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Water Resource Issues in the 115th Congress

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January 13, 2017

Congressional Research Service

7-....

www.crs.gov

R44738

Summary

The 115th Congress faces various water resource development, management, and protection issues. Water resource activities generally encompass navigation improvements, flood damage reduction measures, water supply augmentation, hydropower generation, and aquatic ecosystem restoration. Congressional actions shape reinvestment in aging federal infrastructure (e.g., dams, locks, and levees) and federal and nonfederal investment in new projects. The principal agencies involved in federal water resource infrastructure are the U.S. Army Corps of Engineers (Corps) and the Department of the Interior's Bureau of Reclamation (Reclamation).

Oversight of Enacted Legislation. Water resource issues during 115th Congress are shaped in part by legislation enacted in earlier Congresses. The 114th Congress passed a broad water bill in December 2016—the Water Infrastructure Improvements for the Nation Act (WIIN or WIIN Act; P.L. 114-322)—that addressed water resource and water quality issues. Of its water resource provisions, WIIN

- authorized a broad array of water resource activities for the Corps;
- addressed selected Department of the Interior water issues, including Reclamation projects and related water project management in California and other western states and management of selected Indian water projects; and
- authorized various regional aquatic ecosystem restoration activities.

Some of WIIN's Reclamation-related provisions on water conveyance and supply in California in particular remain the subject of attention by federal and local policymakers. Supporters of the WIIN provisions view these provisions as a compromise that may deliver greater water supplies to users; critics suggest that the provisions may alter environmental protections in California, thereby potentially harming threatened and endangered species, and that they may alter Congress's ability to oversee new projects. For more on WIIN, see CRS In Focus IF10536, *Water Infrastructure Improvements for the Nation Act (WIIN)*, by (name redacted) et al.

Water Resource Issues in the 115th Congress. The 115th Congress may consider legislative proposals on water resource issues that were not addressed by WIIN, including those in legislative proposals considered but not enacted in previous Congresses. Congressional deliberations are within the context of broad issues shaping federal water resource activities. Areas of interest include the following:

- financing investments in water resource infrastructure,
- changing federal partnerships,
- funding and authorizing projects and the earmark debate,
- restoring aquatic ecosystems, and
- improving drought and flood preparedness and response.

Within these broad issues, potential topics of congressional interest include authorization of additional studies and projects; public and private hydropower improvements; aging water infrastructure rehabilitation; recreational activities at federal projects; water research and science investment and coordination; and environmental requirements, including protection of threatened and endangered species. The 115th Congress also may consider issues that arise at the regional or local levels but have some federal involvement. For example, Congress may engage in policy debates and oversight related to the Columbia River, the Sacramento and San Joaquin River basins, the Colorado River, and the Southeast's Apalachicola-Chattahoochee-Flint Basin due to

the role of federal infrastructure and other efforts in these areas. Additionally, budget and appropriations issues often play a key role in directing each agency's activities and priorities.

Contents

Introduction	1
Congressional Activity	1
Legislation Enacted in the 114 th Congress	1
Water Resource Considerations for the 115 th Congress	3
Federal Role in Water Resources.....	4
Federal Water Resource Agencies	5
U.S. Army Corps of Engineers.....	6
Bureau of Reclamation.....	7
Policy Issues	9
Financing Investment in Water Resource Infrastructure	9
Changing Federal Partnerships.....	10
Funding and Authorizing Projects and Earmark Policies.....	11
Restoring Aquatic Ecosystems	11
Improving Drought and Flood Preparedness and Response	12

Contacts

Author Contact Information	13
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Introduction

The 115th Congress is likely to face numerous water resource issues as it conducts oversight and deliberates on authorizations and appropriations legislation related to water resource development, management, and protection. These issues may include how to make investment decisions in the face of fiscal constraints; how to maintain and reinvest in an aging portfolio of federal infrastructure (e.g., dams, locks, and levees); how to effectively respond to and prepare for floods and droughts; and how to distribute investment between activities to meet new demands for water supplies, navigation, flood management, and aquatic ecosystem restoration and protection.

Water resource issues often arise at the regional level but have a federal connection. The crux of many of these challenges is how to balance competing demands for water and river ecosystem management. These include how to cope with the budget limitations and the effects of federal project operations on the environment, such as impacts on threatened and endangered species. These operations often become particularly contentious during droughts and floods.

