

RECLAMATION

Managing Water in the West

Environmental Assessment

Accelerated Water Transfer and Exchange Program for Sacramento Valley Central Valley Project Contractors – Contract Years 2016- 2020

EA-16-01-NCAO



Mission Statements

The mission of the Department of the Interior is to protect and manage the Nation's natural resources and cultural heritage; provide scientific and other information about those resources; and honor its trust responsibilities or special commitments to American Indians, Alaska Natives, and affiliated island communities.

The mission of the Bureau of Reclamation is to manage, develop, and protect water and related resources in an environmentally and economically sound manner in the interest of the American public.

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List of Acronyms and Abbreviations

AF	Acre-feet
AWTP	Accelerated Water Transfer Program
APE	Area of Potential Effect
BO	Biological Opinion
CEQA	California Environmental Policy Act
CFS	Cubic Feet per Second
COA	Coordinated Operations Agreement
CVP	Central Valley Project
CVPIA	Central Valley Project Improvement Act
EA	Environmental Assessment
ESA	Endangered Species Act
FONSI	Finding of No Significant Impact
ITA	Indian Trust Assets
M&I	Municipal and Industrial
NEPA	National Environmental Policy Act
NHPA	National Historic Preservation Act
NMFS	National Marine Fisheries Service
NOAA	National Oceanic and Atmospheric Administration
Reclamation	Bureau of Reclamation
Refuges	Sacramento, Delevan and Colusa National Wildlife Refuges
RM	River Mile
RRA	Reclamation Reform Act
Service	US Fish and Wildlife Service
TCC	Tehama-Colusa Canal
TCCA	Tehama-Colusa Canal Authority
USGS	United States Geological Survey
NWR	National Wildlife Refuge

Section 1 Introduction

The Bureau of Reclamation (Reclamation) provided the public with an opportunity to comment on the draft Environmental Assessment (EA) between February 3, 2016 and February 17, 2016. One comment letter was received. Additional comments were received by electronic mail. The comments are addressed in the Finding of No Significant Impact (FONSI).

1.1 Background

California's agricultural industry is responsible for the production of nearly half of the fruits, nuts and vegetables grown in the US. Irrigated agriculture accounts for 41% of the state's water use (Northern California Water Association). Other uses include municipal and industrial services and beneficial uses that support California's diverse fish and wildlife populations.

In the Sacramento Valley, approximately 2 million acres of land are irrigated for rice, row crops, orchards and pasture (Sacramento River Watershed Program). Water used for irrigation is obtained by contract from Reclamation's Central Valley Project (CVP), California's State Water Project, and riparian and appropriative water rights that pre-date both projects.

The Central Valley Project Improvement Act (CVPIA, Title 34 of Public Law 102-575) was signed into law in 1992 to mandate changes in management of the CVP. In addition to protecting, restoring, and enhancing fish and wildlife, one of the other purposes of the CVPIA is to increase water-related benefits provided by the CVP to the State of California through expanded use of voluntary water transfers or exchanges, and improved water conservation. To assist California urban areas, agricultural water users, and others in meeting their future water needs, Section 3405(a) of the CVPIA authorizes all individuals or districts who receive Project water under water service or repayment contracts, water rights settlement contracts, or exchange contracts, to transfer (subject to certain terms and conditions) all or a portion of the water subject to such contract to any other California water users or water agency, State or Federal agency, Indian Tribe, or private non-profit organization for project purposes, or any purpose recognized as beneficial under applicable State law.

Reclamation has approved water transfers or exchanges between CVP contractors, permissible under the CVPIA, via an accelerated water transfer (and exchange) program (AWTP). Under the AWTP, Reclamation approves the transfer and exchange of water between CVP contractors that are geographically-situated within the same region and provide water service through the same CVP facilities. The potential for environmental impacts from the AWTP for Sacramento Valley CVP contractors are analyzed in Environmental Assessments (EA) that cover a five-year term. The most recent EA (Reclamation 2010) provided approval for transfers within the term of 2010

through 2015 (March 1, 2010, through February 28, 2015). A Finding of No Significant Impact (FONSI) associated with the 2010 EA was signed on April 30, 2010.

1.2 Purpose and Need

It is foreseeable that multi-year dry conditions will continue to limit the quantity of water made available for delivery to CVP contractors for use in crop irrigation and fulfillment of municipal and industrial (M&I) or other obligations. Water transfers are being sought to replace existing water supplies that have been reduced due to a number of reasons, including, but not limited to, dry hydrologic conditions and associated regulatory restrictions. Water made available to North of Delta water service contractors for irrigation purposes has been reduced by at least 60% in five of the last 10 years; Reductions were greatest in water years 2014 and 2015, wherein no Project water allocation was made available to Water Service Contractors for diversion.

The purpose of the AWTP is to continue facilitating efficient and timely water management practices between contractors through Project water transfers or exchanges in order to assist in meeting crop irrigation, and/or M&I or other water requirements. Such additional requirements include full habitat development needs (Level 2 and Incremental Level 4 of the Reclamation/U.S. Fish and Wildlife Service (Service) Water Acquisition Program) for the Sacramento, Delevan and Colusa National Wildlife Refuges (Refuges) pursuant to Section 3406(d)(2) of the CVPIA and as illustrated in Figure 1. In addition, the AWTP would reduce costs and redundant environmental reviews associated with Project water transfers or exchanges, thereby streamlining Reclamation's approval process.

