. Fishery Biologist. California Department of Fish and Game, Red Bluff, CA. June 11, 1999 – telephone conversation; June 14, 1999 – email comments.

## 6.0 Abbreviations and Acronyms

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AFRP	Anadromous Fish Restoration Program
CALFED	CALFED Bay-Delta Program
CEQA	California Environmental Quality Act
cfs	cubic feet per second
CVPIA	Central Valley Project Improvement Act
Dayton Mutual	Dayton Mutual Water Company
DWR	California Department of Water Resources
EA	environmental assessment
EIS	environmental impact statement
ESA	Endangered Species Act
ESU	evolutionarily significant unit
Interior	U.S. Department of the Interior
NEPA	National Environmental Policy Act
NMFS	National Marine Fisheries Service
POU	purpose of use
Reclamation	U.S. Bureau of Reclamation
RRI	Resource Renewal Institute
USFWS	U.S. Fish and Wildlife Service
WAP	Water Acquisition Program

## **7.0 Appendices**

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**Appendix A. Distribution List**

**Appendix B. The Fishes of Butte Creek**

**Appendix C. Press Release Announcing the Preparation of an Environmental Assessment on Butte Creek Water Rights Acquisition**

## **Appendix A. Distribution List**

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Congressman Doug Ose  
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Washington, D.C. 20515  
Attn: Mr. Jason Larrabee

## **Appendix B. The Fishes of Butte Creek**

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Common Name	Scientific Name	Life History Status	Where Identified
Catfish	Ictaluridae		
Black bullhead	<i>Ictalurus melas</i>	I,C	BC/SB
Brown bullhead	<i>Ictalurus nebulosus</i>	I,C	BC/SB
Yellow bullhead	<i>Ictalurus natalis</i>	I	SB
Channel catfish	<i>Ictalurus punctatus</i>	I,C	BC/SB
White catfish	<i>Ictalurus catus</i>	I	SB
Herring	Clupeidae		
American shad	<i>Alosa sapidissima</i>	I,A,?	SB
Threadfin shad	<i>Dorosoma ptenense</i>	I,?	SB
Lamprey	Petromyzontidae		
Pacific lamprey	<i>Lampetra tridentatus</i>	N,A,C	BC/SB
Pacific brook lamprey	<i>Lampetra pacifica</i>	N,A,?	BC
Livebearer	Poeciliidae		
Mosquito fish	<i>Gambusia affinis</i>	I,C	BC/SB
Minnow	Cyprinidae		
Sacramento blackfish	<i>Orthodon microlepidotus</i>	N,?	SB
California roach	<i>Hesperoleucus symmetricus</i>	N,C	BC
Carp	<i>Cyprinus carpio</i>	I,C	BC/SB
Golden shiner	<i>Notemigonus crysoleucas</i>	I,?	BC/SB
Goldfish	<i>Carassius auratus</i>	I,U	BC/SB
Fathead minnow	<i>Pimephales promelas</i>	I,?	SB
Hardhead	<i>Mylopharodon conocephalus</i>	N,C	BC
Hitch	<i>Lavinia exilicanda</i>	N,?	BC/SB
Red shiner	<i>Cyprinella lutrensis</i>	I,?	SB
Sacramento splittail	<i>Pogonichthys macrolepidotus</i>	N,C	BC/SB
Sacramento squawfish	<i>Ptychocheilus grandis</i>	N,C	BC/SB
Speckled dace	<i>Rhinichthys osculus</i>	N,C	BC
Perch	Percidae		
Bigscale logperch	<i>Percina macrolepida</i>	I,U	BC/SB
Salmon/trout	Salmonidae		
Brook trout	<i>Salvelinus fontinalis</i>	I,C	BC
Brown trout	<i>Salmo trutta</i>	I,C	BC/SB
Chinook salmon	<i>Oncorhynchus tshawytscha</i>	N,C,A	BC/SB
Rainbow trout	<i>Oncorhynchus mykiss</i>	N,C	BC/SB
Steelhead rainbow trout	<i>Oncorhynchus mykiss</i>	N,U,A	BC/SB
Sculpin	Cottidae		
Prickly sculpin	<i>Cottus asper</i>	N,C	BC/SB
Riffle sculpin	<i>Cottus gulosus</i>	N,C	BC/SB

