

Draft Environmental Assessment

Issuance of Special Use Permit for the Operation of
The Big Notch Project at The Steve Thompson North
Central Wildlife Management Area

July 2024



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Region 8 (Pacific Southwest Region)

Table of Contents

Executive Summary.....	3
Chapter 1: Introduction	4
1.1 Background	4
1.2 Proposed Action.....	6
1.3 Purpose and Need for Action.....	6
Chapter 2: Involvement, Coordination and Consultation.....	7
2.1 Public Involvement.....	7
2.2 State Coordination	7
2.3 Tribal Coordination	7
Chapter 3: Alternatives	8
3.1 Decision Framework	8
3.2 Alternatives.....	8
Chapter 4: Affected Environment and Environmental Consequences	9
4.1 Resources Eliminated for Detailed Analysis.....	10
4.2 General Description of Affected Environmental Applicable to All Affected Resources	10
4.3 Natural Resources	11
4.4 Cultural and Historic Resources	15
4.5 Socioeconomics.....	16
4.6 Refuge Resources.....	19
4.7 Cumulative Impacts	20
References	22

Executive Summary

This environmental assessment, or EA, evaluates one action alternative and a no action alternative. The proposed action would include the issuance of a short-term special use permit to the California Department of Water Resources by the U.S. Fish and Wildlife Service (Service) to allow for increased flows on properties in the Yolo Bypass where the Service has conservation easements. The increased flows are for the purpose of implementing the Yolo Bypass Salmonid Habitat Restoration and Fish Passage Project (Big Notch Project or Project). The proposed action also includes implementation of mitigation actions needed to ensure Big Notch Project operations will not materially interfere with or detract from the fulfillment of the National Wildlife Refuge System mission or the purpose(s) of the Steve Thompson North Central Valley WMA (50 CFR 26.41). Under the no action alternative, the short-term special use permit would not be issued and no mitigation would be implemented. The Proposed Action is needed since the Big Notch Project operations' have the potential for affecting waterfowl habitat protected by the Service's easement interest.

This EA examines the potential environmental impacts associated with the proposed action and complies with the National Environmental Policy Act, NEPA, in accordance with the Council on Environmental Quality NEPA regulations (40 Code of Federal Regulations, or CFR, 1500-1508), the Department of the Interior NEPA regulations (43 CFR 46; 516 Department Manual, or DM, 8), U.S. Fish and Wildlife Service policies (550 Service manual, or FW, 3) and other relevant regulations and requirements. NEPA requires examination of the effects of proposed actions on the natural and human environment.

The following resources were analyzed in the EA: habitat and vegetation, fish and wildlife species, geology and soils, air quality and climate change, water resources, cultural and historic properties, socioeconomics, environmental justice, public health and safety, land use, and refuge resources. Several other resources were initially considered by the U.S. Fish and Wildlife Service but were ultimately dismissed from further analysis because neither the proposed action nor its alternatives would have the potential to result in measurable adverse impacts to these resources.

Chapter 1: Introduction

1.1 Background

National Wildlife Refuges are guided by the mission and goals of the National Wildlife Refuge System, the purposes of an individual refuge, federal laws and executive orders, U.S. Fish and Wildlife Service policy and international treaties. Relevant guidance includes but is not limited to the National Wildlife Refuge Administration Act 1966, as amended by the National Wildlife Refuge System Improvement Act of 1997 (16 United States Code [U.S.C.] 668dd et seq.), the Refuge Recreation act of 1962 and selected portions of the Code of Federal Regulations and the Fish and Wildlife Service manual.

The mission of the National Wildlife Refuge System, as outlined by the National Wildlife Refuge System Administration Act of 1966, as amended by the National Wildlife Refuge System Improvement Act of 1997 (16 U.S.C. 668dd), is:

“... to administer a national network of lands and waters for the conservation, management and, where appropriate, restoration of the fish, wildlife and plant resources and their habitats within the United States for the benefit of present and future generations of Americans.”

The National Wildlife Refuge System Administration Act (Administration Act), as amended, directs the Secretary of the Department of the Interior to ensure that the mission of the refuge system and purposes of individual refuges are carried out (16 U.S.C. 668dd(5)(a)(3)(A-M)). The Administration Act also requires that the Service “...not initiate or permit a new use of a national wildlife refuge or expand, renew, or extend an existing use of a national wildlife refuge, unless the Refuge Manager has determined that the use is a compatible use.” (50 CFR 26.41). A “compatible use” is defined as “...a proposed or existing wildlife-dependent recreational use or any other use of a national wildlife refuge that, based on sound professional judgment, will not materially interfere with or detract from the fulfillment of the National Wildlife Refuge System mission or the purpose(s) of the refuge.” (16 U.S. Code § 668ee(1))

The Steve Thompson North Central Wildlife Management Area (WMA) was established in 1991 under the following acquisition authorities and associated purposes:

“...for use as an inviolate sanctuary, or for any other management purpose, for migratory birds.” 16 U.S.C. 715d (Migratory Bird Conservation Act of 1929)

“...for the development, advancement, management, conservation, and protection of fish and wildlife resources ...” 16 U.S.C. 742f(a)(4) “... for the benefit of the United States Fish and Wildlife Service, in performing its activities and services. Such acceptance may be subject to the terms of any restrictive or affirmative covenant, or condition of servitude ...” 16 U.S.C. 742f(b) (1) (Fish and Wildlife Act of 1956)

“...the conservation of wetlands in order to maintain the public benefits they provide

and to help fulfill international obligations contained in various migratory bird treaties and conventions...” 16 U.S.C. 3921 (Emergency Wetland Resources Act of 1986)

“...protection, restoration, and management of wetland ecosystems...” 16 U.S.C. 4401-4412 (North American Wetlands Conservation Act of 1989)

