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Water Infrastructure Improvements for the Nation (WIIN) Act: Bureau of Reclamation and California Water Provisions

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Summary

Most of the provisions in the Water Infrastructure Improvements for the Nation Act (WIIN Act; P.L. 114-322), enacted on December 16, 2016, relate to the U.S. Army Corps of Engineers. However, the WIIN Act also includes a subtitle (Title II, Subtitle J, §§4001-4013) with the potential to affect western water infrastructure owned by the Bureau of Reclamation (Reclamation; part of the Department of the Interior). Three sections in Subtitle J (§4007, §4009, and §4011) made alterations that would apply throughout Reclamation's service area, the 17 states to the west of the Mississippi River. Most of the remaining sections of this subtitle include provisions specific to the Central Valley Project (CVP), a multipurpose water-conveyance system in California operated by Reclamation. Most of Subtitle J's provisions were derived from bills that received consideration in the 112th, 113th, and 114th Congresses.

Although most parts of the WIIN Act had broad stakeholder support when enacted, some of Subtitle J's provisions were (and continue to be) debated. Particularly controversial provisions include those related to implementation of the federal Endangered Species Act (ESA; 16 U.S.C. §§1531-1544) as it relates to endangered salmon and threatened Delta smelt and to California water infrastructure, as well as authorities that alter Reclamation's approach to water resources project development. The controversy of these provisions was evidenced by President Obama's signing statement accompanying the bill, which focused on the Obama Administration's interpretation of Subtitle J, particularly the act's environmental provisions.

The WIIN Act was debated and enacted at a time when California was enduring severe drought. However, by most metrics, the drought in California ended with the wet winter of 2016-2017, which occurred after enactment of the WIIN Act. Regardless of hydrologic status, most of the WIIN Act's drought provisions are to remain in effect until five years after its enactment, or December 2021.

Due to the scarcity of water in the West and the importance of federal water infrastructure to the region, western water issues are regularly of interest to lawmakers. In addition to overseeing the implementation of CVP operational provisions in the WIIN Act, Congress also may consider their amendment, extension, or repeal. According to Reclamation, the relatively wet hydrology that followed enactment of the WIIN Act has largely limited opportunities to implement some of the act's operational authorities, and some federal operational changes pursuant to the WIIN Act reportedly were proposed but deemed incompatible with state requirements. However, some of the operational changes authorized under the act have been implemented. Congress also has appropriated funding authorized for Reclamation (both for the CVP and for other projects) under the bill. CRS estimates that from FY2017 to FY2019, Congress appropriated a total of approximately $575 million for Reclamation projects and programs authorized under the WIIN Act. Some of the bill's authorities have met their appropriations ceilings; thus, they may be proposed for extension or amendment.

This report discusses selected provisions enacted under Subtitle J of the WIIN Act. It provides background and context related to selected drought- and water-related provisions, summarizes the changes authorized in the WIIN Act, and discusses issues and questions that Congress may consider. For additional background on the CVP, see CRS Report R45342, *Central Valley Project: Issues and Legislation*, by Charles V. Stern and Pervaze A. Sheikh.

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Introduction

Most of the provisions in the Water Infrastructure Improvements for the Nation Act (WIIN Act; P.L. 114-322), enacted on December 16, 2016, relate to the U.S. Army Corps of Engineers. However, the WIIN Act also includes a subtitle (Subtitle J, §§4001-4013) with the potential to affect western water infrastructure owned by the Bureau of Reclamation (Reclamation; an agency in the Department of the Interior). Three sections in Subtitle J (§4007, §4009, and §4011) made alterations that would apply throughout Reclamation's service area, the 17 states west of the Mississippi River. The remaining sections of Subtitle J include provisions specific to the Central Valley Project (CVP), a multipurpose water-conveyance system in California operated by Reclamation. Most of Subtitle J's provisions were derived from bills that received consideration in the 112th, 113th, and 114th Congresses.

Due to the scarcity of water in the West and the importance of federal water infrastructure to the region, western water issues are regularly of interest to many lawmakers. Some parts of Subtitle J were controversial, thus increasing the likelihood that it would receive attention in the 115th Congress. In addition to oversight, there may be ongoing debate as to the meaning and significance of individual provisions in the act. Observers are expected to closely monitor implementation of its new authorities, as well as any potential litigation. Of particular interest will be the WIIN Act's application to the operations of the CVP and federal support for the construction of new surface water supply projects. Some may also propose adding to or repealing parts of Subtitle J. Legislation considered in the 115th Congress (e.g., H.R. 23) has proposed to build on and, in some cases, replace key parts of the WIIN Act.

This report discusses selected provisions that were enacted under Subtitle J of the WIIN Act. It provides background information and context related to selected drought- and water-related provisions, summarizes the changes authorized in the WIIN Act, and discusses issues and questions that may be of interest to Congress. For more background on California water issues, see CRS Report R40979, *California Drought: Hydrological and Regulatory Water Supply Issues*, by Betsy A. Cody, Peter Folger, and Cynthia Brown, and CRS Report R44456, *Central Valley Project Operations: Background and Legislation*, by Charles V. Stern and Pervaze A. Sheikh.

Background

Bureau of Reclamation

The Bureau of Reclamation (Reclamation), an agency within the Department of the Interior (DOI), is responsible for the construction and maintenance of many of the large dams and water diversion structures in 17 states west of the Mississippi River.[1] Reclamation was founded in 1902, in part, to aid in the settlement of the arid American West. Today, Reclamation manages hundreds of dams and diversion projects, including more than 300 storage reservoirs in those 17 western states. These projects provide water to approximately 10 million acres of farmland and 31 million people.[2] Reclamation is the largest wholesale supplier of water in the West and the second-largest

[1] The 17 western states designated in the Reclamation Act of 1902, as amended, are Arizona, California, Colorado, Idaho, Kansas, Montana, Nebraska, Nevada, New Mexico, North Dakota, Oklahoma, Oregon, South Dakota, Texas, Utah, Washington, and Wyoming. 43 U.S.C. §391.

[2] Bureau of Reclamation Fact Sheet, at https://www.usbr.gov/main/about/fact.html. Hereinafter "Reclamation Fact Sheet."

hydroelectric power producer in the nation. Reclamation facilities also provide substantial flood control, recreation, and fish and wildlife benefits.[3] Operations of Reclamation facilities often are controversial, particularly for their effects on fish and wildlife species and because of conflicts among competing water users.

The Central Valley Project and the State Water Project

The multipurpose federal Central Valley Project (CVP) in California is one of Reclamation's largest water-conveyance systems (see **Figure 1**). The CVP extends from the Cascade Range in Northern California to Bakersfield in Southern California. In an average year, it delivers approximately 5 million acre-feet of water to farms (including some of the nation's most valuable farmland); 600,000 acre-feet to municipal and industrial (M&I) users; 410,000 acre-feet to wildlife refuges; and 800,000 acre-feet for other fish and wildlife needs, among other purposes.[4] The project is made up of 20 dams and reservoirs, 11 power plants, and 500 miles of canals, as well as conduits, tunnels, and other storage and distribution facilities.[5]

The State Water Project (SWP) is a separate major project operated by the state of California. The project delivers about 70% of its water to urban users, including water for approximately 25 million users in areas ranging from the South Bay (San Francisco Bay), to the Central Valley, to Southern California; the remaining 30% is used for irrigation.[6] It is composed of 34 storage facilities, reservoirs, and lakes; 20 pumping plants; 4 pumping-generating plants; 5 hydroelectric power plants; and about 701 miles of open canals and pipelines.[7]

The SWP has been of interest to Congress because of its connection with federal CVP operations. Central to addressing water shortages in California from the federal and state perspective is the coordinated operation of the CVP and SWP, which affect much of the state. During a drought, water deliveries can be curtailed for CVP and SWP users. A key point of debate has been the extent to which delivery cutbacks are due to drought compared to other factors, some of which can be a function of state law or regulatory restrictions (e.g., environmental restrictions related to state water quality criteria and endangered species). Whereas the federal CVP serves mostly agricultural water contractors, the SWP serves largely urban or M&I contractors; however, both projects serve some contractors of both varieties.[8] Complicating water deliveries of the CVP and SWP is a complex system of state water rights, in which some water deliveries are prioritized based on prior agreements with water rights holders that predate the CVP (e.g., Sacramento River Settlement Contractors and San Joaquin River Exchange Contractors).

[3] Reclamation Fact Sheet.

[4] Bureau of Reclamation, "About the Central Valley Project," at http://www.usbr.gov/mp/cvp/about-cvp.html. Hereinafter "About the Central Valley Project."