This report first discusses recent congressional activity and possible issues for the 115th Congress. Next, it provides an overview of the federal role in water resource, including a discussion of the two major federal water resource agencies—the U.S. Army Corps of Engineers (Corps) and the Bureau of Reclamation (Reclamation)—and related legislation. The report then provides an overview of broad policy issues, including financing investments in water resource infrastructure, changing federal partnerships, funding and authorizing projects and earmark policies, restoring aquatic ecosystems, and improving drought and flood preparedness and response. This report does not address municipal water systems, municipal wastewater infrastructure, or environmental protections, such as water quality and wetlands regulations.¹

Congressional Activity

In the water resource area, legislative activity often is specific to the federal water resource management agencies or to water use by particular sectors, including energy, agriculture, navigation, recreation, and municipal and industrial use. Occasionally, Congress takes up broader water resource policy issues, such as coordination of federal water resource activities and programs.

Legislation Enacted in the 114th Congress

The 114th Congress authorized a broad range of water resource and water quality activities through the Water Infrastructure Improvements for the Nation Act (WIIN or WIIN Act; P.L. 114-322), which was signed into law on December 16, 2016. WIIN combined Corps-related provisions typically found in a Water Resources Development Act (WRDA) with provisions addressing other water issues—California drought, drinking water infrastructure and

¹ For more on municipal drinking water infrastructure, see CRS Report RS22037, *Drinking Water State Revolving Fund (DWSRF): Program Overview and Issues*, by (name redacted). For more on municipal wastewater, see CRS Report 98-323, *Wastewater Treatment: Overview and Background*, by (name redacted). For more on wetlands, see CRS Report RL33483, *Wetlands: An Overview of Issues*, by (name redacted) and (name redacted), and CRS Report R43455, *EPA and the Army Corps' Rule to Define "Waters of the United States"*, by (name redacted).

emergencies, and water-related waste and spills concerns—among other things. Some WIIN provisions had broad support; others were related to more controversial issues and legislation.

WIIN authorized 30 new Corps construction projects at a federal cost of more than \$10 billion. It also altered other Corps policies and authorities, including those related to how nonfederal sponsors participate in water infrastructure activities. Another noteworthy change in the bill was the expansion of a previously authorized U.S. Environmental Protection Agency (EPA) authority to operate a credit program for nonfederal water projects, originally authorized as the Water Infrastructure Finance and Innovation Act (or WIFIA; Title V, Subtitle C of P.L. 113-121). The WIIN Act amended the existing authority to allow EPA to fund some water resource-type projects.

Among the most controversial WIIN Act provisions were those related to California drought and the operations of Reclamation facilities as directed under Title III, Subtitle J (titled “California Water”). Related proposals had been the subject of considerable debate in the 114th and prior Congresses. The subtitle addressed the drought in California by adjusting the authorization and management of federal and state water projects, increasing the authorization of appropriations for new and existing drought-related programs, and altering related fish and wildlife management. Although some Title III WIIN provisions had widespread support, controversy persisted over how WIIN approached Endangered Species Act (ESA) implementation, particularly water management under federal biological opinions (also known as BiOps) designed to protect threatened Delta smelt, endangered salmon, and other species.² Title III also included contentious provisions that authorize Reclamation to proceed with or provide support to new water storage projects under certain circumstances.

Finally, WIIN authorized or expanded existing authorizations for several ecosystem restoration initiatives. It authorized the Great Lakes Restoration Initiative, an existing interagency initiative coordinated by EPA, at \$300 million annually from FY2017 to FY2021. It also authorized restoration activities in the Missouri River Basin, Salton Sea, Chesapeake Bay, Columbia River Basin, Lake Tahoe, and Delaware River Basin.

The 114th Congress also enacted regular appropriations for the Corps and Reclamation as well as supplemental appropriations for the Corps.³ In contrast to most agencies, Congress has provided more funding for the Corps and Reclamation than requested by the President. Prohibitions on the addition of site-specific project line items added by Congress (i.e., earmarks) have complicated traditional congressional increases for individual projects.⁴ In lieu of project-based increases, the 114th Congress included additional funding for selected categories of Corps and Reclamation projects. Overall, appropriations for both the Corps and Reclamation increased during the 114th Congress.⁵

² The Endangered Species Act is found in P.L. 93-205, as amended (16 U.S.C. §§1531, et seq.).

³ The annual appropriations bill for the U.S. Army Corps of Engineers (Corps) and the Bureau of Reclamation (Reclamation) is the Energy and Water Development appropriations bill; however, both agencies occasionally receive funding in emergency or other supplemental appropriations acts, particularly in response to natural disasters, such as floods, droughts, and hurricanes. In the 114th Congress, P.L. 114-254 provided the Corps with \$1.026 billion for flood response activities. For more information, see CRS Report R42841, *Army Corps Supplemental Appropriations: Recent History, Trends, and Policy Issues*, by (name redacted) and (name redacted)

⁴ See below section, “Funding and Authorizing Projects and Earmark Policies.”

⁵ For more information, see CRS In Focus IF10361, *Army Corps of Engineers: FY2017 Appropriations*, by (name redacted), and CRS In Focus IF10375, *Bureau of Reclamation: FY2017 Appropriations*, by (name redacted).