Appendix B. Continued

Common Name	Scientific Name	Life History Status	Where Identified
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Silverside	Atherinidae		
Inland silverside	<i>Menidia beryllina</i>	I,?	SB
Smelt	Osmeridae		
Wakasagi	<i>Hypomesus nipponensis</i>	I,?	BC/SB
Stickleback	Gasterosteidae		
Threespine stickleback	<i>Gasterosteus aculeatus</i>	N,?	BC
Sturgeon	Acipenseridae		
White sturgeon	<i>Acipenser transmontanus</i>	N,A,?	SB
Sucker	Catostomidae		
Sacramento sucker	<i>Catostomus occidentalis</i>	N,C	BC/SB
Sunfish	Centrarchidae		
Black crappie	<i>Pomoxis nigromaculatus</i>	I,C	BC/SB
Bluegill	<i>Lepomis macrochirus</i>	I,C	BC/SB
Green sunfish	<i>Lepomis cyanellus</i>	I,C	BC/SB
Largemouth bass	<i>Micropterus salmoides</i>	I,C	BC/SB
Pumpkinseed	<i>Lepomis gibbosus</i>	I,?	SB
Redear sunfish	<i>Lepomis microlophus</i>	I,?	BC/SB
Sacramento perch	<i>Archoplites interruptus</i>	N,?,E	BC
Smallmouth bass	<i>Micropterus dolomieu</i>	I,?	BC/SB
Spotted bass	<i>Micropterus punctulatus</i>	I,?	BC
Warmouth	<i>Lepomis gulosus</i>	I,?	SB
White crappie	<i>Pomoxis annularis</i>	I,?	SB
Surfperch	Embiotocidae		
Tule perch	<i>Hysterocarpus traski</i>	N,C	BC
Temperate basses	Percichthyidae		
Striped bass	<i>Morone saxatilis</i>	I,A,?	SB

Source: Butte Creek Watershed Conservancy 2000

Symbols:

N= Native

C = Common

A = Anadromous

I = Introduced

U = Uncommon

BC = Butte Creek

E = Extirpated from Butte Creek

? = Butte Creek Life History Unknown

SB = Sutter Bypass

**Appendix C. Press Release Announcing the Preparation of  
an Environmental Assessment on Butte Creek  
Water Rights Acquisition**

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MP-00-68  
Jeffrey S. McCracken  
916/978-5100

**FOR IMMEDIATE RELEASE:** August 25, 2000

**BUREAU OF RECLAMATION BEGINS PREPARATION OF  
ENVIRONMENTAL ASSESSMENT ON  
BUTTE CREEK WATER RIGHTS ACQUISITION**

Reclamation is seeking public input for the preparation of a draft Environmental Assessment (EA) on a proposal to purchase existing water rights on Butte Creek from the Resource Renewal Institute. The purpose of the proposed action, which is to acquire the water rights, is to permanently maintain instream flows for anadromous fish in Butte Creek. The water involved amounts to 1.5 cubic feet per second (cfs) of year-round flow and 3.5 cfs between April 1 and October 15. The proposed action would result only in a change in ownership of the water rights; it does not change the authorized place of use (as shown on the map on the reverse), nor does it change the authorized purpose of use which is the protection of fish and wildlife dependent on instream flows.

The public is invited to provide input on issues and alternatives that should be addressed in the draft document. Comments should be mailed to John Burke, Water Acquisition Program Manager (MP-410), Bureau of Reclamation, 2800 Cottage Way, Sacramento, CA 95825, and received no later than Monday, September 25, 2000. For additional information, please contact Mr. Burke at 916/978-5556 (TDD 916/978-5608) or via e-mail at [JFBurke@mp.usbr.gov](mailto:JFBurke@mp.usbr.gov).

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**Appendix D. Comment Letters Received of Draft  
Environmental Assessment and Responses to  
Each Letter**

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## **Appendix D. Comment Letters Received on Draft EA and Responses to Each Letter**

The U.S. Dept of the Interior (Interior) Bureau of Reclamation (Reclamation) released the draft Environmental Assessment and Finding of No Significant Impact for the proposed Butte Creek Water Rights Acquisition from Resource Renewal Institute for public review on January 31, 2001. The public comment period ended on March 5, 2001. Reclamation received comments from the following:

Letter 1	Alan B. Lilly Bartkiewicz, Kronick & Shanahan, representing Resource Renewal Institute Letter delivered via facsimile on March 5, 2001
Letter 2	Todd Manley Northern California Water Association Letter delivered via facsimile on March 5, 2001
Letter 3	Jason Larrabee Larrabee Farms Letter dated March 1, 2001
Letter 4	Matt Colwell, General Manager Western Canal Water District Letter dated February 27, 2001

The following includes a copy of each comment letter, in the order presented above, followed by responses to that comment letter. Each specific comment being addressed is denoted in the left margin of each letter. Revisions to the draft EA in response to the comments have been incorporated into the text of the final EA.