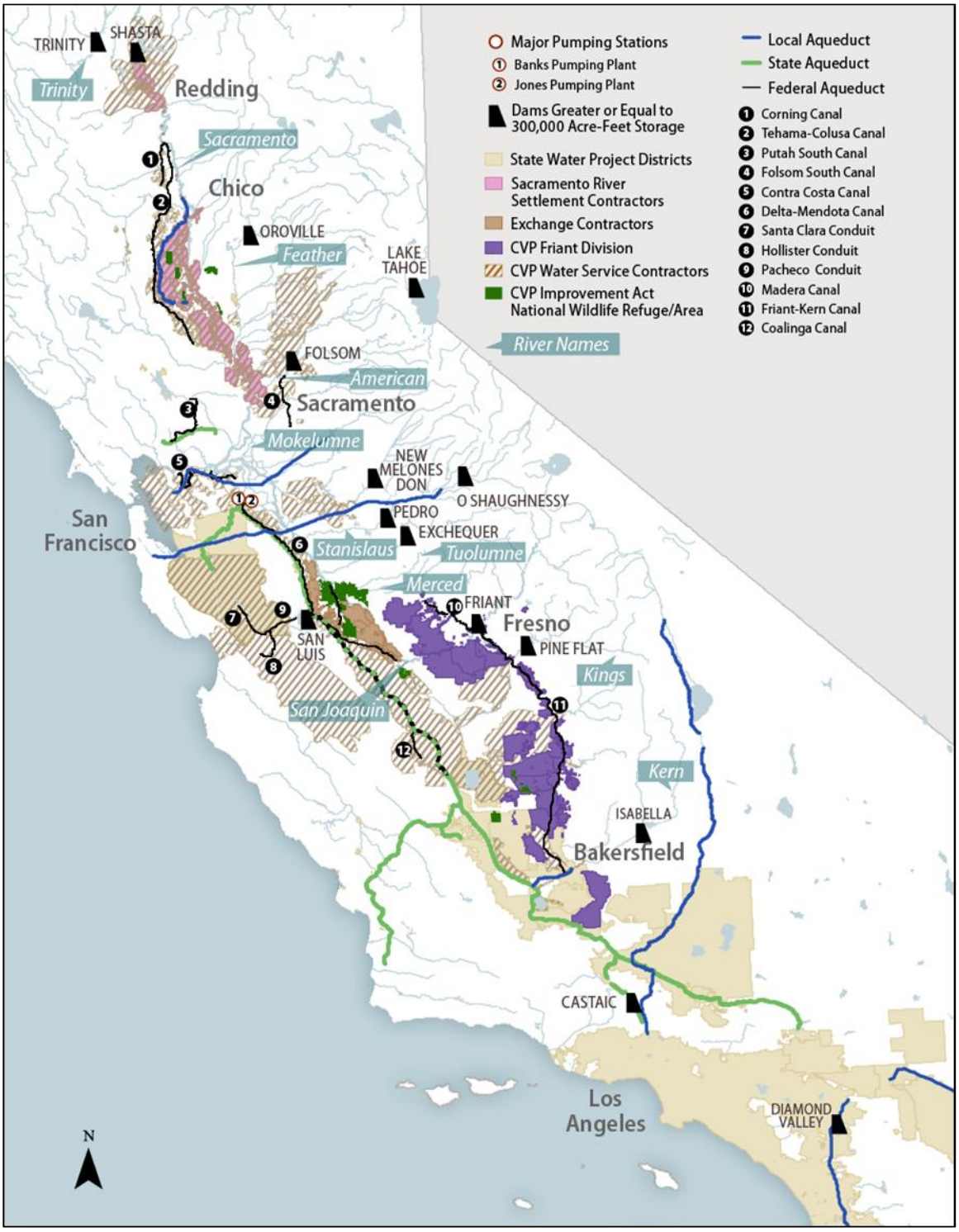
[5] About the Central Valley Project.

[6] California Department of Water Resources, "California State Water Project Overview," at http://www.water.ca.gov/swp/index.cfm. Hereinafter "State Water Project Overview."

[7] State Water Project Overview.

[8] "Contractors" refer to water users who have contracted out for a maximum level of deliveries from a water project, typically for agricultural or municipal uses. For more information about these contractors, see CRS Report R45342, *Central Valley Project: Issues and Legislation*, by Charles V. Stern and Pervaze A. Sheikh.

Figure 1. California Water: Central Valley Project (CVP) and State Water Project (SWP)

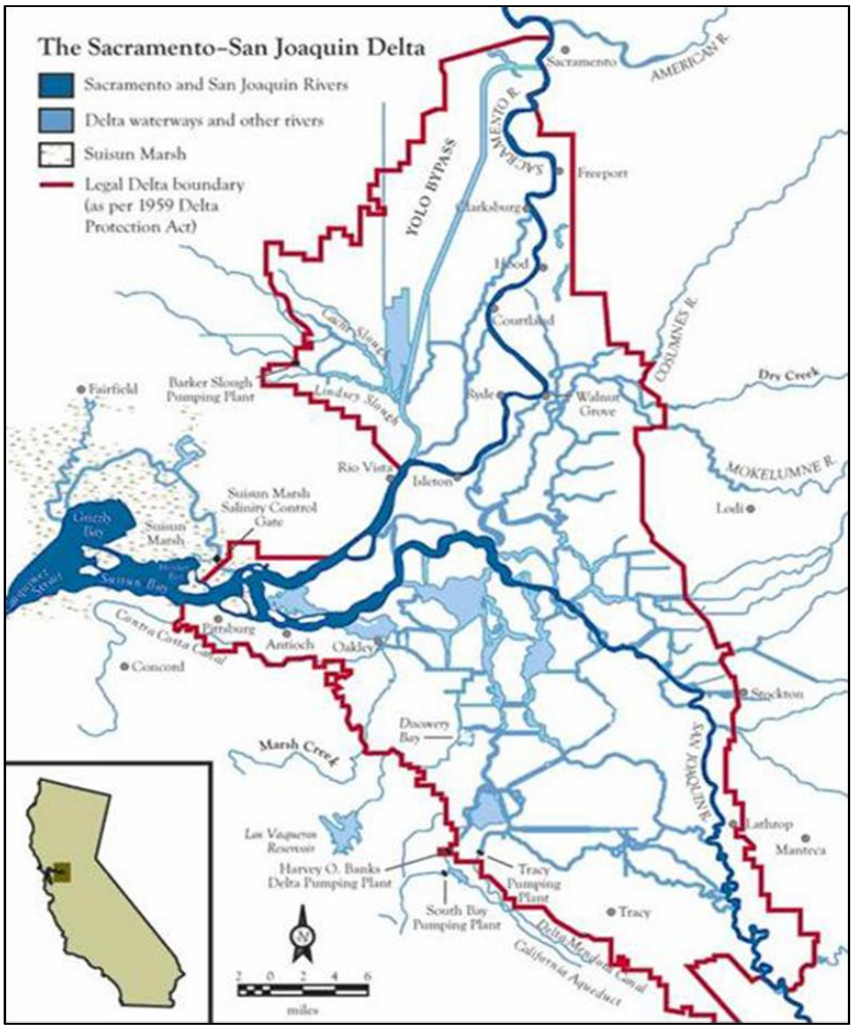


Source: Map created by the Congressional Research Service (CRS), with data from the Bureau of Reclamation.

Two federal and state pumping facilities in the southern portion of the Sacramento and San Joaquin Rivers' Delta (Bay Delta, or Delta) near Tracy, CA, are a hub for water deliveries to users of both systems, and are key to water availability south of the Delta (see **Figure 2**). An estimated 25 million people get some, if not all, of their drinking and agricultural water supplies from the Bay Delta—often referred to as the hub of California's water supply system.[9]

Figure 2. Sacramento-San Joaquin Delta

(with CVP and SWP pumping plants)



Source: Delta REvision, *Delta Maps*, at http://www.deltarevision.com/maps/Delta_land_use_ownership/legal_delta.jpg.

Notes: State and federal facilities that pump and export water out of the Delta for users south of the Delta are located on the southwestern edge of the legally defined Delta area. CVP = Central Valley Project; SWP = State Water Project.

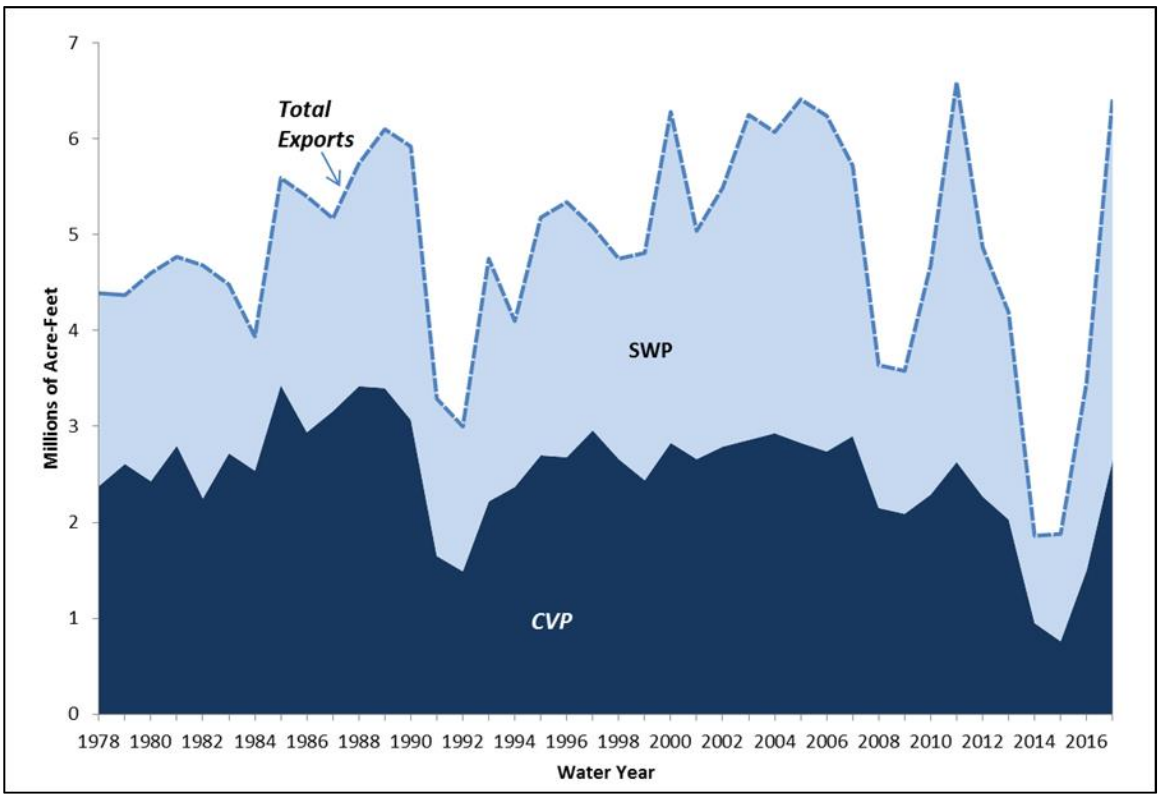
[9] State of California, Department of Natural Resources and Department of Water Resources, *Sacramento-San Joaquin Delta Overview*, Sacramento, CA (no date), p. 2, at http://baydeltaoffice.water.ca.gov/sdb/tbp/deltaoverview/delta_overview.pdf.

WIIN Act Drivers: California Drought, Endangered Species Act Restrictions

A number of factors created the impetus for the consideration and enactment of Subtitle J of the WIIN Act. A primary factor was the multiyear drought in California, which began in 2012 and was ongoing at the time of consideration of the WIIN Act in 2016. The drought significantly reduced water allocations, including "imports" (i.e., pumping) to agricultural areas and municipalities south of the Delta that receive water from the CVP and the SWP.[10] Historic CVP and SWP pumping levels relative to more recent levels are depicted in **Figure 3**. For the most part, these levels have followed one another, with major peaks and troughs coinciding with high water years and droughts, respectively.