Water Resource Considerations for the 115th Congress

The 115th Congress may address some measures left pending at the end of the 114th Congress, as well as consider new legislative proposals. Topics that may garner congressional attention include

- federal and nonfederal financing for water resource infrastructure investments, particularly for rehabilitating, repairing, or removing aging infrastructure and augmenting water supplies through dam construction, water reuse, desalination, and agricultural and urban stormwater capture;
- federal permitting and approvals affecting federal and nonfederal water resource projects and activities;
- oversight of WIIN implementation and funding for WIIN-authorized activities;
- authorization of new federal water projects and studies transmitted to Congress after enactment of WIIN;
- federal role and process related to water resource project development and approval, including at the regional and watershed levels;
- private infrastructure development and public-private partnerships;
- role of ecosystem and environmental protections, including efforts to comply with the ESA, in water resource management;
- invasive species, such as the Asian carp, and harmful algal blooms;
- oversight of regional aquatic ecosystem restoration efforts; and
- efficacy of federal navigation improvements in inland waterways and coastal harbors (e.g., Gulf Coast and East Coast harbors' ability to accommodate larger vessels transiting the Panama Canal).⁶

The 115th Congress also may address issues in particular river basins. Due to multiple factors, such as drought in portions of the West and Southeast, floods, legal decisions, or agency developments, certain basin issues are particularly likely to receive congressional attention. These issues include the operation of federal reservoirs on the Sacramento and San Joaquin Rivers (Central Valley Project in California) and on the Missouri River and its tributaries. In addition, the 115th Congress may engage in discussion of how threatened and endangered species designations and related critical habitat and environmental mitigation requirements affect water resource project construction and operations in particular basins. Other river basins with regular congressional interest include the Colorado, Klamath (California and Oregon), and Rio Grande River Basins. Future operation of Corps facilities on the Columbia River and its tributaries is central to discussions that are under way regarding modification of the Columbia River Treaty with Canada.⁷

Regarding ecosystem restoration activities, the 115th Congress may conduct oversight of restoration efforts in the Everglades, Gulf Coast, Great Lakes, and elsewhere. Common themes in regional ecosystem restoration efforts might include oversight of ongoing restoration initiatives, protection of threatened and endangered species, effects of drought and flood on habitat, and concerns about water quality (e.g., harmful algal blooms).

⁶ For more information on coastal navigation, see CRS In Focus IF10455, *Harbor Deepening: Federal Studies and Construction Projects*, by (name redacted).

⁷ See CRS Report R43287, *Columbia River Treaty Review*, by (name redacted).

The 115th Congress also may react to efforts by the Corps and Reclamation, as well as other agencies, to implement updated planning guidance for federal water resources projects and guide federal investment in floodplains.⁸ Similarly, Congress may respond to the Obama Administration's efforts to incorporate climate change adaptation into agency plans and actions, including those of the Corps and Reclamation.⁹

In addition, Congress may address drought assistance, planning, and preparedness through oversight hearings and legislation (e.g., Energy and Water Development appropriations),¹⁰ especially if drought conditions in California,¹¹ other parts of the West, and elsewhere persist or intensify.

The 115th Congress may consider the status and priority of federal efforts to restore large-scale aquatic ecosystems that have been altered or impaired by development, habitat loss, and federal water resource projects. Some of these restoration initiatives include those in the Florida Everglades, California Bay-Delta, Great Lakes, Gulf Coast, Chesapeake Bay, and Klamath Basin. The 115th Congress may consider a number of issues pertaining to these ecosystems, such as

- legislation to authorize a framework for governance and a comprehensive restoration plan for California's Salton Sea;
- oversight over the implementation of restoration activities in the Everglades and Gulf Coast region; and
- policies to streamline authorizations to allow for more projects to be implemented in conjunction with ecosystem restoration initiatives and to allow for greater use of public-private partnerships.

Funding for existing and new restoration initiatives may face challenges in the 115th Congress. Congressional focus might hone in on evaluating existing initiatives to determine how efficiently funds are being spent and whether restoration efforts are reaching their objectives. Ecosystem restoration initiatives that include efforts to manage water resources and conserve listed species under ESA might be evaluated for how well they meet demands for water resources and the conservation needs of species. (See "Improving Drought and Flood Preparedness and Response.")