The Bureau of Reclamation (Reclamation), in partnership with the California Department of Water Resources (DWR), is implementing the Yolo Bypass Salmonid Habitat Restoration and Fish Passage Project (Big Notch Project or Project) to increase the availability of floodplain fisheries rearing habitat for juvenile salmonids, as well as to reduce migratory delays and loss of fish at Fremont Weir and other structures in the Yolo Bypass. The purpose of the Big Notch Project is to mitigate the effects of the State Water Project (SWP) and Central Valley Project (CVP) on State and Federally listed fishes. The Project was designed to meet the objectives in the National Marine Fisheries Service’s 2009 Biological Opinion (2009 NMFS BO) Reasonable and Prudent Alternative (RPA) Actions I.6.1 and I.7. The 2009 NMFS BO was replaced by the 2019 Biological Opinion on Long Term Operation of the CVP and the SWP issued by NMFS on October 21, 2019 (2019 NMFS BO). Reclamation included the Big Notch Project as part of its proposed action for that consultation. The Big Notch Project is also required under Section 9.2.2 of the Incidental Take Permit for Long-Term Operation of the SWP in the Sacramento-San Joaquin Delta (2081-2019-066-00) (2020 LTO ITP), issued March 31, 2020, by the California Department of Fish and Wildlife (CDFW). In 2019, Reclamation and DWR completed the Yolo Bypass Salmonid Habitat Restoration and Fish Passage Project Environmental Impact Statement and Environmental Impact Report (2019 YBSHRFP EIS/EIR), which analyzed the operation and construction components of the Big Notch Project.

DWR is the lead agency for acquiring the requisite flowage easements on properties within the Yolo Bypass that would experience additional flows resulting from the operation of the Big Notch Project. Construction of the Big Notch headworks structure is anticipated to be complete fall of 2024.

Within the Yolo Bypass, approximately two thirds of the managed wetlands are privately owned and managed as duck hunting clubs (Ducks Unlimited 2017). USFWS holds conservation easements on 16 properties totaling approximately 4,603 acres that are managed as part of the Steve Thompson North Central Valley WMA. The USFWS purchased these conservation easements for the management of migratory birds. These lands are private, but the management of these properties as duck hunting clubs meets the USFWS’s objective of providing habitat for migratory birds.

The operation of the Big Notch Project would contribute to the fulfillment of the National Wildlife Refuge System mission. It would directly benefit ESA-listed anadromous fish species which are a trust resource for USFWS. In addition, implementation of the project is described within the Proposed Acton associated with the Endangered Species Act compliance for the Long-Term Operations of the Central Valley Project and State Water Project. The Central

Valley Project is the primary water supply for several national wildlife refuges in the Central Valley and maintenance of this water supply is essential for the long-term sustainability of these refuges.

1.2 Proposed Action

The USFWS is proposing to issue a 5-year special use permit to DWR to allow increased flows on properties in the Yolo Bypass where the Service has conservation easements for operation of the Big Notch Project. The terms and conditions of the special use permit would include the stipulations listed in the compatibility determinations¹ covering the Proposed Action. The stipulations in the compatibility determinations (Attachments A, B, and C) include a commitment to develop and implement mitigation actions that are needed to minimize impacts of the Big Notch Project operations on Service easement interests and ensure operations will not materially interfere with or detract from the fulfillment of the National Wildlife Refuge System mission or the purpose(s) of the Steve Thompson North Central Valley WMA (50 CFR 26.41).

A proposed action is an initial proposal and may evolve during the development of alternatives, the impact analysis and public involvement. This environmental assessment may determine additional alternatives are appropriate to address the purpose and need and may become the preferred alternative. The proposed action and alternatives may evolve during the NEPA process as the agency refines its proposal and gathers feedback from the public, federally recognized tribes and tribal entities and other agencies or organizations. A decision to implement a proposed action will not be made until the environmental review process is complete.

1.3 Purpose and Need for Action

The purpose of the Proposed Action is to allow increased flows on properties in the Yolo Bypass where the Service has conservation easements. The increased flows would be implemented under a proposed DWR flowage easement (for an additional 6,000 cubic feet per second of flow from November 1 through March 15th of each year) to facilitate operation of the Big Notch Project in the Yolo Bypass. The need for the Proposed Action is due to the potential for increased flows to affect waterfowl habitat protected by the Service's conservation easements. Per 50 CFR 25.44, "We require permits for use of easement areas administered by us where proposed activities may affect the property interest acquired by the United States." The associated mitigation actions are required to ensure Big Notch Project operations will not materially interfere with or detract from the fulfillment of the National Wildlife Refuge System mission or the purpose(s) of the Steve Thompson North Central Valley WMA (50 CFR 26.41).

¹ A compatibility determination is a written determination signed and dated by the refuge manager and Assistant Regional Director of Refuges signifying that a proposed or existing use of a national wildlife refuge is a compatible use or is not a compatible use.

Chapter 2: Involvement, Coordination and Consultation

2.1 Public Involvement

This draft environmental assessment will be available for public review and comment for 30 days from July 26 to August 25, 2024. Members of the public will be notified of the availability of the draft documents which will be posted on the Steve Thompson North Central Valley WMA website at: <https://www.fws.gov/refuge/steve-thompson-north-central-valley-wildlife-management-area>. Comments must be submitted in writing via email to fw8plancomments@fws.gov. Any comments, concerns, suggestions or other feedback will be incorporated into the final environmental assessment if a substantive response is required.

Before including your address, phone number, email address, or other personal identifying information in your comment, you should be aware that your entire comment, including your personal identifying information, may be made publicly available at any time. While you can ask us in your comment to withhold your personal identifying information from public review, we cannot guarantee that we will be able to do so.

2.2 State Coordination

In order to implement the Big Notch Project, DWR must acquire the associated requisite flowage easements on properties within the Yolo Bypass that would experience additional flows from the operation of the Big Notch Project. As part of that process, DWR has noticed all federal, state, local, and private interests potentially affected by Big Notch Project operations, compensation has been offered to all affected real property interests. Noticing included meetings, written correspondences, invitation to formal hearings, and, as part of the process for USFWS, request for appropriate analysis of compatibility use. In particular, DWR requested that USFWS evaluate the conservation easements managed as part of the Steve Thompson North Central Valley WMA. DWR coordinated with USFWS to provide a TUFLOW hydraulic model and data analysis specific to Big Notch Project operations within the Yolo Bypass, including the Proposed Action area. The provided information was coordinated through USFWS in support of the Proposed Action and the associated compatibility determinations. DWR and USFWS coordinated monthly to ensure the development of the comprehensive and accurate analysis needed to support the USFWS process.