Figure 3. CVP and SWP Delta Water Exports, 1976-2016

(exports by water year)



Source: Figure by CRS based on email correspondence with the Bureau of Reclamation, March 29, 2018.

Notes: CVP = Central Valley Project; SWP = State Water Project. The spike in 2001 correlates to the filling of Diamond Valley reservoir and the SWP's ability to export high excess winter flows, albeit in an overall dry year. The troughs in 1977, 1991-1992, 2008-2009, and 2012-2016 reflect exports during California droughts. "Water year" refers to the 12-month period of hydrologic discharge from October 1 to September 30 of the following year. Water years are identified by the calendar year in which they end, and correspond to the federal fiscal year.

The drought also increased interest in federal efforts to maximize available water supplies through other efforts, including encouraging and subsidizing water conservation, repairing existing infrastructure and constructing new surface water storage, and investing in alternative

[10] For more information on Central Valley Project allocations, see CRS Report R44456, *Central Valley Project Operations: Background and Legislation*, by Charles V. Stern and Pervaze A. Sheikh.

water supplies (desalination, water reuse/recycling, and aquifer storage/recharge, among other things). Some perceive a lack of federal investment in new water supplies as exacerbating the impacts of drought (both in California and in other areas) and thus have focused on legislative efforts to facilitate such investment.

Debates related to restrictions on water availability stemming from species and water quality laws preceded the aforementioned drought, but were given added emphasis during congressional debates from 2012 to 2016 as a result of the aforementioned major water shortages.[11] Most significant in the context of federal legislation were federal regulations under ESA, including biological opinions (BiOps) for the Delta smelt and Chinook salmon.[12] These regulations are important in the context of California drought because both the CVP and the SWP are subject to BiOps on the operations of these projects. Under certain scenarios, they can be a factor contributing to limitations on pumping and water deliveries that are important to water users and related industries (see below box, "Biological Opinions Under the Endangered Species Act").

Biological Opinions Under the Endangered Species Act

Federal agencies are required to consult with the Fish and Wildlife Service (FWS) or the National Marine Fisheries Service (NMFS) to determine whether an agency project might jeopardize the continued existence of species listed as endangered or threatened pursuant to the federal Endangered Species Act (ESA; 16 U.S.C. §§1531-1544) or might destroy or adversely modify a species's critical habitat. This process is known as *consultation*. Consultation concludes with the appropriate service issuing a biological opinion (BiOp) on the potential harm the project poses. If a project could jeopardize a species, a jeopardy opinion is released. It may include an incidental take statement (an allowance of how many individuals of a listed species can be taken) and reasonable and prudent alternatives (RPAs) to the agency's proposed activities that would avoid jeopardy.

FWS and NMFS each have issued federal BiOps on the effects of changes to the coordinated operation of the SWP and CVP. They have found that proposed changes, including increased pumping from the Delta, would jeopardize the continued existence of several species protected under ESA and thus would risk the extinction of these species. To avoid such jeopardy, the FWS and NMFS BiOps included RPAs for project operations. Actions needed to avoid jeopardy to Delta smelt under the FWS BiOp issued in December 2008 resulted in restrictions on the amount of water exported via SWP and CVP Delta pumps (Delta exports). The June 2009 NMFS BiOp on salmon and other anadromous species (those that migrate upriver to spawn) and ocean species included further limitations on pumping and release of stored water. These restrictions, combined with reductions necessitated by drought conditions, have resulted in some water users receiving less water than normally supplied by the CVP in some years (or in some cases, no water). For more information on Biological Opinions and the Central Valley Projects, see CRS Report R40979, *California Drought: Hydrological and Regulatory Water Supply Issues*, by Betsy A. Cody, Peter Folger, and Cynthia Brown.

Sources: U.S. Department of the Interior, Fish and Wildlife Service, California and Nevada Region, "Formal Endangered Species Act Consultation on the Proposed Coordinated Operations of the Central Valley Project (CVP) and State Water Project (SWP)," Memorandum to Operation Manager, Bureau of Reclamation, from Regional Director, FWS Region 8, Sacramento, CA, December 15, 2008, at http://www.fws.gov/sacramento/es/documents/SWP-CVP_OPs_BO_12-15_final_OCR.pdf; U.S. Department of Commerce, National Marine Fisheries Service, Southwest Region, *Biological Opinion and Conference Opinion on the Long-Term Operations of the Central Valley Project and State Water Project*, Endangered Species Act Section & Consultation, Sacramento, CA, June 4, 2009, at http://swr.nmfs.noaa.gov/ocap/NMFS_Biological_and_Conference_Opinion_on_the_Long-Term_Operations_of_the_CVP_and_SWP.pdf.

[11] State water quality standards pursuant to state and federal water quality laws, as well as other factors, also play an important role in CVP water management, particularly in dry years. However, these laws were generally not addressed in the WIIN Act and are thus beyond the scope of this report. For additional information about these controversies, see CRS Report R40979, *California Drought: Hydrological and Regulatory Water Supply Issues*, by Betsy A. Cody, Peter Folger, and Cynthia Brown.

[12] For more information on the Endangered Species Act, see CRS Report RL31654, *The Endangered Species Act: A Primer*, by Pervaze A. Sheikh.

Legislative History

Several bills proposing to deal with the ongoing drought in California and drought in general were introduced and acted upon prior to enactment of the WIIN Act in December 2016. From 2012 to 2016, the House passed a number of such bills, but the Senate did not advance any of them. Although these bills differed in content, they shared some common goals, including the overarching aim of allowing for more flexibility in implementing federal environmental restrictions on pumping from the San Francisco Bay and Sacramento-San Joaquin Rivers' Delta (Bay Delta) from Northern to Central and Southern California. Additional information related to these bills is shown in **Table 1**, below.

Table 1. Selected Drought-Related Legislation, 2012-2016

Bill	Final Status (Date)	Congress/Session
H.R. 1837	Passed House (02/29/2012)	112th Congress, 2nd Session
H.R. 3964	Passed House (02/05/2014)	113th Congress, 2nd Session
H.R. 5781	Passed House (12/09/2014)	113th Congress, 2nd Session
H.R. 2898	Passed House (07/16/2015)	114th Congress, 1st Session
S. 1894	Senate hearings held (10/28/2015)	114th Congress, 1st Session
S. 2533	Senate hearings held (05/17/2016)	114th Congress, 2nd Session
S. 2012, Division C, Title I[a]	Conference held (09/08/2016)	114th Congress, 2nd Session
S. 612, Subtitle J	Enacted as P.L. 114-322 (12/16/2016)	114th Congress, 2nd Session

Source: CRS.

Notes: Table is not an exhaustive summary of proposed drought-related legislation. Bills were selected for inclusion based on congressional activity.

a. The House engrossed version of S. 2012 (114th Congress), omnibus energy-authorizing legislation, included the text of H.R. 2898 in Division C, Title I.

The WIIN Act was a combination of Army Corps of Engineers water resource development authorizing provisions that had passed both chambers during the 114th Congress (e.g., a Water Resources Development Act, or WRDA), as well as drinking water, water resources, and ecosystem-related provisions.[13] It included under Subtitle J a number of provisions related to the Bureau of Reclamation in general and the operations of the California Central Valley Project in particular. These provisions were drawn largely from previous bills. However, in some cases, new provisions were included that combined elements from multiple previous bills.

The following sections provide additional analysis of the WIIN Act. They are grouped in three sections: provisions specific to California water issues and the Central Valley Project;

[13] For more information on other parts of the act, see CRS In Focus IF10536, *Water Infrastructure Improvements for the Nation Act (WIIN)*, by Nicole T. Carter et al.

Reclamation provisions that apply on a West-wide basis; and savings clauses and related provisions that apply to different parts of the subtitle. Each section includes a discussion of relevant background, a summary of enacted changes, and a discussion of potential future issues for Congress.[14]

California Water Provisions

A number of provisions in the bill addressed drought in California and the operations of the Central Valley Project. Those provisions that received the most attention during consideration of the WIIN Act are discussed below.

Section 4001: Operations and Review

In recent years, water managers have attempted to increase flexibility in the operations of the CVP and SWP to address changes in water supply. They have considered several changes to existing state and federal laws and regulations, in particular to the operational components of the overall water-conveyance system. Several of these components and actions are explained below.

- **Delta Cross Channel Gates Operations.** The gates are a controlled diversion channel downstream of Sacramento that diverts water from the Sacramento River into the Mokelumne River. The gates are significant because of their role in maintaining water quality in the Delta, their effect on species listed under ESA, and their redirection of flows to the Delta-Mendota and Contra Costa canals and pumping facilities. When the gates are open, they allow a greater amount of water to flow to SWP and CVP pumps and lower the salinity in the western Delta. When the gates are closed, salmon migration is improved but salinity can increase.
- **Inflow-to-Export Ratio for Water Transfers.** The inflow-to-export (I:E) ratio is the ratio of San Joaquin River water flowing or projected to flow into the Delta during certain times of year (inflow) to the amount of water exported (export) south at CVP and SWP pumping stations in the south Delta area. The I:E ratio is used to manage the amount of water exported from the Delta through the pumps. Specific I:E ratios for different times of year are included in current BiOps for the coordinated operation of the CVP and SWP. A 1:1 ratio means that the entire river's inflow (measured at a certain point) can be exported out of the Delta. When a 2:1 ratio is in effect, only half the inflow may be exported.
- **Actions to Facilitate Water Transfers.** Several stakeholders have advocated the use of water transfers, or water marketing (i.e., the sale of water between users), as a mechanism to stretch water supplies during water shortages and to move water to high-value uses. CVP agricultural water users routinely transfer water within the CVP project area, sometimes transferring large quantities of water to urban agencies hundreds of miles away. Some contend that impediments exist for completing transfers in a timely manner. They note that water transfers are subject to lengthy environmental reviews and are limited to a specific period each year, from July 1 to September 30. Some have supported altering these

[14] For brevity, discussion of these sections is not exhaustive of all sections in Subtitle J, and focuses on those elements of Subtitle J that were subject to significant discussion and/or controversy.

restrictions to allow for more transfers. Others contend that reviews and a limited window for transfers are beneficial to the environment.