Federal Role in Water Resources

The federal government has long been involved in efforts to facilitate navigation, expand irrigation, and reduce flood and drought losses. For example, nearly every large river basin in the country—from the Columbia, Sacramento, and Colorado Rivers in the West to the Missouri, Mississippi, and Delaware Rivers—contains one or more federal dam or navigation project. These projects have largely been constructed by the Corps and Reclamation. More recently, federal involvement has expanded to include municipal water supply development and efforts to protect water-related resources, such as fish and wildlife, and to support recreation. Increasing

⁸ For more on planning guidance, see CRS In Focus IF10221, *Principles, Requirements, and Guidelines (PR&G) for Federal Investments in Water Resources*, by (name redacted) and (name redacted). For more on standards on federal investments in floodplains, see CRS Insight IN10434, *Federal Flood Risk Management Standard (FFRMS)*, by (name redacted), (name redacted), and (name redacted).

⁹ CRS Report R43915, *Climate Change Adaptation by Federal Agencies: An Analysis of Plans and Issues for Congress*, coordinated by (name redacted).

¹⁰ CRS In Focus IF10196, *Drought Policy, Response, and Preparedness*, by (name redacted) and (name redacted).

¹¹ CRS In Focus IF10133, *California Drought: Water Supply and Conveyance Issues*, by (name redacted).

pressures on the quality and quantity of available water supplies have resulted in heightened local and regional water-use conflicts throughout the country, particularly in the West and Southeast. Pressures include population growth; environmental regulation; in-stream species and ecosystem needs; water source contamination; agricultural and energy water demands; climate change and variability; and changing public interests, such as heightened demand for in-stream recreation.

Congress historically has played a role in water resources through authorization of and appropriations for regional and site-specific projects and activities; however, numerous water resource responsibilities are split or shared with state, local, and tribal governments, particularly those related to water allocation and resource planning and management.

Congress establishes the policies that define the federal role in planning for federal water resource projects and provides direction and funding for construction, maintenance, repairs, and rehabilitation. Congress makes these decisions within the context of multiple and often conflicting objectives, competing legal decisions, long-established institutional mechanisms (e.g., century-old water rights and contractual obligations), and in response to events such as floods, droughts, and structural failures.

The number of federal water resource construction activities decreased during the last decades of the 20th century, marking the end of earlier expansionist policies that had supported large federal up-front investments in dams and hydropower facilities, navigation locks and channels, irrigation diversions, and flood-control levees, as well as basin-wide planning and development efforts. Fiscal constraints, changes in national priorities and local needs, few remaining prime construction locations, and environmental and species impacts of the construction and operation of federal projects all contributed to this shift. Although these forces are still active, recent drought, flood, and development pressures have contributed to increased proposals for renewed federal financial and technical assistance for new works and for reinvestment in the aging stock of existing water resource infrastructure.

Federal Water Resource Agencies

Most of the large dams and water diversion structures in the United States were built by, or with the assistance of, Reclamation or the Corps. Historically, Reclamation projects were designed principally to provide reliable supplies of water for irrigation and some municipal and industrial uses. Corps projects are planned primarily to improve navigation and reduce flood damages, while power generation, water supply, and recreation often are included as secondary or incidental benefits. Reclamation currently manages hundreds of dams and reservoirs in 17 western states.¹² These projects provide water to approximately 10 million acres of farmland and 31 million people. Reclamation also operates 58 power plants capable of producing 40 billion kilowatt-hours of electricity annually (enough for approximately 3.5 million homes), which generate more than \$1 billion in revenues annually.¹³ The Corps operates nationwide, and its activities are diverse. The Corps has constructed thousands of flood damage reduction and navigation projects throughout the country, involving nearly 12,000 miles of commercially active waterways and nearly 1,000 harbors and including 702 dam and reservoir projects (with 75 hydroelectric plants generating 68 billion kilowatt-hours annually). The Corps is responsible for

¹² Arizona, California, Colorado, Idaho, Kansas, Montana, Nebraska, Nevada, New Mexico, North Dakota, Oklahoma, Oregon, South Dakota, Texas, Utah, Washington, and Wyoming.

¹³ U.S. Department of the Interior, *Budget Justifications and Performance Information Fiscal Year 2017*, Bureau of Reclamation, 2016, p. General Statement-2, at <http://www.usbr.gov/budget/>.

maintaining these projects. Additionally, the Corps constructed, usually with nonfederal participation, roughly 9,000 miles of the estimated 100,000 miles of the nation's levees, but the agency operates and maintains only 900 miles. The remaining levees are operated by nonfederal entities, often local governments or special districts.

The Natural Resources Conservation Service in the U.S. Department of Agriculture (USDA) also facilitates water resources development, primarily for flood control in small watersheds and for soil and water conservation purposes. For more information on USDA conservation programs and policies, see CRS Report R40763, *Agricultural Conservation: A Guide to Programs*, by (name redacted)

Many other federal agencies have water-related programs (e.g., EPA, the U.S. Geological Survey, the National Oceanographic and Atmospheric Administration, National Aeronautics and Space Administration, Federal Emergency Management Agency [FEMA], and energy-related agencies such as the Federal Energy Regulatory Commission and Power Marketing Administrations). However, the remainder of this report focuses on the projects, programs, and policies of the Corps and Reclamation.