DWR requested that USFWS issue a permit to allow increased flows over conservation easement areas in which the United States holds an interest prior to its issuance of Orders of Possession, which would grant DWR the right and authority to condemn partial interests in those properties necessary to acquire flowage easements to accommodate Big Notch Project flows.

2.3 Tribal Coordination

As part of the Big Notch Project's EIS efforts, Reclamation as the lead federal agency coordinated with six tribes on the construction and operation of the Big Notch Project. This

draft Environmental Assessment for the issuance of special use permit to operate Big Notch will be shared with those same tribes, along with an offer of further coordination.

Mitigation actions are broad in scope and not fully defined, therefore these activities will be subject to additional environmental compliance procedures in the future, including Section 106 of the NHPA and tribal coordination.

Chapter 3: Alternatives

3.1 Decision Framework

The Region 8 of the U.S Fish and Wildlife Service Regional Director would make two decisions based on this environmental assessment once the review process is complete. They would: (1) select an alternative for the refuge, and (2) determine if the selected alternative is a major federal action that would significantly affect the quality of the human environment, and therefore, require the preparation of an environmental impact statement.

3.2 Alternatives

No Action Alternative

Under the No Action Alternative, USFWS would not issue a short-term special use permit to DWR to fully operate the Big Notch Project. Big Notch Project operations would not occur, preventing increased frequency and duration of flows onto the Steve Thompson North Central Valley WMA and any associated need for identified mitigation actions resulting from these flows. The Yolo Bypass would continue to be inundated from the westside tributaries and overtopping events at Fremont and Sacramento weirs. Juvenile fish would enter the bypass with overtopping flood flows from Fremont and Sacramento weirs, and the fish would benefit from the rearing opportunities in the Yolo Bypass. Additional flow and fish would not pass through Fremont Weir when the Sacramento River elevation is below Fremont Weir or Sacramento Weir. Increased availability of floodplain fisheries rearing habitat for juvenile fish and adult fish migration opportunities resulting from Big Notch Project operations in the Yolo Bypass would also not occur.

Alternative A - [Issuance of a short-term special use permit] - Preferred Alternative

Under the Proposed Action, Alternative A, USFWS would issue a short-term special use permit to DWR to allow increased flows on properties in the Yolo Bypass where the Service has conservation easements. The increased flows would be implemented under a proposed DWR flowage easement to facilitate operation of the Big Notch Project. DWR proposes to begin operation of the Project in the Fall of 2024 and continue annually based on hydrological conditions. Gate operations that will increase flows, up to 6,000 cubic feet per second (cfs), could begin each year on November 1 depending on river conditions. Gate operations could continue through March 15 of each year, based on hydrologic conditions. The gates may remain partially open after March 15 to provide adult fish passage.

The terms and conditions of the short-term special use permit would enforce the stipulations listed in the compatibility determinations covering the proposed action. The stipulations include a commitment to develop and implement mitigation actions that are needed to minimize impacts of the Big Notch Project operations on Service easement interests and ensure operations will not materially interfere with or detract from the fulfillment of the National Wildlife Refuge System mission or the purpose(s) of the Steve Thompson North Central Valley WMA (50 CFR 26.41).

Anticipated mitigation actions may include but are not limited to the following:

- Enhancing drainage capacity by augmenting ditch/canal capacity and enlarging water control structures,
- berm and road elevations improvements,
- and rehabilitating and/or installing pump stations

Chapter 4: Affected Environment and Environmental Consequences

This section is organized by affected resource categories. Each affected resource presents both (1) the existing environmental and socioeconomic baseline in the action area and (2) the effects and impacts of the alternatives on each resource. Effects and impacts from the proposed action or alternatives are changes to the human environment, whether adverse or beneficial, that are reasonably foreseeable (40 CFR 1508.1(g)). The impact analysis directly follows the affected environment description for a resource and is organized by alternative.

The impact analysis will evaluate a variety of criteria, as defined below, to describe the context and intensity of impacts on affected resources. The Council on Environmental Quality does not require the use of these terms, however, they are commonly used in NEPA documents and will be referenced in the subsequent sections.

Impact analysis criteria and terminology:

- Adverse effects: negative or detrimental effect to the resource (40 CFR 1501.3)
- Beneficial effects: positive effect to the resource (40 CFR 1501.3)
- Cumulative effects: effects on the environment resulting from the incremental effects of the action when added to other past, present and reasonably foreseeable actions regardless of what agency (e.g., federal or non-federal) or person undertakes the action (40 CFR 1508.1(i)(3))
- Direct effects: caused by the action and occur at the same time and place (40 CFR 1508.1(i)(1))
- Indirect effects: caused by the action and are later in time or farther in distance but are still reasonably foreseeable (40 CFR 1508.1(i)(2))
- Irreversible: unable to be undone or altered
- Irrecoverable: unable to regain, recover or repair

- Major: effects are significant, readily detectable and would cause a substantive decline or increase in the resource
- Minor: effects would be detectable but small, and of little consequence and would not affect the population or resource on a large-scale
- Moderate: effects are negligible, readily detectable and may have some temporary effects to the population or resources on a large-scale but would not cause a substantive decline or increase in the resource
- Negligible: resource is slightly affected but the impact is so minimal that effects are not detectable or may not be observable
- No effect: resource would not be affected and there are no impacts
- Short-term effects: occurring in or relating to a relatively short period of time
- Long-term effects: occurring in or relating to a relatively long period of time
- Unavoidable: unable to be prevented or ignored; inevitable

Impacts that are speculative (i.e., there is a remote possibility that the impact would occur, but no meaningful information exists on which to base a prediction) or indefinite will not be included in the analysis of this environmental assessment (43 CFR 46.30). If a resource is not expected to be affected, a brief justification will be provided as to why it was dismissed.