- **Alterations to Monitoring and Incidental Take Limits.** Coordinated operation of CVP and SWP pumping operations in the Delta are limited by, among other things, the amount of incidental take (referred to as the *incidental take limit*, or ITL) of Delta smelt and other species listed under ESA. Some have criticized the methodology used to calculate the ITL for Delta smelt under the current BiOps, noting that the data used to calculate the ITL are outdated and cover a narrow time. Some have proposed alterations to monitoring that, among other things, aim to make the process more dynamic and allow it to reflect the most recent conditions.[15] Others argue that the current system is robust and sufficient for decisionmaking purposes.

Summary of Changes

Section 4001 of the WIIN Act authorizes the approval of temporary projects and operations that aim to maximize water supplies as quickly as possible while remaining consistent with applicable laws and regulations. Some of the specific projects and actions authorized in the law include a pilot project to keep the Delta Cross Channel Gates open as long as possible, turbidity control strategies, and a deflection barrier to protect migrating salmonids. Section 4001(b)(1)(B) also authorizes the design and implementation of real-time monitoring capabilities for the operation of the Delta Cross Channel. Projects under this section may in some cases be approved within specific, accelerated deadlines pursuant to Section 4001(d) (discussed below).

The law also authorizes the adoption of a 1:1 inflow-to-export ratio for increased flows resulting from the sale, transfer, or exchange of water supplies. This ratio is allowed unless the Secretaries of the Interior and Commerce determine in writing that the ratio "will cause additional adverse effects on listed salmonid species beyond the range of the effects anticipated to occur to the listed salmonid species for the duration of the salmonid biological opinion using the best scientific and commercial data available." The current BiOp allows a 1:1 ratio in "critically dry" years only. As water conditions improve, the BiOp allows for an increase in the ratio, up to 4:1 in "wet" years.[16]

The law also streamlines the approval process for water transfers to expedite water allocations. Section 4001(b)(10) requires the director of the Fish and Wildlife Service (FWS) and the commissioner of Reclamation to determine if a written transfer proposal is complete within 30 days after submission (no such requirement existed previously). Further, they must also complete all National Environmental Policy Act (NEPA; 42 U.S.C. §§4321 et seq.) and ESA requirements necessary to make decisions on the permit within 45 days of receiving the request. The law also directs FWS and Reclamation to approve such transfers to "maximize the quantity of water supplies available" on the condition that actions associated with the water transfer comply with applicable federal laws (including regulations).

Section 4001(d) specifies conditions under which the Governor of California may request the Secretary of the Interior or Commerce to implement expedited procedures to make a final decision on a project that would provide additional water supplies during emergency drought

[15] For example, see U.S. Congress, House Committee on Natural Resources, Western Water and American Food Security Act of 2015, committee print, 114th Cong., 1st sess., July 13, 2015.

[16] Water year types are based on the Sacramento Valley Index, a calculation of current year unimpaired runoff and the previous year's index used to determine the type of water year for actions under the State Water Resources Control Board Water Rights Decision 1641. A classification of 6.5 or lower is considered a dry year, and 5.4 or lower is considered a critically dry year.

conditions in California (as defined in the law). The expedited procedures would require the head of the agency responsible for the project to convene a final project decision meeting with other federal agencies authorized to make some decision regarding the project (presumably cooperating agencies). Within 10 days of that meeting, the agency responsible for the project would be required to issue a final decision on the project, with the condition that the agency's approval must be for proposed new federal projects or operational changes pursuant to subsection (a) or (b) of this law and to the extent that the projects comply with applicable law.

Several other actions and projects are authorized under Section 4001 of the law that aim to improve real-time monitoring of Delta smelt and salmon and to maximize water supplies for users.

Discussion

Section 4001 of the WIIN Act enacted several directives aimed at increasing water supplies for users while complying with federal laws and regulations and without adversely affecting listed species beyond what is anticipated over the duration of the BiOps.

The central authority in this section directs agencies to maximize water supplies for users through projects and actions. This authority could limit the discretion of water managers when operating the CVP, since they are required to pump at the maximum practicable level. Some contend that maximizing water supplies for users might not allow for a buffer to guard against unforeseen environmental circumstances that could adversely affect listed species.[17] Further, some argue that maximizing water supplies for users in the present could have future consequences for species that might not be detected immediately or might not be addressed before the effects on the population are realized. These concerns could be tempered, in part, by provisions in the law that aim to increase real-time monitoring of species populations, which potentially could detect negative effects on species as soon as changes are implemented. Some others also contend that efforts should be made to maximize water to users and that mandating this directive in law will hold managers to task and provide them with legal cover for their actions.[18] Similar to other areas of Subtitle J, the effectiveness of these provisions likely will hinge on how water managers interpret and implement policies under the law, and whether courts uphold those interpretations.

Another component of Section 4001 is accelerating and streamlining project decisionmaking. The law requires a final decision on proposed projects within a certain deadline. The effect of such directives is difficult to determine, as an agency might choose to deny the project request if it could not meet the 10-day deadline for a decision or to approve the request with potentially limited analysis of the project's costs and benefits. No provisions in the law explicitly waive existing NEPA requirements associated with the issuance of permits or grants of right-of-way for federal land. That is, the subtitle establishes procedures that Reclamation must implement to coordinate the environmental compliance process, but it does not explicitly direct DOI or the U.S. Department of Agriculture to change its own procedures for implementing NEPA or processing permit applications. Reclamation's interpretation of the directives in this section likely will determine how these directives may be integrated with existing DOI and other federal agency procedures and how any new project-coordination procedures will differ from the existing NEPA

[17] For example, in November 2015, it was reported that rapid temperature increases in the Shasta Reservoir could negatively affect the viability of juvenile salmon. This trend illustrates the fine line that water managers need to navigate to provide sufficient levels of water to species while maximizing water for users.

[18] Senator Feinstein, "Feinstein on Passage of California Drought Provisions," press release, December 9, 2016, at https://www.feinstein.senate.gov/public/index.cfm/press-releases?ID=FF5C94EB-667A-4DEC-A0A4-296AB5027BE4.

and permitting processes. The law appears to include some requirements that add steps to the project-approval process (e.g., requirements related to the preapplication process, preparation of a unified environmental document, and data monitoring and record keeping).

An overarching question to consider for this section is whether the authority and direction to maximize water supplies within the context of existing laws and regulations can or will result in more water supplies for users than before. The authority to implement projects and operations to maximize water supplies appears to be broad and could involve a multitude of projects. However, the benefits of these projects and operational changes to water users will be tempered by constraints put on flows due to water quality and species considerations. Ultimately, the answer to this question may depend on available water supplies and how water managers and legal experts interpret the language of the section.

The WIIN Act also establishes a standard for measuring the effects of water operations on listed species. In Section 4001 and in several other places in Subtitle J, the law allows certain actions to go forward unless they are determined to cause "additional adverse effects" on listed species beyond the range of the effects anticipated to occur for the duration of the species BiOp. It is unclear how strictly this standard will be interpreted or measured, what level of analysis will be used to see whether projects exceed the standard, and whether the results will be reported.

Section 4002: Scientifically Supported Implementation of Old and Middle Rivers Flow Requirements

The Old and Middle Rivers (OMR) are channels of the San Joaquin River as it enters the Delta. The location of these channels can result in "reverse" flows when the CVP and SWP pumps are turned on and operating at certain levels under certain conditions, thus causing a negative flow rate. Higher pumping levels result in higher negative flows, which in turn increase the probability of fish being drawn into the pumps (entrained). Thus, observers closely monitor negative flow rates. During the drought, some argued that aggressive management of pumping was warranted to provide the maximum water supplies for users. However, others argued that the existing approach and careful management of environmental protections were more appropriate.

Summary of Changes

Section 4002(a) of the WIIN Act directs the Secretaries of Commerce and the Interior to manage water supplies at the most negative flow rate (i.e., a high rate of pumping) allowed under the applicable BiOps to maximize water to users. This action is to be implemented unless it would cause

> additional adverse effects on the listed fish species beyond the range of effects anticipated to occur to the listed species for the duration of the applicable biological opinion, or would be inconsistent with applicable state law requirements, including water quality, salinity control, and compliance with State Water Resources Control Board Order D-1641 or a successor order.[19]

If a lower flow rate is implemented, the law requires a series of conditions to make the change. Some of these conditions center on obtaining evidence from real-time monitoring and near-term forecasts using salvage models that show that the lower flow rate is necessary to avoid additional adverse effects to species beyond the duration of the BiOp. Further, the law lists several factors

[19] Subtitle J of the Water Resources Infrastructure Improvements for the Nation Act (P.L. 114-322; WIIN Act). (Hereinafter "WIIN Act Subtitle J"). §4002(a).

that are to be considered when making a decision to manage flows below the maximum. Some factors include the distribution of the listed species throughout the Delta, effects of potential entrainment of the species, and water temperature, among others. The justification for a lower flow rate is to be documented in writing under the law.[20] Section 4002(f) directs the Secretary of the Interior to review, modify, and implement, if appropriate, the method to calculate reverse flow in the OMR for implementing the current or future BiOps of listed species.

Discussion

This section specifically directs water managers to provide water supplies at the most negative flow rate allowed under the applicable BiOps, which is -5,000 cubic feet/second (cfs). Supporters of this approach contend that it will allow for higher flows to users and that it will be implemented within the framework of the existing BiOps.[21] Further, some note that limitations on the flow rate could be implemented if effects on listed species are measured and reported according to the standard defined in the law. The justification to reduce flows would have to be in writing, which presumably would give stakeholders a chance to review the science and parameters used to make a decision to reduce flows.

The approach to managing flows in the enacted bill may be interpreted by some to deviate from the existing BiOps, and generates questions and concerns from some stakeholders. For example, some note that the flow rate of -5,000 cfs in the law is at the high end of the allowable flows under the Delta smelt BiOp during certain times of the year and might have detrimental effects on Delta smelt and other species.[22] They also contend that the approach of initially setting a high baseline for flows and then measuring its effect on smelt could harm the species in the short term, decreasing the chances of mitigating effects on the population in the long term.[23]

Section 4002 of the WIIN Act implements a management strategy for maximizing flows for users. Under this strategy, the flow rate is at the high end of flows allowed under the existing BiOps. Consideration of the effects of this flow rate on listed species hinges on whether managers can determine if the flows adversely affect species beyond the range of effects expected over the duration of the BiOps. It is unclear how managers will evaluate these effects and measure them. Also unknown is how the short-term effects of this management regime on listed species will affect their long-term survival and conservation. Further, many different factors affect listed species in the Delta, and it could be challenging to model the long-term effects of flow rates on species over the duration of the BiOps. Another question is whether maximizing water flows under the BiOps will actually lead to additional flows for users considering limitations on flows due to water-quality concerns. In 2016-2017, hydrological conditions were such that there were not opportunities to implement these provisions; however, future years may be different.