## **Responses to Letter #1 from Alan B. Lilly (Representing Resource Renewal Institute)**

1-1 The text has been revised and now reads as follows:

Figure 1 shows the entirety of the Butte Creek watershed.

1-2 Flow data was not included in the draft document. The reference to flow data was in error and has been removed from the text. Appendices A, B, and C remain as they appeared in the draft document.

## **Responses to Letter #2 from Todd Manley (Representing Northern California Water Association)**

- 2-1 Resource Renewal Institute (RRI), the current holder of the subject water rights, bought the water rights and sought the 1998 Butte County Superior Court decree for the purpose of eventually allowing Interior to acquire the water rights for environmental purposes consistent with the restoration objectives of the Central Valley Project Improvement Act. This is consistent with the mission of RRI's Water Heritage Trust Program of acquiring water rights "to be permanently managed for environmental protection and recreational opportunities". RRI never intended to permanently retain the subject water rights; rather, RRI purchased the water rights with the intent of selling them to Interior to be permanently maintained for instream purposes.
- 2-2 The CALFED Environmental Water Program (EWP) is currently developing the framework in which it will operate. Because of requirements of the Federal Advisory Committee Act, it is expected that the CALFED Program will seek public involvement in the EWP through a workgroup of a public advisory subcommittee on ecosystem restoration once such a subcommittee is established. The Steering Committee referenced in this comment no longer exists, but this same group has been actively advising the CALFED Program on the EWP through a workshop setting. NCWA actively participates in these EWP workshops.

The reviewer's concern regarding the need for addressing policy issues through the EWP process is acknowledged. Documentation provided by EWP staff indicates an intent to address many policy issues throughout development and implementation of a EWP Pilot Water Acquisition Program.

This comment does not specifically address the adequacy of the environmental document and no changes to the document are required as a result.

In January 2001, Reclamation advised the EWP group of the proposed Butte Creek water rights acquisition, and has subsequently kept the group updated on progress made towards completing this acquisition.

- 2-3 This comment does not specifically state which information in the draft EA is dated and inaccurate, or who (other than Western Canal Water District) has provided these concerns. Consultation with the reviewer (Todd Manley of NCWA) indicated this comment refers to concerns raised in letters submitted by Jason Larrabee (Larrabee Farms, Letter 3) and Matt Colwell (Western Canal Water District, Letter 4). Refer to responses to comment Letters 3 and 4 for specific responses to these concerns.

### Responses to Letter #3 from Jason Larrabee (Larrabee Farms)

- 3-1 The price to be paid for the subject water rights is not disclosed in the Environmental Assessment (EA) because the price has not yet been negotiated. The final price to be paid will become public information upon its confirmation.

The economic impact associated with the purchase price of these water rights are not required by NEPA, since it is not a natural or physical effect on the environment. NEPA does not require an agency to assess every impact or effect of its proposed action, but only the impacts or effects on the environment.

This not to suggest that potential economic impacts are not a relevant consideration for the acquisition of the subject water rights. The concern by the reviewer regarding the potential economic effects of Interior “overpaying” for the water rights is acknowledged. Interior is sensitive to this concern and is thoroughly investigating the value of the subject water rights as a basis for the eventual determination of the negotiated price.

- 3-2 See the response to Comment 2-1.

- 3-3 Needs for fish flows in Butte Creek are addressed both generally and more specifically in the Anadromous Fish Restoration Plan (AFRP). The AFRP has the general goal of doubling of anadromous fish populations in Central Valley rivers and streams including Butte Creek. More specifically, the restoration plan identifies maintenance of a *minimum* base flow of 40 cubic feet per second (cfs) on Butte Creek below Centerville Diversion Dam as a high priority.

This minimum base flow of 40 cfs is an estimate based on the professional judgement of Department of Fish and Game biologists familiar with Butte Creek. This is an estimate of the minimum flow necessary to permit chinook salmon to ascend the creek to holding areas above Parrot-Phelan Dam. Additional water would improve chances for successful upstream migration, spawning, and juvenile rearing by providing a stronger attractant to adult fish, making it easier to negotiate the various ladders and weirs below Centerville Diversion Dam, and providing cooler water temperatures.

Interior cannot at this time specifically identify the exact flows that will ultimately be targeted for acquisition within Butte Creek to contribute to meeting AFRP goals. The Fish and Wildlife Service is currently in the process of establishing priorities for acquiring instream water rights for Central Valley streams based on biological, hydrological and economic factors. Also, it is expected that biological monitoring will occur, where appropriate, to determine the effect of increased stream flows on fish populations. This information would be considered in determining the value and need for additional acquisitions. Any proposed future acquisitions on Butte Creek would be evaluated as part of a public process including required NEPA environmental documentation and coordination with other water acquisition programs.