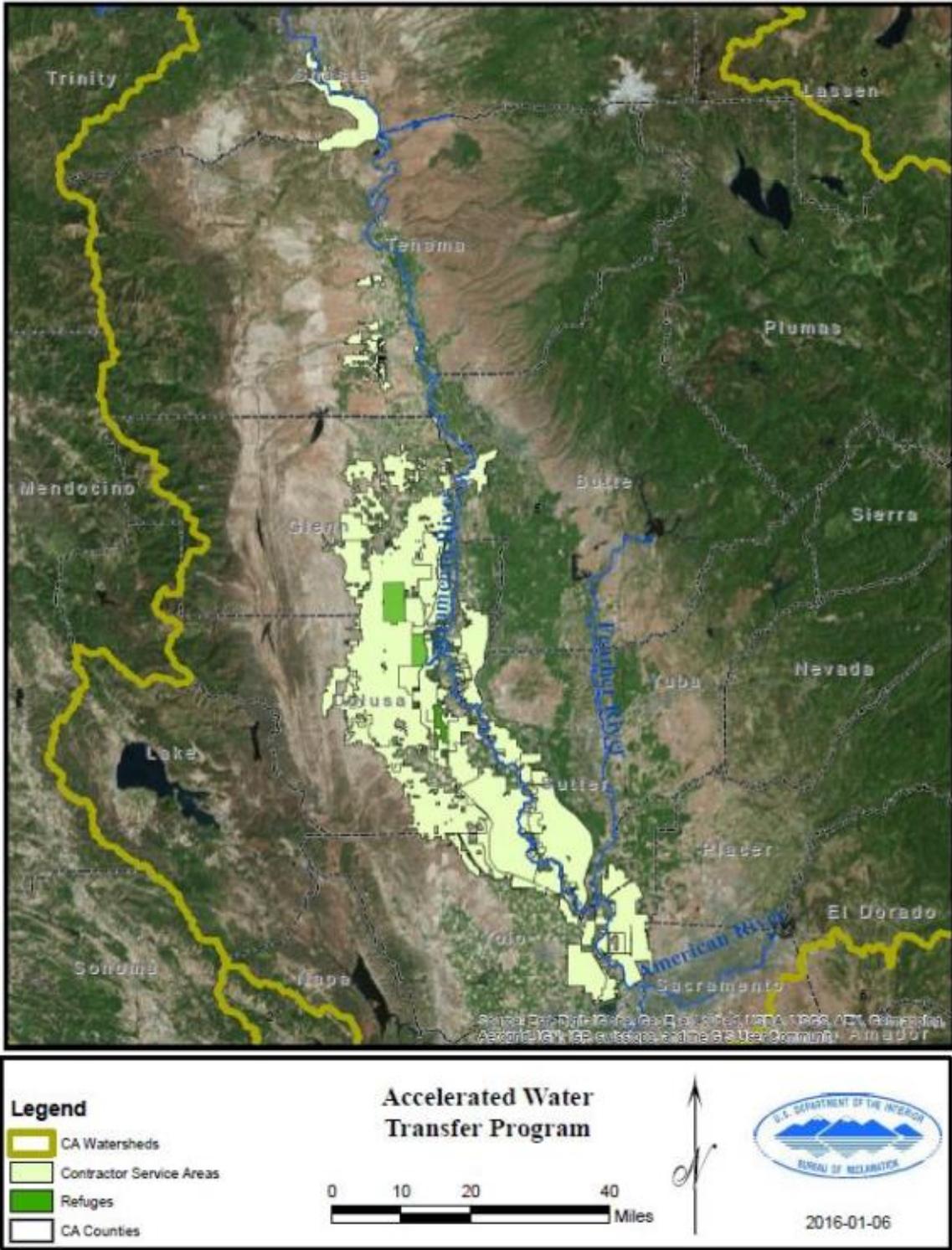


Figure 1. Project site location.

1.3 Authorities and Guidelines for the Accelerated Water Transfer Program

The AWTP is authorized pursuant to the following contracting authorities and guidelines as amended and updated and/or superseded:

- Title XXXIV of the CVPIA of October 30, 1992, Section 3405
<http://www.usbr.gov/mp/cvp/cvpia.html>
- Reclamation Reform Act (RRA), October 12, 1982, Section 226
- Long-Term Renewal Water Service Contracts for the Tehama-Colusa Canal and Corning Canal Contractors
- Sacramento River Settlement Renewal Contracts
- Long-Term Renewal Contract for the Colusa Drain Mutual Water Company
http://www.usbr.gov/mp/cvpia/3404c/lt_contracts/index.html
- Water Service Contract with the Service
- Reclamation's Interim Guidelines for Implementation of Water Transfers Under Title XXXIV of Public Law 102-575, February 25, 1993
<http://www.usbr.gov/mp/cvpia/3405a/>
- Reclamation's Regional Director's Letter Delegation of Regional Functional Responsibilities to the Area Offices – Water Transfers, Number 08-01 March 17, 2000
- Technical Information for Preparing Water Transfer Proposals (Water Transfer White Paper) November 2014 <http://www.water.ca.gov/watertransfers/>

Section 2 Alternatives Including Proposed Action

This EA initially considers three possible actions: the No Action Alternative, Alternative 1 and the Proposed Action. The No Action Alternative reflects future conditions without water transfers or exchanges and serves as a basis of comparison for determining potential effects to the human environment from in-basin transfers of Project water within the Sacramento Valley. Project water is defined as all water that is developed, diverted, stored, or delivered by the Secretary in accordance with the statutes authorizing the CVP in accordance with the terms and conditions of water rights acquired pursuant to California law.

2.1 No Action Alternative

Under the No Action Alternative, Reclamation would not approve water transfers or exchanges under an accelerated water transfer and exchange program for CVP contractors located in the Sacramento Valley. The Contractors would be required to operate within the confines of their available water supply that might include groundwater, or institute their own water conservation measures, which may include crop changes or idling. Because the alternate means of meeting water demand are the Contractors' discretion, the No Action Alternative assumes, for the purposes of environmental impact assessment, that no transfer or exchange of Project water supply would occur. (It should be noted that, because the CVPIA authorizes the transfer and exchange of Project water meeting qualifying criteria, the No Action Alternative would violate the agreement for proposed transfers and exchanges that meet the criteria specified in the CVPIA, as listed in Section 2.2 below.)

2.2 Proposed Action: AWTP

Reclamation proposes to approve, subject to written consent, transfers or exchanges of Project water in the Sacramento Valley, pursuant to Section 3405(a) of the CVPIA, under an accelerated process. Approvals would be provided throughout the term of Contract Years 2016 through 2020 (April 1, 2016, through February 28, 2021). Each transfer or exchange approved via the AWTP must be completed in the water or contract year for which the water is requested. However, subsequent approval(s) may be provided for the same or a similar transfer or exchange over the term of the AWTP.