Section 4003: Temporary Operational Flexibility for Storm Events

Some observers have noted that during certain high-flow, storm-related events, pumping limits pursuant to the BiOps result in negligible benefits for listed species and in large amounts of water

[20] WIIN Act Subtitle J, §4002(b).

[21] U.S. Congress, House Committee on Natural Resources, *Western Water and American Food Security Act of 2015*, committee print, 114th Cong., 1st sess., July 13, 2015.

[22] Executive Office of the President, "Statement of Administrative Policy: H.R. 2898—Western Water and American Food Security Act of 2015," press release, July 14, 2015, at https://www.whitehouse.gov/sites/default/files/omb/legislative/sap/114/saphr2898r_20150714.pdf.

[23] This sentiment is reflected in a letter from Michael L. Connor, Deputy Secretary of the Interior, to Honorable Rob Bishop, Chairman, House Committee on Natural Resources, July 7, 2015.

not available for pumping or storage. During drought events, this water is particularly valuable, leading some to argue that winter storm periods resulting in high flows should be classified as "temporary" periods in which pumping limits under the existing BiOps (including limits calculated based on average pumping rates over multiday periods that include storms) do not apply. At the same time, others have noted that such a temporary period of flexibility on pumping limits could under some circumstances have a negative impact on species (e.g., salmon migratory periods) and reduce outflows to the ocean, which help to regulate ecosystem functions.

Summary of Changes

Section 4003 of the WIIN Act authorizes the Secretaries of Commerce and the Interior to allow pumping operations of the CVP and SWP at levels that allow, under certain circumstances, OMR flows to be higher than the most negative reverse flow allowed under the BiOps of the listed species. The intent of this authority is to capture peak flows during storm-related events. The level of flows authorized under this section is tempered by the effect of flows on listed species. Section 4003 notes that the flows are authorized unless there are additional adverse effects on the listed species beyond the range of effects anticipated to occur for the duration of the smelt BiOp. Further, actions to increase flows are to be consistent with applicable regulatory requirements under state law, notably those of the State Water Resources Control Board (SWRCB). The effects of CVP and SWP operations on water quality and flows for species are addressed, in part, by SWRCB.

Three factors are to be considered when determining the effects of flows on listed species: (1) the degree to which the Delta outflow index indicates a higher flow for diversion; (2) relevant physical parameters, including projected inflows, turbidity, salinity, and tidal cycles; and (3) the real-time distribution of species.[24] During the period when high flows are anticipated, the law directs Reclamation, in coordination with FWS, the National Marine Fisheries Service (NMFS), and the California Department of Fish and Game, to undertake an expanded monitoring program that would attempt to identify any negative impacts associated with the temporary flexibility being authorized under the section, including exceedance of incidental take levels under ESA. Further, when capturing peak flows under this section, the Secretaries of Commerce and the Interior are not to count such days toward the 5-day and 14-day running averages of tidally filtered daily OMR flows under the Delta smelt and salmon BiOps. Thus, they would not affect "normal" operational limits. Similar to other changes, this flexibility is allowed only if it is determined that it will avoid adverse effects on fish species beyond what is anticipated to occur through the implementation of the BiOps. In making determinations under Section 4003, the Secretaries are not required to provide supporting detail at a greater level than feasible within the time frame given to make a determination.[25]

Discussion

Freshwater flows to the ocean help maintain a salinity gradient in the Delta and also provide dilution of other water pollutants from runoff or other sources. If water flows to the ocean are significantly reduced (i.e., because of greater pumping for users), the salinity gradient might move further east into the Delta and provide less freshwater for other purposes, potentially causing negative effects to the ecosystem and water quality. However, if water flows are sufficiently high to the ocean to maintain or surpass the desired salinity gradient, and other water

[24] WIIN Act Subtitle J, §4003(b).

[25] WIIN Act Subtitle J, §4003(e).

quality factors remain stable, then increased pumping might not have a detrimental effect on water quality and ecosystem properties.

Some stakeholders question whether additional water supplies exported out of the Delta during periods of high flows due to storms could lead to ecosystem changes that could affect water quality, the salinity gradient, and sedimentation.[26] For their part, Obama Administration Reclamation officials had previously noted in testimony on similar legislation that the effects of increased pumping would be monitored and regulated within existing law.[27] If adverse effects are recorded, then pumping levels are to decrease to protect species.

Section 4004: Consultation on Coordinated Operations

ESA Section 7 requires federal agencies to consult with FWS or NMFS to determine whether an agency project or action might (1) jeopardize the continued existence of species listed as endangered or threatened pursuant to ESA or (2) destroy or adversely modify a species's critical habitat. This process is known as *consultation*. Consultation concludes with the appropriate service issuing a BiOp on the potential harm the project poses. In the case of the CVP and SWP, federal agencies must consult on the coordinated operations of the two projects.

Summary of Changes

Section 4004 of the WIIN Act addresses how federal agencies should consult and cooperate with state and local agencies, including public water agencies that have water contracts with CVP and SWP, on actions related to the preparation of BiOps. Specifically, Section 4004(a) states that the Secretaries of Commerce and the Interior shall ensure that any public water agency with contracts for water with CVP and SWP has the following opportunities upon request:

- Have the opportunity to submit to and discuss information with FWS and the National Oceanic and Atmospheric Administration (NOAA) for consideration in the development of a biological assessment;[28]
- Be informed of the schedule for preparing a biological assessment;
- Be informed of the schedule for preparing a BiOp;
- Receive a copy of any draft BiOp and have an opportunity to review and comment on the BiOp;
- Have the opportunity to confer with FWS or NOAA and the applicant about any reasonable and prudent alternatives (RPAs) prior to them being identified;[29] and

[26] Letter from Restore the Delta to The President, December 12, 2016, at http://www.restorethedelta.org/wp-content/uploads/Letter-to-President-Obama-Request-to-Veto-S12-December-12-2016-Final.pdf.

[27] Statement of Estevan Lopez, Commissioner, Bureau of Reclamation, before the Subcommittee on Water and Power, Committee on Energy and Natural Resources, U.S. Senate, "Hearing on S. 2533," May 17, 2016, at https://www.energy.senate.gov/public/index.cfm/files/serve?File_id=5F4E22D1-C362-430D-AEFC-924A3A582539.

[28] The purpose of a biological assessment is to evaluate the potential effects of the action on listed and proposed species and designated and proposed critical habitat and determine whether any such species or habitat are likely to be adversely affected by the action. Biological assessments are required only for "major construction activities," which are federal actions that may significantly affect the quality of the human environment as referred to in the National Environmental Policy Act of 1969.

[29] Reasonable and prudent alternatives (RPAs) are alternative actions to ones proposed by a federal agency applicant seeking a permit to conduct an action. The RPAs are in biological opinions (BiOps) and are intended to be implemented in a manner consistent with the purpose of the action and within the scope of the agency's authority. Further, RPAs are to be economically and technically feasible and to avoid the likelihood of jeopardizing the continued

- Be informed of how each component of the RPAs will contribute to conserving species and the scientific justification supporting the RPAs. Further, be informed as to why other proposed alternative actions that would have fewer adverse economic and water supply effects were not adequate as an RPA.

The Secretaries are instructed to solicit input and consider recommendations from the Collaborative Adaptive Management Team and the Collaborative Science and Adaptive Management Program when developing biological assessments and BiOps.[30] Further, the Secretaries are to have quarterly stakeholder meetings during any consultation or reconsultation period to provide updates on the development of biological assessments and BiOps.

Discussion

The goal of Section 4004 is to actively involve and inform stakeholders in the process of preparing biological assessments and BiOps. Stakeholders are to be kept informed about the process and are to be provided several opportunities to contribute. The law does not make stakeholders official permit applicants under Section 7 of ESA, but it affords them several opportunities to provide recommendations in the creation of the biological assessment and the BiOp.

Some might contend that providing stakeholders an opportunity to be involved and aware of the process of creating BiOps will increase transparency for the stakeholders and give them opportunities to provide recommendations and learn about the components (e.g., RPAs) of the BiOp before it is finalized. Others might argue that these provisions give stakeholders a larger role in the BiOp process and could provide them with opportunities to advocate for provisions in the BiOp that fit their needs as opposed to the needs of the species.

The additional steps in the BiOp process mandated in this law could extend the period for developing BiOps, which could delay the implementation of projects. Further, it is unclear what might happen if the action agencies (the agencies carrying out a project) do not incorporate the recommendations of the stakeholders in the BiOps.

Section 4005: Water Rights Protections

In previous debates, some California water users have raised concerns that proposals to increase water supplies for some users may affect the supplies of other users. In particular, during previous negotiations, some water rights holders in California have sought assurances that their priority access to water supplies will not be negatively affected by legislative changes that make additional water supplies available to selected users. For example, some water rights holders in Northern California that do not rely on pumping through the Delta to receive their water supplies have sought assurances that they would receive as much or more water as contractors in Central and Southern California. These same users also have sought assurances for more predictable water supplies, depending on the water-year type (i.e., dry, critically dry, etc.).

Summary of Changes

Section 4005 of the WIIN Act aims to provide protections to certain state water rights holders. Section 4005(b) provides assurances in case of a scenario in which, as a result of application of the act's provisions, (1) the state determines that it must reduce available SWP water supplies

existence of the listed species or of adversely modifying its habitat.

[30] WIIN Act Subtitle J, §4004(b).