4.1 Resources Eliminated for Detailed Analysis

The following resources either do not exist within the project area, or would not be affected or only negligibly affected by the Proposed Action:

- Mineral Resources: The primary mineral resources in Yolo County are mined aggregate and natural gas (County of Yolo 2009). There are no designated mineral resource zones in, or near, the Proposed Action area. Natural gas fields do exist within some areas of the Yolo Bypass, but the Proposed Action would not affect the gas fields and would not result in the loss of availability of this mineral resource.
- Visual Resources: The Proposed Action will have no effect on scenic resources or public views.
- Soundscape: The Proposed Action will not increase ambient noise levels within the Proposed Action area above the current levels nor impact the soundscape of the Proposed Action area.

4.2 General Description of Affected Environmental Applicable to All Affected Resources

The Proposed Action area includes conservation easements located within the Yolo Bypass, as managed by the Steve Thompson North Central Valley WMA. General descriptions of the Proposed Action area, affected environment, and environmental consequences are described in the 2019 Yolo Bypass Salmonid Habitat Restoration and Fish Passage Project Environmental Impact Statement and Environmental Impact Report (2019 YBSHRFP EIS/EIR) (Chapters 4 through 22.) and are incorporated by reference. General descriptions of the affected

environment are also described in the 2020 Butte Sink, Willow Creek-Lurline, and North Central Valley Wildlife Management Areas Final Comprehensive Conservation Plan and Environmental Assessment (2020 CCP/EA) (Chapter 3).

4.3 Natural Resources

Habitat and Vegetation: Affected Environment

The Proposed Action area includes conservation easements located within the Yolo Bypass, as managed by the Steve Thompson North Central Valley WMA. Details on the habitat and vegetation communities in the Proposed Action area are described in the 2019 YBSHRFP EIS/EIR (Section 9.1) and are incorporated by reference.

Habitat and Vegetation: Environmental Consequences

No Action Alternative

Under the No Action Alternative, USFWS would not issue a short-term special use permit to DWR to allow for operation of the Big Notch Project. Big Notch Project operations would not occur, preventing increased frequency and duration of flows onto the Steve Thompson North Central Valley WMA and any associated need for identified mitigation actions resulting from these flows. Therefore, there would be no impacts to habitat and vegetation resources as a result of increased frequency and duration of flows. Section 9.3 of the 2019 YBSHRFP EIS/EIR provides more details on effects on vegetation in the absence of Big Notch Project implementation and is incorporated by reference.

Alternative A

Under the Proposed Action Alternative, USFWS would issue a short-term special use permit to DWR to allow increased flows on properties in the Yolo Bypass where the Service has conservation easements for the operation of the Big Notch Project. Project operations would increase the frequency and duration of flooding onto the Steve Thompson North Central Valley WMA. Big Notch Project operations are analyzed in the 2019 YBSHRFP EIS/EIR, covering the Proposed Action area. Section 9.3 of the EIS/EIR discusses habitat and vegetation impacts resulting from increased frequency and duration of flows and are incorporated by reference.

Program-level activities, such as the mitigation actions, under the Proposed Action have the potential to cause impacts on habitat and vegetation resources due to construction related activities. However, since program-level activities are broad in scope and not fully defined, these activities will be subject to additional environmental compliance procedures in the future.

Fish and Wildlife Species including Special Status Species: Affected Environment

The Proposed Action area includes conservation easements located within the Yolo Bypass, as managed by the Steve Thompson North Central Valley WMA. Details on the fish and wildlife species in the Proposed Action area are described in the 2019 YBSHRFP EIS/EIR (Section 9.1 and 8.1) and are incorporated by reference.

Fish and Wildlife Species including Special Status Species: Environmental Consequences

No Action Alternative

Under the No Action Alternative, USFWS would not issue a short-term special use permit to DWR to allow for operation of the Big Notch Project. Big Notch Project operations would not occur, preventing

increased frequency and duration of flows onto the Steve Thompson North Central Valley WMA and any associated need for identified mitigation actions resulting from these flows. Increased availability of floodplain fisheries rearing habitat for juvenile fish and adult fish migration opportunities resulting from Big Notch Project operations in the Yolo Bypass would also not occur. Increased duration and frequency of flows impacting migratory bird and terrestrial habitat and species would not occur. Temporary construction-specific impacts on fish and wildlife species from the identified mitigation actions would not occur. Sections 8.3 and 9.3 of the 2019 YBSHRFP EIS/EIR provides more details on effects on fish and wildlife in the absence of Big Notch Project implementation and are incorporated by reference.

Alternative A

Under the Proposed Action Alternative, USFWS would issue a short-term special use permit to DWR to allow increased flows on properties in the Yolo Bypass where the Service has conservation easements for the operation of the Big Notch Project. Project operations would increase the frequency and duration of flooding onto the Steve Thompson North Central Valley WMA. Big Notch Project operations are analyzed in the 2019 YBSHRFP EIS/EIR, covering the Proposed Action area. Sections 9.1 and 8.1 discuss fish and wildlife, including special status species, and are incorporated by reference.

Due to the increased duration and frequency of flows, the Proposed Action alternative has the potential to impact wetland management actions conducted by private land managers within the Proposed Action area. Wetland management actions focused on the timing and depth of water, combined with mechanical disturbance, create conditions which produce the annual plant seeds and invertebrates that waterfowl favor (Fredrickson and Taylor 1982; Euliss and Harris 1987; Baldassarre and Bolen 2006). These management actions are expensive and time-intensive, there are also additional costs associated with maintaining the water management infrastructure required for seasonal wetlands. Private land managers are typically willing to pay these annual costs due to the benefits they provide waterfowl and related hunt opportunities, yet these actions also benefit other wetland dependent wildlife species. This includes special status species such as the northwestern pond turtle (*Actinemys marmorata*), tricolored blackbird (*Agelaius tricolor*), greater sandhill crane (*Antigone canadensis*), and giant garter snake (*Thamnophis gigas*) (Gilmer *et al.* 1982; USFWS 2020).