Qualifying in-basin, historic and routine transfers, of the type previously conducted under the AWTP by eligible participants identified in Appendix A to this EA (for the purposes of Project water transfers only) are deemed to have met the criteria of Section 3405(a)(1)(A) and 3405(a)(1)(I) of the CVPIA, and, therefore, are not required to limit their transfers to the average annual quantity of water under contract actually delivered to the contracting district or agency during the last three years of normal water delivery prior to the date of enactment of the CVPIA; and are not required to limit their transfer to the water that would have been consumptively used or irretrievably lost to beneficial use during the year or years of the transfer. The Proposed Action would cover transfers or exchanges among the Corning Canal and Tehama-Colusa Canal (TCC) Contractors,

Sacramento River Settlement Contractors (Settlement Contractors), the Colusa Drain Mutual Water Company, and the Refuges.

Prior to approval, each proposed transfer or exchange would be reviewed by the Contracting Officer for consistency with the project description within this EA and all applicable permits, laws, and regulations. Additional administrative and environmental reviews would be required if a proposed transfer or exchange is inconsistent with the conditions upon which the Proposed Action is based.

All water transferred or exchanged under the program will be diverted from the Sacramento River. The volume of any transfer and exchange will be documented and reported to Reclamation monthly by contractors to generate an annual summary of each year's cumulative transfer activity. Contractors that take water directly from one of the reservoirs, or primarily serve urban customers, are not included.

Sacramento Valley CVP contractors would transfer or exchange up to 150,000 AF of their collective CVP contract supply each year, subject to the following conditions:

- Project water transfers or exchanges will be completed within the same Contract Year (March 1st through the last day of February of the following calendar year).
- All Project water transfers or exchanges will be between willing sellers and willing buyers, as listed in Appendix A.
- Project water exchanges will only count once toward the up to 150,000 AF annual limit; exchanges would be 1:1, or those of equivalent amounts where neither contractor experiences a net gain or loss.
- Project water transfers or exchanges must occur within the permitted CVP Consolidated Place-of-Use.
- Project water transfers or exchanges are limited to existing supply.
- Project water transfers or exchanges for agriculture will be used on lands irrigated within the last three consecutive years.
- Project water transfers or exchanges will not lead to any land conversions.
- No native land or untilled land (fallow for three consecutive years or more) will be irrigated with the Project water involved in these actions.
- Project water transfers or exchanges will comply with all Federal, State, Local or Tribal laws or requirements imposed for the protection of the environment and Indian Trust Assets.
- The Transferee will comply with Reclamation Reform Act, as applicable.
- Project water transfers or exchanges cannot alter the flow regime of natural water bodies such as rivers, streams, creeks, ponds, pools, wetlands, etc., so as to not have a detrimental effect on fish, wildlife, or their habitats.
- Project water transfers or exchanges will avoid project-related impacts pursuant to State and Federal regulatory guidelines, including mandates from Section

3405 (a) of Public Law 102-575, Title 34, of the CVPIA. If conditions warrant, Reclamation may evaluate any proposal individually, as it is received, to determine if it meets State law and/or CVPIA requirements, including Section 3405 (a)(1)(L).

- Project water transfers or exchanges will occur between CVP contractors in the Sacramento Valley (in Basin).
- Project water transfers involving more than 20 percent of a contractor's Project water supply will be publically noticed by the contractor.
- Transferred or exchanged Project water will be for irrigation, incidental domestic use, M&I use, groundwater recharge, and/or maintenance of habitat and habitat conditions for fish and wildlife resources.
- Project water transfers or exchanges will be limited to those that do not require new construction or modification to facilities.
- Project water transfers or exchanges will be coordinated, as necessary, with the State relative to the Coordinated Operations Agreement (COA);
- Project water will not be approved for transfer or exchange under this program if it would be obtained by shifting to alternative surface water source(s) that could potentially adversely affect CVP operations or other third party interests.
- Transferred or exchanged Project water would be diverted through a properly-screened diversion or upstream of an existing, impassible barrier to listed fish species.

Transfer and exchange requests not meeting these criteria, or otherwise not clearly avoiding effects on Federally-listed species, would require separate environmental review to determine whether or not they could be approved.

This Proposed Action does not cover:

- Project water transfers or exchanges that meet the above criteria but are increments of larger actions.
- Unbalanced Project water exchanges.
- Project water transfers or exchanges that involve previously transferred or exchanged water.
- Project water transfers or exchanges that involve a third party intermediary as an exchanger or transferor.
- Transfers or exchanges of Section 215 water.
- Transfers or exchanges to non-CVP contractors.
- Transfers or exchanges which involve crop idling that would not occur absent the transfer or exchange.

2.3 Alternative 1: Approve and/or Review Water Transfers and Exchanges Individually

Alternative 1 is the same as the Proposed Action, except that the proposed transfers and associated NEPA compliance would be reviewed and prepared on an annual basis. This alternative was eliminated from further consideration because the repetitive review of transfer requests would not be an efficient or effective use of government resources and therefore would not fulfill the Purpose and Need. The repetitive review would: Divert Reclamation staff's attention from transfers requiring more in-depth review. Reduce Reclamation's ability to approve the transfers or exchanges in a timeframe that would allow Contractors the ability to time transfers to optimize the utility of the water and minimize the potential for environmental impacts from the transfer or exchange.

In addition, the application of qualifying criteria to transfers and exchanges under the Proposed Action, as described in Section 2.2 above, would reduce the potential for significant impacts from most in-basin CVP transfers and exchanges. Therefore, Alternative 1 is not more environmentally protective than the Proposed Action.

2.4 Resources Eliminated from Detailed Analysis

Reclamation analyzed the affected environment of the Proposed Action and No Action alternatives and has determined that there is no potential for significant direct, indirect, or cumulative effects to the following resources.