(relative to current BiOps) because SWP operations are inconsistent with the California Endangered Species Act and (2) the CVP yield is greater than it otherwise would have been. The statute states that if this scenario were to occur, then the additional CVP yield would be made available to SWP contractors, with reductions to CVP deliveries applied proportionate to the benefit of the increased yield. Section 4005(c) provides that existing state water rights laws shall not be affected, including "Area of Origin" water rights to water appropriated prior to 1914.[31] Section 4005(d) states that no federal actions may be undertaken pursuant to the WIIN Act that result in "redirected adverse impacts" that would reduce water available to any SWP or CVP contractors. Finally, Section 4005(e) specifies that the Secretary of the Interior make "every reasonable effort" to adhere to specified minimum water allocations for Sacramento Valley water service contractors. The allocations are laid out in the act and correspond to different water-year types that are referred to in the Sacramento Valley Water Year Type (40-30-30) Index (e.g., not less than 100% of contract quantity in an "above normal" year).[32]

Discussion

The water rights assurances in Section 4005 appear for the most part to maintain status quo protections and allocations for certain priority water rights holders under state law. They also appear to attempt to address concerns that any changes implemented under the WIIN Act could have negative repercussions for certain classes of users. Similar provisions were proposed in one form or another in several of the prior versions of House and Senate drought legislation.

It is unclear the extent to which these sections may make it more difficult to implement changes to other sections of the act (in particular, §§4001-4003). Similarly, it is unclear how the Administration might be held accountable for any violations of the protections laid out in Section 4005, as there is no regular mechanism for reporting and/or complying with the section. Without regular reporting, some users could suspect that they have been harmed due to the implementation of other parts of the statute, but a final verdict on whether that was actually the case could be a matter of litigation.

Section 4010: Actions to Benefit Threatened and Endangered Species and Other Wildlife

A number of other provisions have been proposed in recent years to improve implementation of the BiOps. Among these proposals have been some that would provide for additional information about threatened and endangered species, including increased use of real-time monitoring, efforts to provide for habitat restoration, improvements to temperature conditions and models, and removal of non-native predators and invasive species.

Summary of Changes

Section 4010 of the WIIN Act contains several provisions that call for increased real-time monitoring and the continuous integration of new science into the parameters of the BiOps. Under Section 4010(a), the director of FWS is to use the best scientific and commercial data to continuously update and amend the RPAs under the BiOps. Further, the law calls for additional surveys and real-time monitoring to support real-time decisionmaking to maximize fish and water

[31] The Area of Origin laws are a set of five state laws that protect water supply needs in geographic areas where water originates from impacts of exporting water out of the area of origin.

[32] For more information, see California Department of Water Resources, California Cooperative Snow Surveys, "Water Supply Index Forecasts: 2017 Water Year Forecast," at http://cdec.water.ca.gov/cgi-progs/iodir/wsi.

supply benefits. Monitoring protocols are to be periodically reviewed to ensure that the data are sufficient to maximize fish and water supply benefits. Section 4010(a)(4) authorizes greater data collection on the Delta smelt population through a distribution study. The objectives of the study are to better understand the location and abundance of Delta smelt and to determine how to minimize the effects of the CVP and SWP on smelt.

Section 4010(b) authorizes several actions to help increase listed species in the ecosystem. It authorizes the Secretary of Commerce to improve habitat for salmon rearing and conduct activities that improve real-time monitoring of conditions that benefit salmon. In addition, the section provides NOAA with broad authority to implement feasible projects that benefit the recovery and conservation of a fish population. Section 4010(b)(5) authorizes the use of conservation hatchery programs to augment salmon and smelt populations.

The law authorizes programs to protect native anadromous fish in the Stanislaus River and authorize pilot projects to implement an invasive species control program authorized in the Water Supply, Reliability, and Environmental Improvement Act (P.L. 108-361).

Further, Section 4010 authorizes the Secretary of the Interior to acquire land, water, or interests from willing sellers to benefit listed or candidate species under ESA, meet water quality requirements under various laws, and broadly protect and enhance the environment as determined by the Secretary. The Secretary is authorized to hold these interests in joint ownership with the state of California.

Discussion

This section authorizes several actions to increase real-time monitoring and use the best scientific and commercial data available to implement, evaluate, refine, or amend the RPAs in the Delta smelt BiOp or a successor BiOp. This provision appears to set up an active adaptive management approach intended to collect data on smelt distribution in the Bay Delta and to inform managers how to minimize salvage and maximize pumping. This approach does not appear to alter implementation of the BiOp; rather, it calls for an increase in data collection that eventually could be used to justify modifications to RPAs under the BiOp. A question to consider is whether these modifications to the Delta smelt BiOp would trigger reconsultation under ESA regulations or if this process would be bypassed and changes implemented immediately.

It is unclear if an increase in monitoring and additional surveys will increase or decrease water supplies for users. Greater monitoring and more surveys could uncover hidden populations of Delta smelt, for example, thereby increasing abundance estimates and possibly flows for users. In contrast, additional monitoring and surveys could show declines in species and put greater pressure to lower flow rates. Several provisions addressing monitoring have dual objectives of maximizing fish populations and maximizing water supply benefits. If these objectives are competing factors in real-time decisions, a question to consider is how the dual objectives will be balanced.

Bureau of Reclamation/West-Wide Provisions

In addition to the California/CVP provisions of the bill, three sections address Reclamation operations and programs more generally. Those sections are discussed below.

Section 4007: Storage Projects

Traditionally, Reclamation's role in water project development has been limited to federally authorized water storage projects.[33] For most of these federal water storage projects, the federal government, via Reclamation, has initially funded 100% of the costs for construction and has been repaid by project beneficiaries (e.g., irrigation contractors, municipal governments) over a 40- to 50-year term.[34] As a result of repayment relief and the portion of costs that are classified as nonreimbursable because they are federal in nature (e.g., fish and wildlife enhancements, recreation), the total amount repaid to the federal government for these projects is typically less than the full cost of construction.

In recent years, some have called for alterations to the federal role in Reclamation project construction. They note that despite a need for new storage projects, limited federal funds and a congressional moratorium on geographically specific authorizations and appropriations, among other things, necessitate a new model for federal financing of western water projects.

Summary of Changes

Section 4007 of the WIIN Act makes significant changes to Reclamation's role in developing and supporting new and improved water resource infrastructure projects in the near term. Specifically, the act authorizes a total of $335 million for appropriation toward federal and nonfederal water storage projects.[35] This funding is available for qualifying projects approved before January 1, 2021.

The new funding for project construction is available for two primary project types: (1) federally authorized water storage projects (defined to be any project to which the United States holds title and which was authorized to be constructed pursuant to Reclamation laws), with the federal cost share for these projects limited to no more than 50%; or (2) "state-led" groundwater or surface water storage projects (defined to be any project constructed, operated, and maintained by states or political subdivisions), with the federal cost share for these projects limited to no more than 25%. For federal participation in a project under either designation, the Secretary of the Interior must find that the project is feasible in accordance with Reclamation laws, provides federal benefits, and is supported by project sponsors that agree to pay their portion of the cost share and are financially solvent (for state-led projects). Additionally, to receive appropriations, projects must be designated by name in enacted appropriations legislation.

Discussion

Section 4007 is notable for its contrast with traditional Reclamation financing. Instead of full, up-front federal financing for new federal projects as has traditionally been provided, it provides for partial federal funding for federal- and state-led projects in the amounts of 50% and 25%, respectively. Proponents of these changes argue that they will stretch scarce federal funds and provide increased incentive for local involvement in storage projects. However, in requiring

[33] Exceptions to this role include recent authorities for Reclamation to participate in state and locally led water projects in the form of grants and federal support for nonfederal water reuse and recycling projects, among other things. For more information, see "Section 4009: Other Water Supply Projects."

[34] The actual amount repaid by project beneficiaries typically depends on a number of factors, including contractors' ability to pay and the portion of project benefits that are nonreimbursable because they are considered to be national benefits. These amounts have varied widely for individual projects.

[35] This funding is derived from receipts expected to be available as a result of accelerated repayment, pursuant to §4011 (e). See below section, "Section 4011: Accelerated Repayment and Surface Storage Account."

initial cost shares from nonfederal users, those that cannot afford an up-front, lump-sum payment may be deterred from pursuing projects under this authority.

The section also is significant for its provision of authority to move forward with construction without required involvement of the congressional authorizing committees. Although there is no statutory requirement for explicit approval of Reclamation construction projects by these committees, in practice these projects typically have received authorization for construction before obtaining appropriations for this purpose from Congress. Section 4007 moves the onus to the appropriators and increases the requirements that must be met at this stage. It mandates that any project slated for construction be approved by the Secretary of the Interior and receive appropriations designated to the project by name. Thus, although the WIIN Act allows for new project construction to bypass the authorizers, it adds more requirements for a project to receive appropriations. Although some criticized Section 4007 as decreasing congressional oversight of new project approval, others noted that Congress still has to approve new projects before they can move forward. Additionally, although the section represents a new authority for construction projects, only a limited pool of projects would be eligible for this support (i.e., projects approved before 2021) and "traditional" Reclamation project approval and finance would continue to be another option for construction of new projects.

Section 4009: Other Water Supply Projects

In addition to traditional surface water supply projects, Reclamation operates programs that support water desalination (the Desalination and Water Purification Research Program) and water reuse/recycling (commonly referred to as the Title XVI program).[36] Reclamation also distributes funding via grants that provide cost-shared support for energy projects and water efficiency grants for projects in western states.[37] Additional background on each of these programs, all of which were amended by Section 4009, is included below.

Reclamation and other offices within DOI have supported desalination research since the early 1950s. In recent decades, Reclamation has worked to advance desalination through its Desalination and Water Purification Research Program by conducting research internally, providing research grants on specific topics of interest, and, at the direction of Congress, constructing and funding operations of a facility for testing brackish desalination technologies. Other federal agencies at times also have supported desalination research related to their missions. Reclamation's Title XVI program has provided federal support for the construction of selected municipal brackish water desalination facilities and related infrastructure (e.g., infrastructure to collect the high-salinity brine from these facilities). Other federal agencies have provided assistance to municipal desalination facilities as part of broad programs (e.g., loans from Environmental Protection Agency state revolving funds) or for specific projects as directed by Congress. Section 4009 of the WIIN Act expands the federal role in desalination facilities by authorizing support for brackish and seawater desalination facilities providing drinking water.

[36] The Desalination and Water Purification Research Program was authorized in the Water Desalination Act of 1996, as amended (42 U.S.C. §§10301 et seq.; P.L. 104-298, as amended). The Title XVI program was authorized in the Reclamation Wastewater and Groundwater Study and Facilities Act (43 U.S.C. §§390h et seq.; Title XVI of P.L. 102-575, as amended).