- For more information on federal water projects and programs—including types of financing and financial assistance—see CRS Report RL30478, *Federally Supported Water Supply and Wastewater Treatment Programs*, coordinated by (name redacted) .
- For more information on other federal water activities, see CRS Report R42653, *Selected Federal Water Activities: Agencies, Authorities, and Congressional Committees*, by (name redacted) et al.

U.S. Army Corps of Engineers

During most years, the Corps responds to needs arising from floods and droughts in addition to performing its regular activities related to navigation, flood control, and ecosystem restoration projects and issuing permits for activities that may affect navigable waters and wetlands.¹⁴

Congress generally authorizes Corps water resource activities and makes changes to the agency's policies in an omnibus authorization bill, often titled as a Water Resources Development Act (WRDA). WRDA enactment is usually attempted on a biennial schedule. The most recent omnibus Corps authorization acts were enacted in 2014 (P.L. 113-121) and 2016 (as Title I of WIIN, P.L. 114-322). These bills authorized a discrete set of new studies and construction projects based on Administration reporting and recommendations.¹⁵

In many cases, Corps facilities and their operations are central to debates over multipurpose river management. For example, Corps reservoir management, such as in the Apalachicola-Chattahoochee-Flint Basin (which provides much of the water supply for Atlanta, GA), often is controversial and has been challenged in the courts. Congress typically appropriates funds for Corps activities in annual Energy and Water Development appropriations acts, and, at times, it uses supplemental appropriations bills to fund Corps emergency activities.¹⁶ Supplemental

¹⁴ A discussion of the Corps regulatory programs is beyond the scope of this report. The most notable of the Corps' regulatory activities is associated with wetland protection. For more on wetlands issues, see CRS Report RL33483, *Wetlands: An Overview of Issues*, by (name redacted) and (name redacted).

¹⁵ For more information, see CRS Report R41243, *Army Corps of Engineers: Water Resource Authorizations, Appropriations, and Activities*, by (name redacted) and (name redacted) .

¹⁶ For more on these topics, see CRS Report R42841, *Army Corps Supplemental Appropriations: Recent History*, (continued...)

spending for response and recovery for coastal and riverine floods has raised many questions that Congress may pursue, including those related to national flood risk and federal actions to reduce that risk.

The 115th Congress may follow the tradition of biennial consideration of legislation that authorizes Corps studies and projects and addresses requirements for the Corps water resource activities. Some Corps-related issues that may be discussed in the context of an authorization bill, appropriations bills, or elsewhere include

- efficacy in the use of the Harbor Maintenance Trust Fund for federal maintenance of authorized harbors and associated federal coastal navigation channels;
- investments in projects to deepen coastal harbors;
- Corps policies on pricing for water-supply storage;
- operations manuals for the Corps projects in the Apalachicola-Chattahoochee-Flint Basin, especially related to water supply;
- oversight of Corps efforts to implement public-private partnerships and to develop alternative financing for water resource projects;
- Corps tribal consultation policies and practices;¹⁷
- policies related to approving easements across Corps-managed lands and approvals for altering Corps projects;¹⁸
- role of nonstructural measures in flood risk reduction;
- actions to address coastal flood risk, including sea-level rise;¹⁹
- Corps budgeting and planning priorities;
- recreational policies, including restrictions related to loaded firearms at portions of Corps projects; and
- security of Corps facilities, including cybersecurity.

Bureau of Reclamation

Since the early 1900s, Reclamation has constructed and operated many large, multipurpose water projects, such as Hoover Dam on the Colorado River and Grand Coulee Dam on the Columbia River. Water supplies from these projects have been primarily for irrigation; however, some municipalities also receive water from Reclamation projects. Many of the largest facilities also produce hydropower and provide flood damage reduction benefits. Construction authorizations slowed during the 1970s and 1980s. In 1987, Reclamation announced a new mission recognizing the agency's transition from a water resource development and construction organization to one primarily occupied with managing water resources, including managing water and related

(...continued)

Trends, and Policy Issues, by (name redacted) and (name redacted) .

¹⁷ See CRS Insight IN10608, *Army Corps Projects and Tribal Consultation: Requirements, Policies, and Controversy*, by (name redacted).

¹⁸ The Dakota Access Pipeline has brought attention to Corps easements and approvals to alter Corps projects. For more on Dakota Access Pipeline, see CRS Insight IN10567, *Dakota Access Pipeline: Siting Controversy*, by (name redacted) .