Also see the response to Comment 4-5

- 3-4 See the response to Comment 2-2.
- 3-5 The issues raised by the reviewer regarding conveyance losses and monitoring of the water are pertinent to assessing the level of instream protection afforded by the subject water rights. However, these issues are not relevant to the adequacy of the environmental document. The EA addresses the potential impacts associated with the legal transfer of the existing water rights on Butte Creek consisting of 5 cfs between April and October and 1.5 cfs between November and March for the authorized place of use between diversion number 54 (Durham Mutual Dam) and Butte Slough outfall. Therefore, this EA appropriately addresses the maximum potential adverse and beneficial environmental impacts associated with the Proposed Action.
- 3-6 Figure 1 has been revised to reflect that Western Canal, McGowan and McPherrin Dams have been removed. This figure has also been revised to show referenced wildlife areas in the vicinity of the Proposed Action including the Llano Seco Unit of the Sacramento National Wildlife Refuge.
- 3-7 The numbers presented in the draft EA are consistent with California Department of Fish and Game (DFG) estimates. Interior agrees that the statement regarding recent populations ranging to more than 1,000 adults may be overly conservative considering DFG estimated over 7,000 in 1995 and over 20,000 in 1998. It should be noted that counting salmon in the wild is not an exact science and that estimates may vary somewhat between publications.

The text has been revised and now reads as follows:

...to more than 1,000, although large increases in migrating fish were observed in 1995 and 1998.

- 3-8 The text has been revised and now reads as follows:

Flow from Little Chico Creek enters Butte Creek, and includes agricultural return flows that drain into Little Chico Creek.

- 3-9 Figure 1 has been revised and now indicates that Western Canal, McGowan and McPherrin Dams have been removed.

- 3-10 The text has been revised and now reads as follows:

Angel Slough, which carries irrigation flow, enters Butte Creek below the bifurcation.

- 3-11 The text has been revised and now reads as follows:

...Colusa Bypass, where Sacramento River overflows (flood flows) enter the creek.

- 3-12 The information presented in the Water Quality section was taken from the Draft Programmatic Environmental Assessment for Anadromous Fish Restoration Actions in the Butte Creek Watershed (U.S. Fish and Wildlife Service 2000), as cited on page 2 of the document. Interior is not aware of any inaccuracies in this report. A citation has been added to the end of both paragraphs under section 3.1.1.2 for clarity.
- 3-13 The definition of farmed wetlands is contained in the U.S. Department of Agriculture Natural Resources Conservation Service National Food Security Act Manual. The manual defines both prior converted cropland (PCC) and farmed wetlands (FWs). PCC is defined as “wetlands that were drained, dredged, filled, leveled, or otherwise manipulated, including the removal of woody vegetation, before December 23, 1985, to make production of an agricultural commodity possible, and that (1) do not meet specific hydrologic criteria, (2) have had an agricultural commodity planted or produced at least once prior to December 23, 1985, and (3) have not since been abandoned.” Activities in PCC are not regulated under the wetland conservation provision of the 1985 and 1990 farm bills (Swampbuster) or Section 404 of the Clean Water Act. FWs are similar to PCC in that they “were drained, dredged, filled, leveled, or otherwise manipulated before December 23, 1985, to make production of an agricultural commodity possible, but are often wet enough to still be valuable wetland habitat subject to Swampbuster and Section 404 of the Clean Water Act.”

It should be noted that many normal farming operations are exempt from Section 404 of the Clean Water Act; a complete list of exempt activities can be found in the Code of Federal Regulations (40 CFR 323.4).

The Proposed Action will have no effect on farmed wetlands.

- 3-14 The figure of 400 to 600 sandhill cranes was taken from the Mitigated negative Declaration/Finding of No Significant Impact for the Butte Creek bifurcation structure replacement project. Interior recognizes that wintering sandhill crane numbers vary by location and time within the season. The text has been revised and now reads as follows:

Large winter roosting colonies of greater sandhill cranes are present throughout the Butte Basin. The cranes use flooded areas for foraging, courting, and roosting.

- 3-15 According to the DFG 2000–2002 fishing regulations, fishing for trout and salmon with artificial lures having barbless hooks is permitted from November 15 through February 15 from the Oro-Chico Road bridge crossing to the Centerville Head Dam, which is located 300 yards downstream from the DeSalba Powerhouse. A short portion of this reach is within the study area.