If waterfowl use declines, hunt opportunities decline, and infrastructure costs increase due to the Proposed Action in the Yolo Bypass, hunt club owners may determine that the costs of club operation and maintenance outweigh the benefits and shut down operations. This is particularly true if the flooding impacts occur multiple years in a row. If a hunt club discontinues operations, the critical wetlands values protected by the Service's easement interest would be lost. Without incentive for private landowners to manage and flood seasonal wetlands on USFWS Conservation Easement lands, migratory bird habitat quality and availability in the Yolo Basin would suffer. This loss of habitat value could affect the waterfowl food supply and carrying capacity within the Yolo Basin, as calculated within the Central Valley Joint Venture Implementation Plan (2006). Such a loss would materially detract from the purposes the WMA was established for and could impact waterfowl species, giant garter snake, and other listed species within the Proposed Action area through habitat loss. Program-level activities, such as mitigation actions, would minimize impacts to private landowners and, in turn, support existing management actions which can benefit wetland dependent wildlife species.

Program-level activities, such as the mitigations actions, under the Proposed Action have the potential to cause impacts on fish and wildlife resources due to construction and ground disturbance related

activities. However, since program-level activities are broad in scope and not fully defined, these activities will be subject to additional environmental compliance procedures in the future.

Geology and Soils: Affected Environment

The Proposed Action area includes conservation easements located within the Yolo Bypass, as managed by the Steve Thompson North Central Valley WMA. Details on geology and soils in the Proposed Action area are described in the 2019 YBSHRFP EIS/EIR (Section 12.1) and are incorporated by reference.

Geology and Soils: Environmental Consequences

No Action Alternative

Under the No Action Alternative, USFWS would not issue a short-term special use permit to DWR to allow for operation of the Big Notch Project. Big Notch Project operations would not occur, preventing increased frequency and duration of flows onto the Steve Thompson North Central Valley WMA and any associated need for identified mitigation actions resulting from these flows. Flow specific impacts, such as increased sedimentation deposit, would not occur. Temporary construction-specific impacts on geology and soil from the identified mitigation actions would not occur. Section 12.3 of the 2019 YBSHRFP EIS/EIR provides more details on effects on geology and soils in the absence of Big Notch Project implementation and is incorporated by reference.

Alternative A

Under the Proposed Action Alternative, USFWS would issue a short-term special use permit to DWR to allow increased flows on properties in the Yolo Bypass where the Service has conservation easements for the operation of the Big Notch Project. Project operations would increase the frequency and duration of flooding onto the Steve Thompson North Central Valley WMA. Big Notch Project operations are analyzed in the 2019 YBSHRFP EIS/EIR, covering the Proposed Action area. Section 12.3 discusses geology and soil impacts and are incorporated by reference.

Program-level activities, such as the mitigations actions under the Proposed Action, have the potential to cause impacts on geology and soil resources due to construction related activities. However, since program-level activities are broad in scope and not fully defined, these activities will be subject to additional environmental compliance procedures in the future.

Air Quality and Climate Change: Affected Environment

The Proposed Action area includes conservation easements located within the Yolo Bypass, as managed by the Steve Thompson North Central Valley WMA. Details on air quality and climate change in the Proposed Action area are described in the 2019 YBSHRFP EIS/EIR (Section 18.1) and are incorporated by reference.

Air Quality and Climate Change: Environmental Consequences

No Action Alternative

Under the No Action Alternative, USFWS would not issue a short-term special use permit to DWR to allow for operation of the Big Notch Project. Big Notch Project operations would not occur, preventing increased frequency and duration of flows onto the Steve Thompson North Central Valley WMA and any associated need for identified mitigation actions resulting from these flows. Temporary construction-specific impacts on air quality and climate change resources from the identified mitigation actions would

not occur. Section 18.3 of the 2019 YBSHRFP EIS/EIR provides more details on effects on air quality and climate change in the absence of Big Notch Project implementation and is incorporated by reference.

Alternative A

Under the Proposed Action Alternative, USFWS would issue a short-term special use permit to DWR to allow increased flows on properties in the Yolo Bypass where the Service has conservation easements for the operation of the Big Notch Project. Project operations would increase the frequency and duration of flooding onto the Steve Thompson North Central Valley WMA. Big Notch Project operations are analyzed in the 2019 YBSHRFP EIS/EIR, covering the Proposed Action area. Section 18.3 discusses air quality and climate change impacts and are incorporated by reference.

Program-level activities, such as the mitigations actions, under the Proposed Action have the potential to cause impacts on air quality and climate change resources due to construction related activities. However, since program-level activities are broad in scope and not fully defined, these activities will be subject to additional environmental compliance procedures in the future.

Water Resources: Affected Environment

The Proposed Action area includes conservation easements located within the Yolo Bypass, as managed by the Steve Thompson North Central Valley WMA. Details on water resources in the Proposed Action area are described in the 2019 YBSHRFP EIS/EIR (Sections 5.1, 6.1, and 7.1) and are incorporated by reference.

Water Resources: Environmental Consequences

No Action Alternative

Under the No Action Alternative, USFWS would not issue a short-term special use permit to DWR to allow for operation of the Big Notch Project. Big Notch Project operations would not occur, preventing increased frequency and duration of flows onto the Steve Thompson North Central Valley WMA and any associated need for identified mitigation actions resulting from these flows. Water supply, quality, and groundwater resources would remain the same as existing conditions. Temporary construction-specific impacts on water resources from the identified mitigation actions would not occur. Sections 4.3, 5.3, 6.3, and 7.3 of the 2019 YBSHRFP EIS/EIR provide more details on effects on water resources in the absence of Big Notch Project implementation and are incorporated by reference.

Alternative A

Under the Proposed Action Alternative, USFWS would issue a short-term special use permit to DWR to allow increased flows on properties in the Yolo Bypass where the Service has conservation easements for the operation of the Big Notch Project. Project operations would increase the frequency and duration of flooding onto the Steve Thompson North Central Valley WMA, compared to the No Action Alternative. Big Notch Project operations are analyzed in the 2019 YBSHRFP EIS/EIR, covering the Proposed Action area. Sections 5.3, 6.3, and 7.3 describe water resources impacts and are incorporated by reference.

Program-level activities, such as the mitigations actions, under the Proposed Action have the potential to cause impacts on water resources due to construction related activities. However, since program-level activities are broad in scope and not fully defined, these activities will be subject to additional environmental compliance procedures in the future.