¹⁹ See CRS Report R44632, *Sea-Level Rise and U.S. Coasts: Science and Policy Considerations*, by (name redacted) and (name redacted).

resources in an environmentally and economically sound manner.²⁰ Since then, increased population, prolonged drought, fiscal constraints, and water demands for fish and wildlife, recreation, and scenic enjoyment have resulted in increased pressure to alter the operation of many Reclamation projects. Alterations to operations, project deliveries, and allocations often have been controversial because of potential impacts on water rights, contractual obligations, and local economies.

In contrast to the Corps, there is no tradition of a regularly scheduled authorization vehicle (e.g., a WRDA) for Reclamation projects. Instead, Reclamation projects generally have been considered individually; however, occasionally individual project authorizations are rolled into an omnibus bill.²¹ Because project authorizations are typically enacted in stand-alone legislation, project authorizations and Reclamation bills in general have slowed considerably since the 112th Congress and the onset of congressional earmark moratoria.

As with the Corps, Reclamation river and reservoir management in the face of drought and climate change may receive congressional attention. Reclamation facilities and their operation often are central to debates over multipurpose river management, particularly during drought and years of lower-than-normal precipitation and runoff. For example, controversies associated with Reclamation water resource management in the Sacramento and San Joaquin River watersheds, the Colorado River Basin, and the Klamath River Basin often have been exacerbated by low water flows and also have been the subject of extended litigation—sometimes even in normal water or wet years. Ongoing issues associated with Reclamation’s operation of pumps in the San Francisco Bay/San Joaquin and Sacramento Rivers Delta (Bay-Delta) and the pumps’ effect on water users and on threatened and endangered species have been particularly controversial during the recent drought in California, which dates to 2012. As discussed above, provisions under Subtitle J of the WIIN Act address some of these controversies.²²

Examples of Reclamation-related water project and management issues that may be considered during the 115th Congress include the following:

- drought response provisions that were proposed in the 114th Congress but not enacted in the WIIN Act (including provisions that would affect operations of federal reservoirs and water delivery);
- status of new and proposed water storage projects;
- status of Reclamation’s Safety of Dams program;
- authorization, appropriations, and reporting to address aging infrastructure;
- Sacramento-San Joaquin Valley water reliability and species concerns (e.g., California WaterFix and proposals to address California water supplies);²³

²⁰ Reclamation’s current mission statement can be found at <http://www.usbr.gov/main/about/mission.html>.

²¹ Congress also occasionally passes omnibus bills addressing key Reclamation policy changes, as well as new or revised project and program authorizations. Prior to passage of the Water Infrastructure Improvements for the Nation Act (WIIN Act; P.L. 114-322) in 2016, the last omnibus bill including multiple Reclamation subtitles was P.L. 111-11 in 2009, which also included federal land subtitles. The last time Congress enacted a stand-alone omnibus Reclamation authorization bill was in 1992, the Reclamation Projects Authorization and Adjustment Act (P.L. 102-575).

²² See previous section, “Legislation Enacted in the 114th Congress.”

²³ The California WaterFix is a state and nonfederal proposal to build two large tunnels under the California Bay-Delta to transport water from the Sacramento River to existing pumps south of the estuary. According to proponents, the objectives of WaterFix are (1) to allow for a more natural pattern of flows (i.e., hydrograph) of water in the Delta to support salmon, smelt, and other species; (2) to increase water supply reliability and flexibility to manage water flows; and (3) to protect the water conveyance system from the effects of natural hazards, such as flooding and earthquakes. (continued...)

- oversight of Colorado River water management;
- authorization of new Indian water rights settlements and appropriations for authorized settlements; and
- oversight of Klamath River Basin issues and efforts.

A broader issue that could receive attention from Congress is oversight of Reclamation's mission and its future role in western water supply and water resource management generally. As public demands and concerns have changed, so has legislation affecting Reclamation. Subtitle J of the WIIN Act authorized federal support for Reclamation projects in a manner that differs significantly from the historic Reclamation project finance model, in which the federal government fully funds project construction costs up front and is repaid over extended terms (typically 40 years to 50 years) by project beneficiaries for the portion of costs allocated to them. The WIIN Act authorized Reclamation to pay up to 50% and 25% of the costs of new federal and nonfederal water resource projects, respectively. If these new authorities are used, they may have significant ramifications, both for the financial requirements associated with new projects and for the types of projects prioritized for federal financial support. The WIIN Act, in a departure from past practices, also gave the Secretary of the Interior authority to construct certain Reclamation projects, subject to a project receiving specific appropriations.

In recent years, Congress has expanded Reclamation's authorities and increased its funding for alternative technologies to increase water supplies in the West. These technologies include water recycling and reuse, aquifer storage and recovery, and desalination, among others. Some stakeholders support expanded authority and funding for these programs as critical to future efforts to address water shortages in the West.

Policy Issues

In addition to issues related to federal projects, the 115th Congress faces a number of broad water resource policy issues, including financing investment in new and aging water resource infrastructure; changing federal partnerships; funding and authorizing projects and earmark policies; restoring aquatic ecosystems; and improving drought and flood preparedness and response.