2.4.1 Land Use

There would be no development or land conversion under the Proposed Action; Project water would only be conveyed to actively irrigated land through existing facilities. The AWTP would modify water supply reliability but would not change CVP contract amounts or deliveries from within historical ranges. Crop idling is not a component of the AWTP. Any transfer or exchange action that would involve crop idling would require analysis under a separate EA. Therefore, land use would not change under either of the alternatives.

2.4.2 Cultural Resources

There would be no impacts to cultural resources under the Proposed Action or No Action Alternative. Project water would be conveyed through existing facilities to existing users without any new construction or ground disturbances. As a consequence, the Proposed Action would not have the potential to cause effects to historic properties pursuant to 36 CFR Part 800.3(a)(1). (See Appendix B for Reclamation's determination.)

2.4.3 Global Climate

Water would move in existing facilities, via existing processes under both the Proposed Action and No Action Alternative. Water to the affected Contractors service area is predominantly moved via gravity and the electric pumps at the Red Bluff Pumping

Plant. Although some small agricultural operations in the Contractors' service area may utilize diesel-powered pumps, these exceptions are largely represented by the Settlement Contractors whom are typically the transferors, rather than the transferees, of the water. Therefore, there is no impact to air quality associated with the movement of water in the affected area, nor is there an anticipated increase in pumping that would cause a change in emissions or air quality impact associated with implementation of the Proposed Action.

Global climate change is expected to have some effect on the snow pack of the area and the runoff regime. Current data is not yet clear on the hydrologic changes and how they will affect the Sacramento Valley. Water made available to CVP contractors is dependent on a number of factors, including but not limited to, hydrologic conditions and environmental requirements. Any changes in hydrologic conditions due to global climate change would be addressed within Reclamation's operational flexibility. Any development associated with the No Action Alternative would not be significant enough to have a bearing on global climate change.

2.4.4 Indian Sacred Sites

No impacts to Indian Sacred Sites would occur under either the Proposed Action or the No Action alternative. Either action would maintain existing land use practices, would not involve construction or ground disturbance on Indian Sacred Sites, and would not limit access to, and ceremonial use of, Indian Sacred Sites, or significantly adversely affect the physical integrity of such sacred sites.

2.4.5 Socio-Economic Resources

There would be no affect to socio-economic resources from the No Action Alternative. Allowing transfers under the Proposed Action would not adversely affect the quality of human environment but would allow quicker decision making and increased flexibility to meet water demands throughout the Sacramento River Valley, North of the Delta, which could lead to a minor improvement of the socioeconomic conditions in the affected area in comparison to baseline conditions.

2.4.6 Environmental Justice

Under the No Action Alternative, there could be segments of the Contractors' service areas negatively affected by the hardship created by lack of water or the inability to pay for water at elevated prices. In contrast, the Proposed Action would increase the availability of water that would provide the contractor the ability to augment existing water supplies to increase the likelihood that populations are unaffected. However, water shortages are not confined to minority or low income areas; neither action would cause dislocation, changes in employment, or increase flood, drought, or disease, or disproportionately affect minority populations. Therefore, there are no Environmental Justice issues associated with either the Proposed Action or the No Action Alternative.

2.4.7 Indian Trust Assets (ITA)

No impacts to ITAs would occur under the No Action Alternative or Proposed Action. Both would maintain existing land use practices at existing locations, not involve any construction on lands, or impacts to water, hunting, fishing or ceremonial rights (See Appendix C).

2.4.8 Air Quality

Neither the Proposed Action, nor the No Action Alternative would require construction or modification of facilities to move water between the districts. As discussed in Section 2.4.3, water to the affected Contractors service area is predominantly moved via gravity and the electric pumps at the Red Bluff Pumping Plant. After being pumped from the Red Bluff Pumping Plant, transferred water would mostly move via gravity, through the TCC and Corning Canal, then to canal-side turnouts that utilize gravity or electrical powered pumps to deliver water to the properties on which it will be applied. None of these processes would produce emissions that impact air quality. Since no impacts to air quality would occur; a determination of general conformity under the Clean Air Act is not required.

2.5 Resources of Potential Concern

This EA analyzes the affected environment of the Proposed Action and No Action Alternative in order to determine the potential direct, indirect, and cumulative effects to environmental resources of concern. Consistent with prior environmental reviews on similar actions, Reclamation provides detailed review of the effects on water and biological resources.

Section 3 Affected Environment and Environmental Consequences

This section identifies the potentially-affected environment and the environmental consequences that could result from the Proposed Action and the No Action alternatives.

3.1 Water Resources

3.1.1 Affected Environment

Regional Hydrology

The affected area for the Sacramento Valley AWTP is within the Sacramento River Hydrologic Region, which covers 17.4 million acres in 22 counties. The Pit, Feather, Yuba, Bear and American rivers drain to the central feature of the hydrologic region: the Sacramento River. The region is bounded to the north and east by the Cascade mountain range, where annual precipitation ranges from 40 to greater than 80 inches. Snowpack from this area supplies the Sacramento River with runoff during summer months. The hydrologic region is bounded to the west by the Coast and Klamath mountain ranges, which largely drain west to the coast, and to the south by the San-Joaquin Delta, to which the Sacramento River drains. Runoff in the Sacramento River hydrologic region represents 1/3 of that in California and supports the approximate 2 million acres of agriculture in the Sacramento Valley.

Water availability varies from year to year for water service contractors. The Project water supply for any given contract year is based on forecasted reservoir inflows and Central Valley hydrologic conditions; amounts of storage in CVP reservoirs; regulatory requirements; and management of Section 3406(b)(2) resources and Refuge water supplies in accordance with implementation of the CVPIA. In the driest years, the CVP allocation can be as low as zero (e.g. 2014 and 2015); in wetter years, the allocation can be 100 percent, or approximately 818,000 AF for the Corning Canal, Tehama-Colusa Canal and Settlement Contractors, Colusa Drain Mutual Water Company, and Refuges, collectively. In consideration of this variability, water service contractors have used a variety of programs to increase the flexibility of acquiring water to meet their irrigation and M&I needs. In the past, these included the previously-approved AWTPs, use of local groundwater on overlying lands; Warren Act contracts to convey non-Project water using Reclamation facilities, and/or other types of water transfers or exchanges, such as crop idling or groundwater substitution programs. In years of reduced supply, reliance on one or more of these programs becomes even more crucial to meet demands. As an example, in years of reduced water supply to Settlement Contractors (e.g. critically dry years), there is typically less surface water supply available to transfer, which, in turn, can shift the balance of the need to other water sources, such as groundwater.