4.4 Cultural and Historic Resources

Cultural and Historic Properties: Affected Environment

Cultural resources is a broad term that includes prehistoric, historic, architectural, and traditional cultural properties. Title 54 U.S.C. 300101 et seq., formerly and commonly known as the National Historic Preservation Act (NHPA) is the primary legislation for Federal historic preservation. Section 106 of the NHPA (54 U.S.C. 306108) requires Federal agencies to take into consideration the effects of their undertakings on historic properties and to afford the Advisory Council on Historic Preservation an opportunity to comment. Historic properties are those cultural resources that are listed on or eligible for inclusion in the National Register of Historic Places (National Register). The implementing regulations at 36 CFR Part 800 for Section 106 describe the process that the Federal agency takes to identify historic properties within the area of potential effects and to assess the effects that the proposed undertaking will have on those historic properties, through consultations with the State Historic Preservation Officer, Indian tribes, and other identified consulting and interested parties.

The Proposed Action area includes conservation easements located within the Yolo Bypass, as managed by the Steve Thompson North Central Valley WMA. Details on cultural resources in the Proposed Action area are described in the 2020 CCP/EA (Section 15) and are incorporated by reference.

Cultural and Historic Properties: Environmental Consequences

No Action Alternative

Under the No Action Alternative, USFWS would not issue a short-term special use permit to DWR to allow for operation of the Big Notch Project. Big Notch Project operations would not occur, preventing increased frequency and duration of flows onto the Steve Thompson North Central Valley WMA and any associated need for identified mitigation actions resulting from these flows. Conditions related to cultural and historic properties would remain the same as existing conditions and there would be no impacts to cultural and historic properties. Section 10.3 of the 2019 YBSHRFP EIS/EIR provides more details on effects on cultural and historic properties in the absence of Big Notch Project implementation and is incorporated by reference.

Alternative A

Under the Proposed Action Alternative, USFWS would issue a short-term special use permit to DWR to allow increased flows on properties in the Yolo Bypass where the Service has conservation easements for the operation of the Big Notch Project. Project operations would increase the frequency and duration of flooding onto the Steve Thompson North Central Valley WMA, compared to the No Action Alternative. Big Notch Project operations are analyzed in the 2019 YBSHRFP EIS/EIR. Section 10.3 describes cultural resources impacts and is incorporated by reference. Reclamation and DWR determined that the area of potential effects for the Big Notch Project did not include any of the properties that have Steve Thompson North Central Valley WMA easements. Consistent with Reclamation and DWR's determination for other areas of the project, the Service has determined that issuance of a special use permit and subsequent increases in flood frequency and duration would have no potential to effect historic properties on Steve Thompson North Central Valley WMA easements, should they be present.

Program-level activities, such as the mitigation actions, under the Proposed Action have the potential to cause adverse effects on cultural and historic properties due to construction and ground disturbance

related activities. However, since program-level activities are broad in scope and not fully defined, these activities will be subject to additional environmental and cultural compliance procedures by the lead federal agency in the future.

4.5 Socioeconomics

Local and Regional Economies: Affected Environment

The Proposed Action area includes conservation easements located within the Yolo Bypass, as managed by the Steve Thompson North Central Valley WMA. Details on local and regional economics in the Proposed Action area are described in the 2019 YBSHRFP EIS/EIR (Section 16.1) and the 2020 CCP/EA (Section 16) and are incorporated by reference.

Local and Regional Economies: Environmental Consequences

No Action Alternative

Under the No Action Alternative, USFWS would not issue a short-term special use permit to DWR to allow for operation of the Big Notch Project. Big Notch Project operations would not occur, preventing increased frequency and duration of flows onto the Steve Thompson North Central Valley WMA and any associated need for identified mitigation actions resulting from these flows. Conditions related to local and regional economics would remain the same as existing conditions and there would be no impacts to local and regional economies. Section 16.3 of the 2019 YBSHRFP EIS/EIR provides more details on effects on local and regional economies in the absence of Big Notch Project implementation and is incorporated by reference.

Alternative A

Under the Proposed Action Alternative, USFWS would issue a short-term special use permit to DWR to allow increased flows on properties in the Yolo Bypass where the Service has conservation easements for the operation of the Big Notch Project. Project operations would increase the frequency and duration of flooding onto the Steve Thompson North Central Valley WMA, compared to the No Action Alternative. The increased frequency and duration of flows are anticipated to impact economics associated with local duck clubs located in the Proposed Action area. Wetland units managed to an anticipated 12 inches of water depth would take on an additional six inches of water resulting from Big Notch Project operations. An additional six inches of water would likely preclude dabbling ducks from foraging and reduce the value of these areas to wintering waterfowl (Taft *et al.* 2002; Baschuk *et al.* 2011). Increased inundation would also lead to impacts on waterfowl hunting infrastructure, as well as access to properties via local roads and berms impacting local use and revenue for associated duck clubs. Further information on Big Notch Project operational impacts specific to the conservation easements can be found in Attachment D (Ducks Unlimited Impact Analysis). Big Notch Project operations are also analyzed in the 2019 YBSHRFP EIS/EIR, covering the Proposed Action area. Section 16.3 describe local and regional economic resources impacts and are incorporated by reference.

Identified mitigation actions would minimize impacts to local duck clubs from the increased frequency and duration of flows from Big Notch Project operations. Impacts to access, duration of hunting, and revenue would be minimized, therefore, impacts to local and regional economics are not anticipated.

Environmental Justice: Affected Environment

The Proposed Action area includes conservation easements located within the Yolo Bypass, as managed by the Steve Thompson North Central Valley WMA. Details on environmental justice resources in the

Proposed Action area are described in the 2019 YBSHRFP EIS/EIR (Section 22.1) and are incorporated by reference.

Environmental Justice: Environmental Consequences

No Action Alternative

Executive Order 12898 directs federal agencies to address disproportionately high and adverse human health and environmental effects on minority and low-income populations. Under the No Action Alternative, USFWS would not issue a short-term special use permit to DWR to allow for operation of the Big Notch Project. Big Notch Project operations would not occur, preventing increased frequency and duration of flows onto the Steve Thompson North Central Valley WMA and any associated need for identified mitigation actions resulting from these flows. Conditions related to environmental justice would remain the same as existing conditions and there would be no environmental justice-related effects. Section 22.3 of the 2019 YBSHRFP EIS/EIR provides more details on effects on environmental justice in the absence of Big Notch Project implementation and is incorporated by reference.