Financing Investment in Water Resource Infrastructure

U.S. water infrastructure is aging; the majority of the nation's dams, locks, and levees are more than 50 years old.²⁴ Failure of these structures could have significant effects on local communities as well as regional and national impacts. Major capital investments in these structures have been limited in recent years, and repairing these facilities would cost billions of dollars.²⁵

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The expected cost of the project is over \$17 billion, primarily paid by water districts and the state of California (California WaterFix, *Fixing California's Water System: Securing State Water Supplies*, <https://www.californiawaterfix.com/>). While the proposal would have water flows in the Delta resemble a more natural hydrograph, potentially significant volumes of natural flows would be diverted around the Delta by the tunnels.

²⁴ The majority of the Bureau of Reclamation's facilities are more than 50 years old, and Corps infrastructure averages more than 55 years old. See CRS Report RL34466, *The Bureau of Reclamation's Aging Infrastructure*, by (name redacted) .

²⁵ For example, for the Corps alone, waterway users previously estimated that needed lock repairs and upgrades total \$8 billion-\$18 billion over the next 20 years, and the Corps has stated that it will require more than \$26 billion for dam (continued...)

Congressional funding largely has been at the project level and has remained essentially flat, while funding needs have increased over time. To date, no comprehensive federal funding solutions have been enacted. Some propose funding mechanisms that might be more conducive to major capital investments in these projects, such as the authorization or modification of loan programs for some infrastructure types or the inclusion of water resource infrastructure among the eligible recipients of funding from an infrastructure bank. Others have proposed using revenues from project beneficiaries (e.g., hydropower revenues, increased user fees) to fund project repairs and upgrades or even de-authorizing and/or transferring projects to nonfederal entities, such as state or local governments. Still others think that Congress requires more uniform information on the extent of this issue before it considers major funding solutions. In the 114th Congress, the Senate held a hearing on this topic and passed legislation that would have required increased reporting by Reclamation on its aging infrastructure backlog (S. 593). (See also discussion below on “Changing Federal Partnerships.”) In addition to support for new traditional water infrastructure investments, some argue for expanded authorities and increased funding to augment water supplies through alternative technologies (e.g., water recycling and reuse, aquifer storage and recovery, and desalination) and nonstructural approaches (i.e., flood control projects that use natural features, such as wetlands, natural dunes, or artificial reefs rather than hard coastal defenses, such as seawalls and groins).

Changing Federal Partnerships

Some stakeholders have expressed frustration with the pace of authorization and federal funding of water resource projects, which has resulted in some local sponsors pursuing projects with limited federal partnership or support or with expectations of future federal reimbursement or credit. Language authorizing increased nonfederal contributions to Reclamation project costs (as well as federal contributions to nonfederal projects) was most recently enacted in the WIIN Act. Other Corps authorizing legislation—the Water Resources Reform and Development Act of 2014 (WRRDA 2014; P.L. 113-121)—previously had expanded the ability for nonfederal entities to use their funds to advance Corps projects. Such new partnership models raise the question of whether the federal government has the ability to fund projects at previous levels while maintaining its existing administrative processes and discretion. Other related questions include what the appropriate federal amount of investment and use of these new authorities should be, whether some local sponsors can or should finance their own projects, and whether the nonfederal sponsors with available financing will determine which projects get funded and reimbursed from limited federal water resource infrastructure funds.

Another approach was initiated in the 113th Congress through its authorization of Title X of WRRDA 2014, the Water Infrastructure Finance and Innovation Act (WIFIA). The title authorized a pilot program, to be administered by the Corps and EPA, for loans and loan guarantees for certain flood damage reduction, public water supply, and wastewater projects. WIFIA was modeled after a similar program that assists transportation projects, the Transportation Infrastructure Finance and Innovation Act, or TIFIA, program. To date, the EPA portion of the program has been funded, but the Obama Administration did not request or receive funds to implement the Corps portion of WIFIA. In the 114th Congress, the WIIN Act amended the existing WIFIA authority to expand the EPA program’s authorities to address other projects,

(...continued)

safety repairs over the next 25 years. According to the Department of the Interior, needed repairs to Reclamation facilities totaled \$3.2 billion in 2008.

including those to mitigate the effects of drought. The Corps' WIFIA program was unchanged and remains unfunded.²⁶

Funding and Authorizing Projects and Earmark Policies

Water resource project funding is often part of the debate on congressionally directed spending, or earmarks. Although water resource project development historically has been directed by Congress, the site-specific nature of the authorizations and appropriations process resulted in projects being subject to earmark disclosure rules and earmark moratoria beginning in the 112th Congress.²⁷ Earmark moratoria appear to be altering the makeup of Corps and Reclamation appropriations, particularly by reducing the congressional additions of specific projects to the budget and by Congress funding broad categories of activities rather than specific projects. As a result, some projects that historically have benefitted from congressional support have received less (or zero) funding in recently enacted appropriations bills. In addition to funding impacts, earmark moratoria also have influenced consideration of site-specific authorizations of water resource projects. Some in Congress have proposed exempting Corps and/or Reclamation projects from earmark moratoria, and many have advocated for additional funding for those categories of projects that historically have been reliant on congressional support in this form.