The historic use area of the AWTP can be categorized as along the Sacramento River basin boundaries, or between RM 246.7 and 2.15, north of the TCC, within the TCC, and south of the TCC. The contractors identified in Appendix A represent contractors that would potentially use the AWTP in the current and future contract years. These potential users can serve as either transferors or transferees, although, historically, the number of transfer transactions has been between 16 and 38 per year and, generally, transfers are most extensively used by the 17 member districts served by the Tehama-Colusa Canal Authority (TCCA, Appendix A). As in the past, it is anticipated that they will likely be the prominent users of the future program.

The Corning Canal and TCC Service areas have a gross acreage of about 164,000 acres and irrigable acres of 139,000 acres, respectively. The principal crops are almonds, rice, alfalfa, and wheat.

As in the past, the majority of AWTP water would come through the screened Red Bluff Pumping Station on the Sacramento River to serve the TCCA member districts.

3.1.2 Environmental Consequences

No Action Alternative

In the event the transfers or exchanges are not approved, contractors would be forced to operate within the confines of the available water under their water service contract, use groundwater, idle crops, and/or remove permanent crops. In the event that such efforts are unsuccessful, crop failure would occur. However, because the means by which the Contractors might accommodate the water shortage are to their discretion, no analysis of their environmental consequences is provided.

Proposed Action

Similar to the No Action Alternative, the Proposed Action would not increase or decrease the amount of Project water each contractor receives under contract with Reclamation. Transfers or exchanges completed within the optimal timeframe would help supplement any surface water shortage that a particular service area could be experiencing at that time. Exchanges under the AWTP would be "bucket-for-bucket". There would be no adverse impacts to participating districts and their respective Project water supplies from completed transfers or exchanges. Due to variations in weather and hydrological conditions, agricultural water needs are time sensitive and usually arise on short notice. The AWTP would allow Reclamation and CVP contractors an opportunity to efficiently shift Project water supplies from areas of low demand (at the time of approval) to areas of greater demand. Coordination would ensure that Reclamation's obligations to deliver water to other CVP contractors, Refuges, and other requirements would not be adversely impacted by the Proposed Action. There would be no adverse impacts to facilities.

Because the Proposed Action would only influence the place of diversion on the Sacramento River, upstream operations, including power production, would not be affected.

Use of existing facilities and operations and the absence of land use changes within the transferor and transferee service areas caused by this action preclude any adverse effect on unique geological features such as wetlands, wild or scenic rivers, Refuges, floodplains, rivers placed on the Nationwide Rivers Inventory, and prime or unique farmlands.

The cumulative amount of water transferred or exchanged annually would be limited to 150,000 acre-feet (AF). This ceiling is based on historic transfers under prior AWTPs and foreseeable needs, as supported by recent historical data. The 150,000 AF would provide increased flexibility and water management opportunities for about 31% of the approximately 481,050 AF of Project water under contract with TCCA Districts, Colusa Drain and Refuges and 6% of the approximate 2.1M AF maximum available to TCCA Districts, Colusa Drain, Refuges and Sacramento River Settlement Contractors, collectively. It is, however, a reasonable forecast of needs. For example, in 2009, approximately 110,000 AF of water was requested for transfer or exchange via the AWTP. (See Table 3-1.)

Table 3-1: Historical Volumes of In-Basin Sacramento Valley Project Water Transfers and Exchanges

Year	Total Vol Transferred or Exchanged (AF)
2009	106,397
2010	31,314
2011	26,144
2012	30,077
2013	43,684
2014	23,878
2015	42,119

3.2 Biological Resources

3.2.1 Affected Environment

Reclamation recognizes that rice fields and irrigation/drainage ditches can provide habitat for terrestrial wildlife and waterfowl species. Likewise, Reclamation recognizes that the Sacramento River mainstem, from which the water transferred or exchanged under the AWTP would be diverted, provides habitat for fish species, including but not limited to those protected under the Federal Endangered Species Act (ESA).

On January 19, 2016, the Service’s online database was used to identify Federally-listed, proposed and Candidate species potentially occurring within the action area. An Information for Planning and Conservation (IPaC) report was produced from a query of the database by the nine counties in which portions of the action area lie: Shasta, Tehama, Butte, Glenn, Colusa, Sutter, Yolo, Placer and Sacramento counties.

The nature of the action, and constraints that the transfers and exchanges will not involve the construction of new facilities, the irrigation of new lands, idling of crops, or the export of transfer water South of Delta, limits the Proposed Action's potential affects to terrestrial, aquatic, riparian and wetland habitats and species that utilize them. The majority of the approximately 60 reported species were dismissed from further consideration by the aforementioned factors limiting affects and/or because: the species is endemic to an area located outside of the action area (e.g. Antioch Dunes evening primrose, Contra Costa wallflower, California freshwater shrimp); the species' historical and/or current extant range is outside of limits of the action area (e.g. California tiger salamander, California clapper rail, Delta green ground beetle); the species habitat is present in some portion of the counties involved in the Proposed Action, but not at the elevation of the Sacramento Valley (e.g. fisher); the species is widely accepted as extirpated from the Sacramento Valley floor (e.g. California red-legged frog); the species occurs within the action area but in a sub-habitat (e.g. vernal pools and ephemeral waters used by Colusa grass, Greene's tuctoria, hairy orcutt grass, Hoover's spurge, slender orcutt grass, Solano grass, water howellia, Burke's goldfields, Butte County meadowfoam, vernal pool fairy shrimp, vernal pool tadpole shrimp, and conservancy fairy shrimp) that would be unaffected by the Proposed Action.