Alternative A

Executive Order 12898 directs federal agencies to address disproportionately high and adverse human health and environmental effects on minority and low-income populations. The Proposed Action does not involve activities that will cause dislocation, changes in employment, drought, or disease, or disproportionately impact economically disadvantaged or minority populations. Therefore, there will be no Environmental Justice-related effects.

Public Health and Safety: Affected Environment

The Proposed Action area includes conservation easements located within the Yolo Bypass, as managed by the Steve Thompson North Central Valley WMA. Details on environmental justice resources in the Proposed Action area are described in the 2019 YBSHRFP EIS/EIR (Section 19.1) and are incorporated by reference.

Public Health and Safety: Environmental Consequences

No Action Alternative

Under the No Action Alternative, USFWS would not issue a short-term special use permit to DWR to allow for operation of the Big Notch Project. Big Notch Project operations would not occur, preventing increased frequency and duration of flows onto the Steve Thompson North Central Valley WMA and any associated need for identified mitigation actions resulting from these flows. Public health and safety resources would remain the same as existing conditions. Temporary construction-specific impacts on public health and safety resources from the identified mitigation actions would not occur. Section 19.3 of the 2019 YBSHRFP EIS/EIR provides more details on effects on public health and safety in the absence of Big Notch Project implementation and is incorporated by reference.

Alternative A

Under the Proposed Action Alternative, USFWS would issue a short-term special use permit to DWR to allow increased flows on properties in the Yolo Bypass where the Service has conservation easements for the operation of the Big Notch Project. Project operations would increase the frequency and duration of flooding onto the Steve Thompson North Central Valley WMA, compared to the No Action Alternative. Big Notch Project operations are analyzed in the 2019 YBSHRFP EIS/EIR, covering the

Proposed Action area. Section 19.3 describe public health and safety resource impacts and are incorporated by reference.

Program-level activities, such as the mitigations actions, under the Proposed Action have the potential to cause impacts on public health and safety resources due to construction related activities. However, since program-level activities are broad in scope and not fully defined, these activities will be subject to additional environmental compliance procedures in the future.

Land use: Affected Environment

The Proposed Action area includes conservation easements located within the Yolo Bypass, as managed by the Steve Thompson North Central Valley WMA. Details on land use resources in the Proposed Action area are described in the 2019 YBSHRFP EIS/EIR (Section 11.1) and the 2020 CCP/EA (Section 16) are incorporated by reference.

Land use: Environmental Consequences

No Action Alternative

Under the No Action Alternative, USFWS would not issue a short-term special use permit to DWR to allow for operation of the Big Notch Project. Big Notch Project operations would not occur, preventing increased frequency and duration of flows onto the Steve Thompson North Central Valley WMA and any associated need for identified mitigation actions resulting from these flows. Land use resources would remain the same as existing conditions. Temporary construction-specific impacts on land use resources from the identified mitigation actions would not occur. Section 11.3 of the 2019 YBSHRFP EIS/EIR provides more details on effects on land use in the absence of Big Notch Project implementation and is incorporated by reference.

Alternative A

Under the Proposed Action Alternative, USFWS would issue a short-term special use permit to DWR to allow increased flows on properties in the Yolo Bypass where the Service has conservation easements for the operation of the Big Notch Project. Project operations would increase the frequency and duration of flooding onto the Steve Thompson North Central Valley WMA, compared to the No Action Alternative. Big Notch Project operations are analyzed in the 2019 YBSHRFP EIS/EIR, covering the Proposed Action area. Sections 11. and 8.1 discuss land use resources and are incorporated by reference.

Due to the increased duration and frequency of flows, the Proposed Action alternative has the potential to impact wetland management actions conducted by private land managers within the Proposed Action area. Wetland management actions focused on the timing and depth of water, combined with mechanical disturbance create conditions which produce the annual plant seeds and invertebrates that waterfowl favor (Fredrickson and Taylor 1982; Euliss and Harris 1987; Baldassarre and Bolen 2006). These management actions are expensive and time-intensive, there are also additional costs associated with maintaining the water management infrastructure required for seasonal wetlands. Private land managers are typically willing to pay these annual costs due to the benefits they provide waterfowl and related hunt opportunities, yet these actions also benefit other wetland dependent wildlife species, including special status species such as the northwestern pond turtle (*Actinemys marmorata*), tricolored blackbird (*Agelaius tricolor*), greater sandhill crane (*Antigone canadensis*), and giant garter snake (*Thamnophis gigas*) (Gilmer *et al.* 1982; USFWS 2020).

If waterfowl use declines, hunt opportunities decline, and infrastructure costs increase due to the Proposed Action in the Yolo Bypass, hunt club owners may determine that the costs of club operation and maintenance outweigh the benefits and shut down operations. This is particularly true if the flooding impacts occur multiple years in a row. If a hunt club discontinues operations, the critical wetlands values protected by the Service's easement interest would be lost. Without incentive for private landowners to manage and flood seasonal wetlands on USFWS Conservation Easement lands, migratory bird habitat quality and availability in the Yolo Basin would suffer. This loss of habitat and land use change could affect the waterfowl food supply and carrying capacity within the Yolo Basin, as calculated within the Central Valley Joint Venture Implementation Plan (2006). Such a loss would materially detract from the purposes the WMA was established for. Program-level activities, such as mitigation actions, would minimize impacts to private landowners and, in turn, support existing management actions which can benefit wetland dependent wildlife species, preventing land use change impacts.

Program-level activities, such as the mitigations actions, under the Proposed Action have the potential to cause impacts on land use resources due to construction and ground disturbance related activities. However, since program-level activities are broad in scope and not fully defined, these activities will be subject to additional environmental compliance procedures in the future.

4.6 Refuge Resources

Recreation: Affected Environment

The Proposed Action area includes conservation easements located within the Yolo Bypass, as managed by the Steve Thompson North Central Valley WMA. Details on recreation resources in the Proposed Action area are described in the 2020 CCP/EA (Sections 8, 9, and 10) and are incorporated by reference.