Restoring Aquatic Ecosystems

Congress has authorized restoration activities in the Everglades, Great Lakes, Gulf Coast, and elsewhere. The 115th Congress may consider the status and priority of federal efforts to restore large-scale aquatic ecosystems that have been altered or impaired by development, habitat loss, and federal water resource projects. Other restoration efforts that may receive attention include California Bay-Delta, Chesapeake Bay, Salton Sea, Klamath Basin, and elsewhere. A number of issues pertaining to these ecosystems have emerged. For example, Congress might consider legislation to authorize a framework for governance and a comprehensive restoration plan for the Salton Sea and may conduct oversight over the implementation of restoration activities in the Everglades and Gulf Coast region. Further, Congress might consider policies that could streamline authorizations to allow more projects to be implemented as part of ecosystem restoration initiatives and to allow for greater use of public-private partnerships.

Funding for existing and newly authorized restoration initiatives might generate controversy and could face challenges in the 115th Congress as decisionmakers evaluate investment priorities.²⁸ Congress might focus on evaluating existing initiatives to determine how efficiently funds are being spent and whether restoration efforts are reaching their objectives. Ecosystem restoration initiatives also might be evaluated for how well they balance demands for water resources and species' conservation needs.

²⁶ For more information, see CRS Report R43315, *Water Infrastructure Financing: The Water Infrastructure Finance and Innovation Act (WIFIA) Program*, by (name redacted) .

²⁷ Since the 112th Congress, the House Republican Conference, Senate Republican Conference, and Senate Appropriations Committee all have adopted moratoria on earmark requests that have been significant to how Congress identifies specific activities to authorize and fund.

²⁸ WIIN authorized or amended the authorizations for federal restoration efforts in the Great Lakes, Lake Tahoe, Everglades, and other federal restoration activities.

Improving Drought and Flood Preparedness and Response

Congress is often faced with reacting to natural disasters, such as droughts and floods. Local and regional drought conditions, including widespread drought in California since 2012, have left many areas vulnerable to drought-induced impacts, such as water supply and use limitations, reduced agricultural and power production, and degraded fish and wildlife habitat, among other issues. Responsibilities for drought planning and response are split among various levels of government and involve many different federal agencies. Although Congress has enacted legislation to coordinate drought information through the National Integrated Drought Information System, no overarching national drought policy exists.

In light of drought effects on water supply, the 115th Congress may address drought planning and preparedness through oversight hearings or drought policy legislation. For more information on drought impacts and congressional response, see

- CRS In Focus IF10196, *Drought Policy, Response, and Preparedness*, by (name redacted) and (name redacted)
- CRS Report RS21212, *Agricultural Disaster Assistance*, by (name redacted) and (name redacted)
- CRS Report R42854, *Emergency Assistance for Agricultural Land Rehabilitation*, by (name redacted)

Periodic but intense flooding also garners attention from Congress. Although the Corps is the principal flood-fighting agency, other agencies also play a role in flood response and mitigation, such as FEMA's disaster assistance, flood insurance, and pre-disaster mitigation programs. Additionally, responsibilities for flood damage reduction are spread among federal, state, local, and tribal governments. State and local governments in many ways play a primary role in floodplain management because of their jurisdiction over land-use decisions and local zoning ordinances—deciding where and how development may occur. Given the magnitude of the nation's coastal and riverine flood risk, the 115th Congress may consider additional ways to reduce flood risk.²⁹ Potential approaches may include improving infrastructure and protecting natural flood mitigation, removing federal disincentives to improved floodplain management, or promoting more pre-disaster recovery plans for highly vulnerable areas.

²⁹ A 2013 study concluded that the typical 100-year riverine and coastal flood hazard areas are expected to grow nationally by 40% to 45% by 2100 (AECOM, *The Impact of Climate Change and Population Growth on the National Flood Insurance Program Through 2100*, Federal Insurance and Mitigation Administration, Federal Emergency Management Agency, June 2013). For more on the National Flood Insurance Program (NFIP) and its financial management and related issues, see CRS Report R44593, *Introduction to FEMA's National Flood Insurance Program (NFIP)*, by (name redacted) and (name redacted)

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Acknowledgments

(name redacted) also advised on the development of this report.

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