Based on the species identified in the IPaC report, institutional knowledge gained from consultations for other projects in the area and previous AWTP reviews, and the environmental review of the project effects to Water Resources (Section 3.1), Reclamation determined that species potentially affected by the Proposed Action are limited to the giant garter snake (*Thamnophis gigas*), waterfowl and anadromous fish, including, but not limited to: the Sacramento River spring and winter-run Chinook Salmon (*Oncorhynchus tshawytscha*), Central Valley steelhead (*O. mykiss*), and North American green sturgeon (*Acipenser medirostris*).

3.2.2 Environmental Consequences

No Action Alternative

There would be no new impacts to fish and wildlife, listed species or Critical Habitat from the No Action Alternative. Low water availability at Delevan National Wildlife Refuge (NWR), the Refuge that typically has a shortage in water necessary to fulfill habitat management needs, has historically been compensated by transfers of Project water from Sacramento NWR. However, Reclamation's Level 4 supplies could be used as an alternate means to meet the demand.

Proposed Action

The Proposed Action would not alter CVP operations or release patterns from CVP facilities, or the maximum volume of water delivered to the Contractors, as compared to the No Action Alternative. The transfers are water management actions to support existing uses and conditions.

Most of the points of diversion along the Sacramento River are represented in the Proposed Action. However, the diversions tend to be small, and, in the aggregate,

account for a minority share of the volume of water diverted from the Sacramento River. In addition, the transferred or exchanged water would only be diverted through appropriately screened diversions, further limiting the potential for impacts to fish species. The Proposed Action would result in a minor shift in the location of water use. However, there is no anticipated impact to fish species or habitat from the Proposed Action that was not analyzed in the Service's 2008 Biological Opinions (BO) or the National Oceanic and Atmospheric Administration (NOAA) National Marine Fisheries Service's (NMFS) 2009 BO and 2011 amendment, for the general operations of the CVP (and State Water Project), with which the transfers will be consistent. Likewise, there are no conditions of the transfer or exchange actions that would alter Reclamation's finding of "not likely to adversely affect" terrestrial species, including but not limited to the giant garter snake, with which the Service concurred in the 2008 BO. The AWTP may be used to transfer water to the Refuges. However, as indicated above, there are alternate means by which to provide supplemental water to the Refuges to fulfill habitat management needs. Therefore, waterfowl and other wetland species are not anticipated to be impacted by the Proposed Action. Because this action occurs entirely within the Sacramento Basin and North of Delta, there are no concerns for species that are present South of Delta.

Operations associated with the Proposed Action would be within the historic limits covered by the consultations for the Programmatic Environmental Impact Statement for the CVPIA. However, Section 3405 (a)(1)(L) of the CVPIA provides Reclamation an additional opportunity to reject any proposed transfer or exchange action that falls within the general criteria of the Proposed Action but is anticipated to have a significant environmental impact.

- "The Secretary shall not approve a transfer if the Secretary determines...that such transfer would result in a significant reduction in the quantity or decrease in the quality of water supplies currently used for fish and wildlife purposes, unless the Secretary determines pursuant to finding setting forth the basis for such determination that such adverse effects would be more than offset by the benefits of the proposed transfer. In the event of such a determination, the Secretary shall develop and implement alternative measures and mitigation activities as integral and concurrent elements of any such transfer to provide fish and wildlife benefits substantially equivalent to those lost as a consequence of such transfer.

3.3 Cumulative Impacts

According to the Council on Environmental Quality regulations for implementing the procedural provisions of National Environmental Protection Act (NEPA), a cumulative impact is defined as the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (Federal or non-Federal) or person undertakes such other actions. Cumulative effects can result from individually minor but collectively significant actions taking place over a period of time.

Reclamation and CVP contractors have been working on various drought-related projects, in order to manage limited water supplies based on current hydrologic conditions and regulatory requirements. Reclamation has reviewed existing or foreseeable projects in the same geographic area that could affect or could be affected by the Proposed Action.

As in the past, hydrological conditions and other factors are likely to result in fluctuating water supplies which drive requests for water service actions. Water districts provide water to their customers based on available water supplies and timing, while attempting to minimize costs. Farmers irrigate and grow crops based on these conditions and factors. A myriad of water service actions are approved and executed each year to facilitate water needs. It is likely that over the course of the Proposed Action, districts will request various water service actions, such as transfers, exchanges, and Warren Act contracts (conveyance of non-CVP water in CVP facilities). Each water service transaction involving Reclamation undergoes environmental review prior to approval.

The Proposed Action and other similar projects would not hinder the normal operations of the CVP and Reclamation's obligation to deliver water to its contractors or to local fish and wildlife habitat. Because the Proposed Action would not involve construction or modification of facilities, there would be no cumulative impacts to existing facilities or other contractors.

Table 3-3 depicts the volumes of Project water transfers in 2015 and under the last five-year AWTP, as well as other comparable in-basin water transfers conducted during the same time periods. The "Other In-Basin Transfers" relayed in the table include Base Supply water which was forborne for use by the Settlement Contractors and transferred to Member Units of the TCCA.

As demonstrated in Table 3-3, in recent years, the volume of water transferred under the AWTP typically represents less than two percent (2%) of the flow of the Sacramento River at Keswick Dam during the irrigation season, when most of the water is transferred. When the Base Supply made available for transfer via forbearance actions is not considered, the sum of all in-basin transfer volumes, including water that was transferred under a mechanism other than the AWTP, constitutes about four percent (4%) of the total river flow at Keswick Dam. As a means of relative comparison, the margin of error of typical stream gage used to measure the flow of the Sacramento is five percent (5%). Therefore, the Proposed Action, when considered cumulatively with all comparable transfer actions, would have no discernable effect on river flow. Likewise, it would not be expected to have an effect on protected species that are reliant on the maintenance of minimum flows.

There are no known past, present, or reasonably foreseeable actions that would cumulatively result in significant impacts to the human environment when considered in conjunction with the Proposed Action.