Recreation: Environmental Consequences

No Action Alternative

Under the No Action Alternative, USFWS would not issue a short-term special use permit to DWR to allow for operation of the Big Notch Project. Big Notch Project operations would not occur, preventing increased frequency and duration of flows onto the Steve Thompson North Central Valley WMA and any associated need for identified mitigation actions resulting from these flows. Conditions related to refuge resources would remain the same as existing conditions and there would be no impacts. Section 9.3 of the 2019 YBSHRFP EIS/EIR provides more details on effects on recreation in the absence of Big Notch Project implementation and is incorporated by reference.

Alternative A

Under the Proposed Action Alternative, USFWS would issue a short-term special use permit to DWR to allow increased flows on properties in the Yolo Bypass where the Service has conservation easements for the operation of the Big Notch Project. Project operations would increase the frequency and duration of flooding onto the Steve Thompson North Central Valley WMA, compared to the No Action Alternative. The increased frequency and duration of flows are anticipated to impact recreation and access in the Proposed Action area, especially those of interest in waterfowl hunting. Wetland units managed to an anticipated 12 inches of water depth would take on an additional six inches of water resulting from Big Notch Project operations during specific water years. An additional six inches of water would likely preclude dabbling ducks from foraging and reduce the value of these areas to wintering

waterfowl (Taft *et al.* 2002; Baschuk *et al.* 2011). Increased inundation would also lead to impacts on waterfowl hunting infrastructure, as well as access to properties via local roads and berms impacting local use and revenue for associated duck clubs. Further information on Big Notch Project operational impacts specific to the conservation easements can be found in Attachment D.

4.7 Cumulative Impacts

Per CEQ regulations for implementing the procedural provisions of 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 impacts can result from individually minor but collectively significant actions taking place over a period of time (40 CFR 1508.(i)(3)). The following projects and plans have been identified as having the potential to affect the same resources as the proposed project. They include flood management projects affecting the Sacramento River and the Yolo Bypass that could result in adverse or beneficial effects similar to those of the proposed project. Reasonably foreseeable projects include:

Lower Elkhorn Basin Levee Setback Project (LEBLS) Environmental Impact Statement

LEBLS is located within the Lower Elkhorn Basin immediately north of the Sacramento Bypass and east of the Yolo Bypass and includes levee setbacks to widen portions of the Yolo and Sacramento Bypasses to increase conveyance capacity and reduce flood risk. A Record of Decision (ROD) was signed by USACE on May 7, 2020. USACE and DWR completed the appropriate permits for LEBLS including consultations under ESA and Section 106. Construction on LEBLS began in the summer of 2020.

LEBLS will contribute to improved public safety by reducing river levels (stages) in the Sacramento River and increasing the capacity of the Yolo and Sacramento bypasses near the urban communities of Sacramento and West Sacramento, as well as Woodland, Clarksburg, and rural communities. LEBLS will also provide system resiliency and opportunities to improve ecosystem functions, such as increasing inundated floodplain habitat for fish rearing. The project consists of approximately seven miles of setback levees in the Lower Elkhorn Basin along the east side of the Yolo Bypass, and the north side of the Sacramento Bypass. The project would remove all or portions of the existing levees that would be set back, remove portions of local reclamation district cross levees, and improve or relocate related infrastructure.

American River Common Features General Reevaluation Report; Sacramento Bypass Widening Project

The American River Common Features Project (ARCFP) was authorized by the Watershed Resources Development Act of 1996 to increase flood protection for the city of Sacramento. USACE prepared a final EIS/EIR for the General Reevaluation Report's (GRR's) project alternatives in December 2015. The GRR covered a substantially larger geographic area than just the Sacramento Bypass. Regardless, only a subset of the GRR's potentially significant impacts bear on the Proposed Project. The Sacramento Bypass Widening Project and the Proposed Project are compatible, as the goal of the Sacramento Bypass Widening Project is to increase flood protection, and the Proposed Action would remove a water impoundment structure that will increase water conveyance through the Tule Canal. Additionally, the Sacramento Bypass Widening Project has a fish passage component to increase fish passage back into the Sacramento River.

Lower Cache Creek Flood Risk Reduction Project and the Woodland Flood Risk Reduction Project

The Lower Cache Creek Flood Risk Reduction Project will include a combination of one or more flood control measures, including a setback levee along Cache Creek, stream channel improvements, a north Woodland floodway, and a northern bypass into the Colusa Drain (USACE 2015). USACE completed a feasibility report associated with this proposed flood-risk reduction project in 2021. In addition, the City of Woodland is partnering with DWR through its Urban Flood Risk Reduction program to identify and implement a State/city flood-risk reduction project that complies with the State Bill 5 requirement that urban communities have 200-year flood protection. The Woodland Flood Risk Reduction Project released a Notice of Completion for CEQA in 2020.

Sites Reservoir Project

The Sites Reservoir Project involves the construction of off stream surface storage north of the Delta for enhanced water management flexibility in the Sacramento Valley, increased California water supply reliability, and storage and operational benefits for programs to enhance water supply reliability, both locally and State-wide, benefit Delta water quality, and improve ecosystems. Secondary objectives for the project are to: 1) allow for flexible hydropower generation to support integration of renewable energy sources, 2) develop additional recreation opportunities, and 3) provide incremental flood damage reduction opportunities (Sites Project Authority and Reclamation 2017). A Draft Environmental Impact Report/Environmental Impact Statement (EIR/EIS) was released for public review on August 14, 2017. A revised Draft Environmental Impact Report/Supplemental Draft Environmental Impact Statement was released for public review in November 2021 (REIR/SEIS). A Final Environmental Impact Report/Final Environmental Impact Statement was released in November 2023.

There is a potential for adverse impacts associated with implementation of the Proposed Action, such as loss of hunt quality days and impacts to local duck clubs. Anticipated mitigation measures, referenced above, are anticipated to minimize these impacts. Therefore, implementation of the Proposed Action is not expected to result in significant cumulative impacts, in combination with other projects, within or outside the Proposed Action area. Minor effects, which may be beneficial or adverse, could occur as a result of the mitigation measures, such as improved access, temporary construction impacts, and improved drainage. Mitigation measures are broad in scope and not fully defined and will require further environmental compliance and consideration of cumulative impacts.

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