The text has been revised and now reads as follows:

The stretch of Butte Creek between the Oro-Chico Road Bridge and diversion number 54 is within a reach that is open to trout and salmon fishing with artificial lures having barbless hooks from November 15 through February 15. The remainder of Butte Creek

within the study area is closed to trout and salmon fishing but is open to fishing for other species year round.

- 3-16 The text has been revised to include information on Glenn County, and now reads as follows:

Butte, Colusa, Sutter, and Glenn Counties have varying populations of Hispanic residents. Percentages of Hispanic residents in each county are:

Butte County	7.5%
Colusa County	33%
Sutter County	16%
Glenn County	24.4%

In 1993, median household income for the four counties ranged from \$22,776 to \$28,230 per year. A sampling of Hispanic households in 1990 indicated that between 64% and 67% earn less than \$25,000 per year. Between 19% and 33% of all persons exist below poverty level. (Oregon State University 1998.)

- 3-17 Interior has made a good faith effort to notify interested persons, organizations and agencies of the draft EA. Interior mailed over 550 “news releases” announcing issuance of the draft EA to interested parties, including private organization and individuals, local radio and television stations, and federal, state, and local agencies. The news release was also provided on Reclamation’s Mid-Pacific Region website.

## **Responses to Letter #4 from Matt Colwell (Representing Western Canal Water District)**

- 4-1 See the response to Comment 2-1.
- 4-2 See the response to Comment 3-1.
- 4-3 See the response to Comment 3-5.
- 4-4 The Proposed Action does not involve a change in the purpose or place of use of the subject water rights. These changes occurred through the 1998 Butte County Superior Court decree. Through the court decree the water rights are dedicated for instream uses and this would not change under the Proposed Action. The Proposed Action involves only the legal transfer of ownership of the subject water rights. Because the Proposed Action does not involve a change in the purpose and place of use, analysis of effects on surplus class water users is not warranted.
- 4-5 An acquisition of 40 cfs associated with M&T Chico Ranch (M&T) exchange, which is not yet final, will provide the minimum flows for the reach of Butte Creek as identified by the California Department of Fish and Game (DFG). Each additional increment of water will provide a slightly increased chance of adult salmon finding the creek in the spring and passing over the numerous obstacles between the Sacramento River and upstream holding areas.

The M&T exchange project is a collaborative effort between the U.S. Fish and Wildlife Service (FWS), DFG, M&T, and Parrott Investment Company. The project involves construction and operation of a new water supply pump station on the Sacramento River to replace an existing pump station owned and operated by M&T on Big Chico Creek, a tributary to the Sacramento River. Both M&T and Llano Seco Rancho, which is owned by Parrott Investment Company, have historically used the Chico Creek pump station for irrigation for a variety of crops and for wildlife management. This early 1900s pump station diverts water through unscreened pumps that have historically caused entrainment problems for resident and anadromous juvenile fish.

Historically, the Llano Seco Unit of the Sacramento National Wildlife Refuge, now managed by FWS, and the Llano Seco Wildlife Management Area, now managed by DFG, have received water from Big Chico Creek and the Sacramento River via the M&T pump station or from Butte Creek via the Parrot-Phelan Diversion Dam. Because of fisheries impacts associated with the M&T pump station, FWS and DFG reduced water diversion from the M&T pump station for the Llano Seco refuges upon their acquisition of the lands. FWS and DFG intend to provide water to the refuges via the pump station on the Sacramento River, which was constructed in the late 1990s. Upon its completion, ownership and operation of the Sacramento River pumping plant was turned over to M&T and Parrott Investment Company. Part of the project involves an exchange through which M&T and Parrott Investment Company are to provide water to FWS and DFG for the enhancement of Butte Creek flows; all parties (M&T, Parrott Investment Company, FWS, and DFG) agree to forego diversion of Butte Creek waters that they would

otherwise be able to divert to enhance instream flows (“bypass” flows). Details regarding the agreement between M&T, Parrott Investment Company, FWS, and DFG are contained in the proposed “Agreement for Relocation of M&T/Parrott Pumping Plant Providing for Bypass Flows in Butte Creek’. As noted earlier, this agreement is not yet final.

Also see the response to Comment 3-3.

4-6 Figure 1 has been revised and now indicates that Western Canal, McGowan and McPherrin Dams have been removed.

4-7 See the response to Comment 3-7.

4-8 See the response to Comment 3-8.

4-9 The text has been revised and now reads as follows:

...and 1048 Slough above the former Western Canal Dam site, Western Canal Water District Main Drain just above the former McGowan Dam site, and Howard Slough just above the former McPherrin Dam site.

4-10 See the response to Comment 3-15.

4-11 See the response to Comment 3-17.