Table 3-3: Potential for Cumulative Effects on Sacramento River Flow from Transfers

Year	AWTP ¹ Transfer Vol (AF)	Other Project Water Transfers (AF)	Base Supply ² Transfers (AF)	N to N Base Supply Forbearance / Transfer of Project Water ³ (AF)	N to S ⁴ Base Supply Forbearance / Transfer of Project Water (AF)	Total Water Transfers (AF)	Irrigation Season ⁵ Average Monthly Flow from Keswick Dam (cfs)	% of Keswick Flows that is AWTP Water	% of Keswick Flow that is All In-Basin Transfers	% of Keswick Flow that is All Water Transfers
2010	31,314	21,653	10,277	0	0	63,244	9,696	1.1%	2.1%	2.1%
2011	26,144	26,054	10,251	0	0	62,449	10,976	0.8%	1.9%	1.9%
2012	30,077	28,407	7,545	0	0	66,029	10,754	0.9%	2.0%	2.0%
2013	43,684	43,469	8,351	0	29,217	124,721	10,758	1.3%	2.9%	3.8%
2014	23,878	3,929	3,536	36,393	73,930	141,666	7,802	1.0%	2.9%	6.0%
2015 ⁶	42,119	7,197	7,820	25,265	177,420	259,821	7,230	1.9%	3.8%	11.8%

¹ All AWTP volumes are from Project Water. Project Water originates from CVP allocations of existing surface water supply that do not constitute a new draw on the hydrogeologic system.

² Includes Sacramento Valley and Redding Basin Base Supply Transfers.

³ Base Supply forbore and transferred makes new water available to the system via the evapotranspiration of applied water (water the plant would have used absent the idling action), or surface water made available as a result of groundwater substitution actions. (These processes would be expected to have a different potential for environmental impact and would require analysis under a separate EA.)

⁴ As with all referenced transfers, Project Water transferred from CVP contractors located North of Delta to buyers located South of Delta is in compliance with Sections 3405(a)(1)(A) and 3405(a)(1)(I) of the Central Valley Project Improvement Act.

⁵ Based on five (5) months of irrigation season in which majority of water is transferred (June-Oct). Source: <http://waterwatch.usgs.gov/?m=real&r=ca>

⁶ 2015 North to South forbearance and transfer volume includes Base Supply transfer to East Bay MUD.

Section 4 Consultation and Coordination

4.1 Endangered Species Act (16 U.S.C. 1521 et seq.)

The Service and the NMFS issued BOs that provide Reclamation with guidelines for operation of the CVP and for renewal of certain CVP contracts:

- Biological Opinion on the Coordinated Operations of the Central Valley Project and State Water Project (Service 2008)
- Biological Opinion and Conference Opinion on the Long-Term Operations of the Central Valley Project and State Water Project (NMFS 2009)

To be exempt from the “take” prohibition of the ESA, Reclamation must comply with Terms and Conditions which are pertinent to future water transfers or exchanges within the CVP. Reasonable and prudent measures are actions that the Service and NMFS believe are necessary to minimize impacts, i.e., amount of or extent, of incidental take and adverse modification or destruction of designated critical habitat.

Reclamation determined that the Proposed Action would have no new effect on Federally-proposed or listed Threatened and Endangered species or their proposed or designated Critical Habitat; therefore, no consultation was required under Section 7 of the ESA.

4.2 National Historic Preservation Act (NHPA) (16 USC § 470 et seq.)

The NHPA of 1966, as amended (16 U.S.C. 470 et seq.), requires that Federal agencies give the Advisory Council on Historic Preservation an opportunity to comment on the effects of an undertaking on historical properties. The 36 CFR Part 800 regulations implement Section 105 of the NHPA.

Section 106 of the NHPA requires Federal agencies to consider the effects of Federal undertakings on historic properties or those properties determined eligible for inclusion in the National Register of Historic Places. Compliance with Section 106 follows a series of steps that are designed to identify interested parties, determine the Area of Potential Effect (APE), conduct cultural resource inventories, determine if historic properties are present within the APE, and assess effects on any identified historic properties. The activities associated with the Proposed Action would not involve new ground disturbance or changes in land use. Transfers would be completed with the use of existing conveyance infrastructure. Reclamation has determined that there would be no potential to affect historic properties by either the Proposed Action, pursuant to 36 CFR 800.3(a)(1).

Section 5 References

- Bureau of Reclamation. 1999. Final Programmatic Environmental Impact Statement for the Implementation of the CVPIA. October 1999.
- Bureau of Reclamation. 2010. Programmatic Environmental Assessment – *Temporary Water Transfers and Exchanges within the Sacramento River and the Tehama-Colusa and Corning Canals Service Area*. Mid-Pacific Region Northern California Area Office. Shasta Lake, California.
- Bureau of Reclamation and TCCA. 2016. Public Draft Environmental Assessment/Initial Study, 2016 Tehama-Colusa Canal Authority Water Transfers, California. February 2016.
- CNDDDB (California Natural Diversity Database). 2015. California Department of Fish and Wildlife's Natural Diversity Database, Government Version.
- EA and Reclamation and TCCA. 2015. Draft Environmental Assessment/ Initial Study, 2015 Tehama-Colusa Canal Authority Water Transfers. Public Review draft, March 2015.
- National Marine Fisheries Service (NMFS). 2009. Final biological opinion and conference opinion on the long-term operations of the Central Valley Project and State Water Project. June 4, 2009.
- National Marine Fisheries Service (NMFS). 2011. Amendments to 2009 Reasonable and Prudent Alternatives for Final biological opinion and conference opinion on the long-term operations of the Central Valley Project and State Water Project. April 7, 2011.
- Northern California Water Association <http://www.norcalwater.org/farms/>
- Sacramento River Watershed Program
<http://www.sacriver.org/aboutwatershed/roadmap/watersheds/sacramento-valley-subregion>
- U.S. Fish and Wildlife Service (Service). 2008. Formal Endangered Species Act consultation on the coordinated operations of the Central Valley Project and State Water Project (81420-2008-F-1481-5). December 15, 2008.

Appendices

Appendix A. Potential Participants in the AWTP.