[37] Reclamation's WaterSMART grants have been authorized since the Omnibus Public Lands Act of 2009 (P.L. 111-11). For more information on this program, see Bureau of Reclamation, "WaterSMART Grants," at https://www.usbr.gov/watersmart/grants.html.

Reclamation's Title XVI program provides cost-shared funding for studies and construction projects in the 17 western states in which Reclamation has projects that provide supplemental water supplies by recycling or reusing agricultural drainage water, wastewater, brackish surface water and groundwater, and other sources of contaminated water.[38] Prior to the WIIN Act, Reclamation had the authority to undertake general appraisal investigations and feasibility studies without congressional authorization,[39] but it generally interpreted the Title XVI language as requiring geographically specific congressional authorization for the construction of new projects. Similar to traditional Reclamation projects, geographically specific authorizations of Title XVI construction projects have the potential to violate current congressional earmark moratoriums. As a result, no new Title XVI construction projects have been authorized in recent years. Additionally, limited funds available for federal participation in Title XVI feasibility studies have caused some to advocate for allowing for full funding of studies by nonfederal entities, with the Secretary of the Interior's role reduced to a review and approval capacity for these studies.

Section 9504 of the Omnibus Public Lands Act of 2009 (P.L. 111-11; 42 U.S.C. §10364) authorized a program to provide grants to eligible nonfederal applicants (which are limited to entities in Reclamation states and territories) for water and energy efficiency improvements.[40] According to Reclamation, projects generally focus on efforts to conserve and use water more efficiently, increase the use of renewable energy and improve energy efficiency, protect endangered and threatened species, or carry out other activities to address climate-related impacts on water or prevent any water-related crisis or conflict.[41]

Summary of Changes

Section 4009 of the WIIN Act makes changes to Reclamation's water desalination activities, alters the Title XVI Water Reclamation and Reuse program, and increases the authorized funding level for DOI's WaterSMART grants program.

Section 4009(a) expands the federal role in desalination facilities by authorizing the Secretary of the Interior to provide federal funding of up to 25% of the "total cost of the eligible desalination project";[42] the authority includes desalination of both seawater and brackish water and applies to facilities constructed, operated, or sponsored by an entity of a state.[43] The authority is limited to the 17 Reclamation states. The section does not provide a per-project limit; the authorization of appropriations for all activities under Section 4009(a) is set at $30 million to remain available until expended.

[38] Brackish waters often are defined as having dissolved solids of 1,000 to 10,000 milligrams per liter. This level of salinity is less saline than seawater but generally requires removal of salts before human consumption and use in many other applications.

[39] 43 U.S.C. §390h-1 provides Reclamation with general authority to do appraisal investigations for Title XVI projects, at 100% federal cost, whereas 43 U.S.C. §390h-2 authorizes feasibility studies of projects that have been recommended for further study based on an appraisal-level review, at a 50/50 federal/nonfederal cost share.

[40] §9502 of the Omnibus Public Lands Act of 2009 (P.L. 111-11, 42 U.S.C. §10364) defines eligible applicant as a state, Indian tribe, irrigation district, water district, or other organization with water or power delivery authority.

[41] For more information, see Bureau of Reclamation, "Frequently Asked Questions: WaterSMART Water and Energy Efficiency Grants Overview," at https://www.usbr.gov/watersmart/weeg/faq.html.

[42] WIIN Act §4009(a) did not clarify whether "total cost" references construction cost or also includes operation and maintenance costs.

[43] Implementation guidance from Reclamation may clarify whether a sponsored facility may include a private facility with a contract to deliver water to an entity of the state.

Section 4009(c) implements two changes related to the consideration of new (i.e., previously unauthorized) Title XVI studies and projects. The changes to the program are additive and do not appear to directly affect ongoing Title XVI projects that were authorized prior to the WIIN Act.

First, Section 4009(c) authorizes the submission of feasibility studies by nonfederal entities (i.e., feasibility studies conducted at full nonfederal cost rather than studies cost shared through the Title XVI program) to the Secretary of the Interior for review and approval. This provision also requires that, within 60 days of enactment, the Secretary publish guidelines to provide sufficient information for the formulation of these studies by nonfederal entities. Under the WIIN Act, the Secretary is directed to send these nonfederal feasibility studies and related recommendations for action to Congress within 180 days of receiving them, but no further congressional action is required for these studies to receive construction funding under the new Title XVI competitive grant program authorized under the WIIN Act (see below). Reclamation transmitted to Congress an initial list of 38 qualifying studies under this authority on July 12, 2017.[44]

Second, as noted above, Section 4009(c) authorizes a new competitive grant program to fund planning, design, and construction of the projects that have been studied in nonfederal feasibility studies and approved by the Secretary for federal action. The legislation directs that in awarding funds, the program prioritize those areas that are experiencing severe, extreme, or exceptional drought or that have been designated as a disaster area at any time in the four-year period before such funds are made available. The new Title XVI competitive grant program is authorized at $50 million, to remain available until expended. The first federal funding announcement for the new grant program was posted on July 17, 2017.

Section 4009(d) amends the funding authorization for DOI's WaterSMART grant program, increasing the authorization for this program from $350 million to $450 million. The legislation also requires that $50 million of the new authorization be reserved for a grant program providing funds to participate in projects on the Colorado River that increase storage in Lake Mead and the initial units of the Colorado River Storage Project.[45]

Discussion

Section 4009(a) creates the first program specifically providing federal financial assistance for desalination facilities that augment water supplies for public entities in the 17 Reclamation states and any other areas subject to Reclamation authorities. The authority represents a continuation of a trend to authorize Reclamation assistance for augmenting water supplies in the West. Desalination is attractive because access to saline sources generally is less competitive than access to freshwater. Plus, desalination can create a new high-quality freshwater supply that is independent of drought and other weather conditions.

Some policy topics that may arise with respect to Section 4009(a) implementation include interest in desalination in non-Reclamation states, cost-effectiveness of seawater desalination operations, and environmental and energy concerns associated with desalination, especially seawater desalination. Interest in desalination is not limited to the western states. Water-constrained inland areas with access to brackish waters and coastal and island communities across the United States are interested in investigating desalination as a means of augmenting water supplies. In fact,

[44] The initial list of projects is available at Bureau of Reclamation, "Title XVI Feasibility Studies," at https://www.usbr.gov/watersmart/title/feasibility.html.

[45] This effort was first authorized in §206 of the Energy and Water Development Appropriations Act, FY2015 (P.L. 113-235).

desalination adoption already is occurring. Adoption of the technology in states such as Florida, Texas, and California has made the United States a global leader in brackish desalination.

In contrast, only a limited number of municipal seawater desalination facilities operate in the United States. Various factors have curtailed U.S. seawater desalination adoption to date (e.g., the availability of lower-cost water supply alternatives). For example, the operating costs of a seawater desalination facility can challenge the economic justification to adopt desalination as part of the regular water supply in areas that are affected by drought or low water availability only periodically. Seawater desalination also at times is subject to criticism due to the environmental impacts of intake facilities, brine disposal, and energy consumption. Implementation of the desalination authority in Section 4009(a) may help to identify whether the availability of some federal funding (up to 25%) may overcome any remaining barriers to the adoption of desalination for drinking water.

The changes to Title XVI studies under Section 4009(c) appear to negate the previous requirements that preceded significant federal involvement in a Title XVI project, including those for a federally led appraisal-level study recommendation and federal funding for a feasibility study (both of which were necessary prior to federal feasibility study review and approval). Now, any project that meets the new feasibility study review guidelines under the WIIN Act and receives federal approval by the Secretary of the Interior theoretically can move forward and be eligible for federal construction funding via the new competitive grant program (see below discussion).[46] Similar to some of the changes for new surface storage projects in Section 4007, this provision has the potential to remove one of the historic hurdles to authorization of these projects.[47] It also could result in more projects being eligible for construction funding and more competition (and potentially demand) for Title XVI funds overall.

The new competitive grant program for Title XVI that was authorized in Section 4009(c) also appears to represent a departure from past federal support for Title XVI construction projects, in which awards were made to a limited pool of projects. The competitive grants for newly approved Title XVI projects under this section appear to be contemplated for what some might describe as a parallel process, in which newly approved projects are selected for implementation out of a separate funding pool than traditional Title XVI projects (i.e., projects that were authorized for construction prior to enactment of the WIIN Act, on a geographically specific basis). How such a program would award funds competitively while adhering to the legislation's requirement that projects be mentioned by name in enacted appropriations legislation is unclear and likely will depend on Administration guidelines for the new program. Similarly, the relative priority of the two parallel Title XVI construction processes, and whether the competitive process is envisioned as the preferred long-term structure for the program, remains to be seen.

Section 4011: Accelerated Repayment and Surface Storage Account

Since the passage of the Reclamation Act of 1902, reclamation law has been based on the concept of project repayment—reimbursement of federal construction costs—by project water and power users. Agreements between the federal government (through Reclamation) and water users for delivering water generally are governed by one of two contract types: water service contracts or repayment contracts.

[46] Reclamation published its updated guidelines for Title XVI studies on February 8, 2017. See Reclamation Manual Directives and Standards, "Title XVI Water Reclamation and Reuse Program Feasibility Study Review Process," WTR 11-01, at https://www.usbr.gov/recman/wtr/wtr11-01.pdf.

[47] See previous section, "Section 4007: Storage Projects."

The terms of repayment and water service contracts differ. Repayment contracts generally are made for terms of 40 years, with capital costs amortized over the long-term period and repaid in annual installments (without interest for irrigation investments and with interest for municipal and industrial [M&I] investments). Costs are repaid annually in fixed amounts to the U.S. Treasury by project beneficiaries (contractors), along with costs for project operations and maintenance. For water service contracts, contractors pay a combined capital repayment and operations and maintenance rate for each acre-foot of water actually delivered (i.e., water service). This water service payment is different from repayment contracts in that under repayment contracts, the annual repayment bill is due regardless of how much water is used in a given year.

Congress has previously authorized contract conversion and repayment provisions for individual Reclamation project units. For instance, in the San Joaquin River Restoration Settlement Act of 2009 (P.L. 111-11, Title X), Congress authorized contract conversion and prepayment (also referred to as accelerated repayment) for a subset of CVP contractors in the Friant Division (the Hidden Unit and Buchanan Unit). It has authorized similar accelerated repayment provisions for other individual projects. However, prior to the WIIN Act, no such blanket authority for accelerated repayment existed for Reclamation projects in general. Generally speaking, one of the advantages to such conversion is that once they are repaid in full, contractors are not subject to certain acreage limitations and other requirements under the Reclamation Reform Act of 1982 (RRA; P.L. 97-293).