Long Form Contractors:		
Anderson-Cottonwood ID Andreotti Associates Baber, Jack, et al Byrd, Anna C. and Jane Osborne Carter Mutual Water Company Conaway Preservation Group, LLC Dennis, L.C. Eastside Mutual Water Company Forry, Laurie Glenn-Colusa ID Green Valley Corporation Griffin & Prater Tenancy-in-Common Henle Family Limited Partnership Van Ruiten Bros. Hiatt Family Trust/Illerich Family Trust	Howald Farms, Inc. Knights Landing Investors, LLC Lomo Cold Storage Pacific Realty Associates, L.P. (dba M&T Chico Ranch) Maxwell Irrigation District MCM Properties, Inc. Meridian Farms Water Company Natomas Central MWC O'Brien, Frank J., Family Trust Oji Brothers Farm, Inc. Oji, Mitsue, Family Partnership Pelger Mutual Water Company Pelger Road 1700, LLC Pleasant Grove-Verona MWC Princeton-Codora-Glenn ID	Provident ID Rauf, Abdul & Tahmina Reclamation District No. 108 Reclamation District No. 1004 Richter Bros., et al River Garden Farms Robert's Ditch Irrigation Company Sutter Mutual Water Company Sycamore Family Trust Tarke, Stephen TeVelde Family Revocable Trust Tisdale Irrigation & Drainage Co. Wilson Ranch Partnership Windswept Land & Livestock Yolo Land Trust
Refuges:		
Sacramento National Wildlife Refuge Delevan National Wildlife Refuge Colusa National Wildlife Refuge		

Appendix A. (continued)

Short Form Contractors:		
<p>Alexander, Thomas, et ux Anderson Properties, L.P. & R. & J. Anderson, Art, et al Charter, Mary K. Butler, Dianne E., Revocable Intervivos Trust Butte Creek Farms Cachil Dehe Band of Wintun Indians of the Colusa Indian Community Chesney, Adona, Bypass Trust, et al Churkin, Michael, et al Cummings, William C. Daniel, Harry Davis, Grover L., et ux Driscoll Strawberry Associates, Inc. Driver Family Trust Driver, Gary, et al Driver, Gregory E. Driver, William, et al Dyer, Jeffrey E. and Jan Wing Eggleston, Ronald H., et ux Ehrke, Allen A., et ux ELH Sutter Properties, Inc. Empire Group, LLC Exchange Bank Fedora, Sib, et al Furlan, Emile and Simone Family Trust</p>	<p>Gillaspy, William Giovannetti, B.E. & Mary Giusti, Richard, et al Gjermann, Hal Gomes, Frank & Judy, Trust Green Valley Corporation Hale & Marks Hatfield, Robert and Bonnie Heidrick & McGinnis Properties, L.P. Heidrick, Emmett & Mildred, Trust Howard, Theodore J.B. Unlimited, Inc. Jaeger, William, et al Jansen, Peter & Sandy Kary, Carol King, Ben King, Laura KLSY, LLC Lake California POA Lauppe, B. & K. Lauppe, Burton Leiser, Dorothy L. Leviathan, Inc. Lockett, William P. & Jean B. Lonon, Michael, et al McClatchy Partners, LLC and Riverby Ranches, LLC Micke, Daniel</p>	<p>Morehead, Joseph A., et ux Munson, James T., et ux Natomas Basin Conservancy Nelson, Thomas L., et ux Odysseus Farms Partnership Penner, Roger & Leona Quad H Ranches Reclamation District No. 1000 Redding Rancheria Tribe Reische, Eric Reische, Laverne C., et ux Riverview Golf & Country Club Rubio, Exequiel & Elsa Sacramento, County of Seaver, Charles Sioux Creek Property, LLC T&P Farms Tuttle, Charles W., Trust Wakida, Tomio Wallace, Joseph and Janine Wallace, Kenneth L. Living Trust Willey, Edwin & Marjorie, Revocable Trust Wisler, Russell L., et al Young, Russell L., et al ZelMar Ranches</p>
Water Service Contractors:		
<p>4-M WD Colusa County WD Colusa, County of Colusa Drain MWC Corning WD Cortina WD</p>	<p>Davis WD Dunnigan WD Glenn Valley WD Glide WD Holthouse WD Kanawha WD</p>	<p>Kirkwood WD La Grande WD Myers-Marsh MWC Orland-Artois WD Proberta WD Thomes Creek WD Westside WD</p>

Appendix B. Cultural Resources Determination

CULTURAL RESOURCES COMPLIANCE Division of Environmental Affairs Cultural Resources Branch (MP-153)

MP-153 Tracking Number: 16-NCAO-042

Project Name: Temporary Water Transfers and Exchanges within the Sacramento River and the Tehama-Colusa and Corning Canals Service Area (Sacramento Valley Accelerated Water Transfer Program [AWTP] Renewal)

NEPA Document: EA-15-01-NCAO

NEPA Contact: Megan Simon, Natural Resource Specialist

MP 153 Cultural Resources Reviewer: John Fogerty, Archaeologist

Date: January 7, 2015

Reclamation proposes to renew an accelerated process for single-year historic and routine water transfers and exchanges within the Sacramento River and the Tehama-Colusa and Corning Canals Service Areas for contract years 2016 through 2021 (specifically, April 1, 2016 through February 28, 2021). The total quantity of CVP water transferred would total no more than 150,000 acre-feet of Central Valley Project water per contract year. Designed to ensure minimal environmental impact, annual transfers and/or exchanges deemed permissible via the AWTP must meet specified criteria (as explicitly outlined in EA-15-01-NCAO). The activities associated with this action would not involve ground disturbing activities, propose new construction, or require modification of extant facilities. This is the type of undertaking that does not have the potential to cause effects to historic properties, should such properties be present, pursuant to the NHPA Section 106 regulations codified at 36 CFR § 800.3(a)(1). Reclamation has no further obligations under NHPA Section 106, pursuant to 36 CFR § 800.3(a)(1).

This document is intended to convey the completion of the NHPA Section 106 process for this undertaking. Please retain a copy in the administrative record for this action. Should changes be made to this project, additional NHPA Section 106 review, possibly including consultation with the State Historic Preservation Officer, may be necessary. Thank you for providing the opportunity to comment.