Summary of Changes

Section 4011 of the WIIN Act allows for the conversion of agricultural and municipal water service contracts to repayment contracts to allow for prepayment of allocable construction costs that otherwise would have been repaid to Reclamation over extended terms. The section authorizes prepayment of outstanding construction cost obligations through a lump sum or in installments. It allows repayment contractors to pay, upon request, their remaining construction repayment obligations, either in a single lump sum or over three years (i.e., in three equal payments). If contractors decide to take advantage of this authority, they are required to pay the current value of their remaining contract payments, discounted at one-half of the 20-year maturity rate for Treasury securities. The legislation reiterates that once contractors have satisfied their repayment obligations, they are no longer subject to the acreage limitations and full-cost pricing (as well as other associated requirements) of the RRA. In addition, the section authorizes M&I contractors to convert to repayment contractors and/or repay their outstanding balances through prepayment.

Discussion

The provisions of this section would apply to all Reclamation contractors; that is, all contractors would be eligible (either through optional conversion to repayment contracts and subsequent prepayment for water service contractors or through optional prepayment for existing repayment contractors) for prepayment of their obligations to the federal government. However, it is unclear how many contractors would take advantage of these provisions. In its estimate of similar provisions, the Congressional Budget Office previously estimated that approximately 35% of current users would convert to repayment contracts, and that a total of $639 million in receipts would be expected to accrue to the Treasury from accelerated repayment over the FY2015-

FY2024 period.[48] It is unclear what broader effects these payments (and the absence of RRA requirements on some contractors) might have.

Savings Clauses, Duration

The subtitle's savings clauses and sunset dates are key to understanding its potential impacts and limitations. The application of those provisions is discussed below.

Sections 4012-4013: Savings Clauses and Duration

The use (and contents) of savings clauses (i.e., exceptions and other exemptions from the bill's provisions) and the sunset/expiration of proposed provisions were contentious during consideration of the WIIN Act.

Prior proposals included provisions aiming to protect California water rights priorities under existing law and confirming the obligations of the United States to honor state water rights laws and, more broadly, to operate the CVP in conformance with state law. In regard to a sunset date for the WIIN Act, some argued that legislation should make it clear that the act's provisions were temporary and should be limited to specific circumstances, whereas others contended that the drought merely brought to light broader problems with federal and state water delivery systems and that permanent changes were needed.

Summary of Changes

Section 4012(a) of the WIIN Act includes several general savings clauses that apply to all of Subtitle J. For instance, Section 4012(a), paragraph (1), prohibits interpretation or implementation in a manner that preempts or modifies any obligation to act in conformance with state law. Paragraph (2) prohibits any implementation that modifies or affects obligations under the Central Valley Project Improvement Act (CVPIA; P.L. 102-575).[49] Paragraph (3) prevents implementation that would override, modify, or amend ESA, including the application of the current BiOps for the operation of the CVP or SWP. Paragraph (4) prohibits any implementation or interpretation that would cause "additional adverse effects" beyond the range of effects anticipated to occur for the duration of the BiOps. Paragraph (5) prevents changes that would alter the obligation of the Pacific Fisheries Management Council to manage fisheries off the coast of California, Oregon, or Washington under ESA or the Magnuson Stevens Fishery Conservation and Management Act.[50] Similarly, Section 4012(b) provides that the same provisions shall apply to successor BiOps, to the extent the Secretaries of Commerce and the Interior determine that doing so is consistent with ESA.

Section 4013 sets the expiration dates for the WIIN Act's authorities. Under this section, most of the act's changes are to expire after five years. The exceptions are Section 4004 (i.e., alterations to the consultation process), which will expire after 10 years; new projects under Section 4007

[48] Congressional Budget Office (CBO), "Cost Estimate for H.R. 3981, Accelerated Revenue, Repayment, and Surface Storage Enhancement Act," December 11, 2014, at https://www.cbo.gov/sites/default/files/113th-congress-2013-2014/costestimate/hr39810.pdf. While it did not similarly estimate the percentage of conversions in the WIIN Act, CBO estimated that accelerated repayments to the Treasury within the 10-year window after enactment would amount to $635 million.

[49] The one exception to this savings language is certain provisions related to the predator management program for the Stanislaus River.

[50] 16 U.S.C. §§1801 et seq.

(groundwater and surface water storage projects); Section 4009(a) (water desalination projects); and Section 4009(c) (Title XVI water recycling/reuse projects). Each of these sections is authorized without a sunset date.[51]

Discussion

The provisions in these sections, in particular Section 4012, arose because the WIIN Act contains specific directives to operate the CVP in certain ways. Some parties wanted to ensure that in maximizing water supplies to CVP and SWP water users south of the Delta—some of whom are junior in priority under state law and CVP allocation priorities—any unintended shortages do not affect other, more senior water users (or other water users in general). Relatedly, both sections include provisions addressing "existing obligations" of the United States to comply with state law, as well as language specific to obligations to avoid jeopardy and adverse modification of habitat of threatened and endangered species and to comply with provisions of the CVPIA. The act's savings clauses related to state law, the CVPIA, and ESA are particularly notable, because earlier bills (in particular those bills passed by the House) had proposed changes to those areas. Thus, although some parts of the WIIN Act could, absent additional guidance, be interpreted to have the potential to alter these laws, the addition of the savings clauses could complicate such a construal. The Obama Administration released a signing statement on the WIIN Act, most of which focused on the drought provisions under Subtitle J.[52] Most notably, the signing statement stated that it was essential that the existing balance between state and federal law not be undermined by anyone "misstating or incorrectly reading the provisions of Subtitle J." The signing statement also noted President Obama's interpretation that Subtitle J would require continued application and implementation of ESA, consistent with work to ensure that state water quality standards are met.[53]

The duration—five-year window of effectiveness—for most of the WIIN Act provisions poses another set of questions for Congress. Although many saw the provisions of Subtitle J as a short-term response that would approximately track with the duration of the drought, the wet winter of 2016-2017 means that these provisions will remain in effect almost five years longer than the drought conditions that precipitated them. Some may view this as a positive development, because water users have been advocating for a more aggressive approach to Delta exports under any circumstance. However, others might argue that because a near-term end of the drought was not foreseen at the time of the WIIN Act's enactment, the provisions should be revisited before they expire.

Implementation and Issues for Congress

Subtitle J of the WIIN Act likely will continue to receive congressional attention. In its oversight capacity, Congress may be interested in the Trump Administration's implementation of Subtitle J, with particular focus on whether the interpretation of these provisions is in accordance with congressional intent in passing the WIIN Act. Of particular interest may be the WIIN Act's

[51] As noted above, to be eligible for funding under §4007 of the WIIN Act, new surface and groundwater storage projects must be approved by the Secretary of the Interior by 2021.

[52] The White House, Office of the Press Secretary, "Statement by the President on the Water Infrastructure Improvements for the Nation Act," press release, December 16, 2016, at https://obamawhitehouse.archives.gov/the-press-office/2016/12/16/statement-president-water-infrastructure-improvements-nation-wiin-act. Hereinafter "December 2016 Obama Administration Signing Statement."

[53] December 2016 Obama Administration Signing Statement.

application to the operations of the CVP and federal support for the construction of new surface water storage projects, among other things. In addition to overseeing the implementation of the bill's provisions, Congress also may consider their amendment, extension, or repeal.

According to Reclamation, the relatively wet hydrology that followed enactment of the WIIN Act has largely limited opportunities to implement some of the act's operational authorities since the bill's passage. At the same time, some federal operational changes pursuant to the WIIN Act reportedly were proposed but deemed incompatible with state requirements.[54] However, some changes authorized under the act have been implemented. For example, Section 4004 consultation authorities have been used to allow for increased communication and transparency for some operational decisions, resulting in reduced or rescheduled pumping restrictions on some occasions.[55] Additionally, in 2018 the WIIN Act's allowance for relaxed restrictions on inflow-to-export ratios (Section 4001) were used to transfer water, resulting in additional exports of 50,000-60,000 AF, and Section 4003 has been used to increase export pumping levels by 5,500 acre-feet during a temporary storm event in March 2018.[56] Some may be interested in extended these authorities, most of which are set to expire in December 2021.

Congress also has appropriated funding authorized for Reclamation (both for the CVP and for other projects) under the WIIN Act. CRS estimates that from FY2017 to FY2019, Congress appropriated approximately $576 million for Reclamation projects and programs authorized under the WIIN Act. Some of these authorities have met their appropriations ceilings; thus, they may be proposed for extension or amendment. **Table 2**, below, provides additional information on appropriations received to date under several WIIN Act Subtitle J authorities.

Table 2. Appropriations for WIIN Act Authorities

($ in millions)

WIIN Act Section/Description	Total Authorized Funding	FY2017	FY2018	FY2019
4007(h)-Water Storage Projects[a]	$335	$67	$134	$134
4009(a)(1)- Desalination Projects	$30	$6	$12	$12
4009(c)- Title XVI Water Reuse/Recycling	$50	$10	$20	$20
4009(d)- WaterSMART Grants	$100	$24	$34	$34
4010 (multiple subsections)[b]	na	$7	$31.5	$30[b]

Source: Table by CRS, based on the WIIN Act and enacted appropriations and Bureau of Reclamation Work Plans for FY2017-FY2019.

a. As of November 2018, most of the funding appropriated by Congress for water storage projects had yet to be allocated at the project level. For more information, see CRS In Focus IF10626, *Reclamation Water Storage Projects: Section 4007 of the Water Infrastructure Improvements for the Nation Act*, by Charles V. Stern.

b. Section 4010 of the WIIN Act authorized appropriations for multiple subsections. Subsequent appropriations bills and Reclamation Work Plans have provided funding for activities under Sections 4001 or

[54] Personal communication with the Bureau of Reclamation, May 30, 2018.

[55] Personal communication with the Bureau of Reclamation, May 30, 2018.

[56] Personal communication with the Bureau of Reclamation, May 30, 2018.

4010 of the WIIN Act (among other ESA-related authorities), without specifying which WIIN Act subsection authorities were drawn upon for specific dollar amounts.

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