United States Government Accountability Office

Report to the Committee on Transportation and Infrastructure, House of Representatives

August 2018

COLUMBIA RIVER BASIN

Additional Federal Actions Would Benefit Restoration Efforts

GAO-18-561

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GAO Highlights

Highlights of GAO-18-561, a report to the Committee on Transportation and Infrastructure, House of Representatives

Why GAO Did This Study

The Basin is one of the nation's largest watersheds and extends mainly through four Western states and into Canada. Activities such as power generation and agricultural practices have impaired water quality in some areas, so that human health is at risk and certain species, such as salmon, are threatened or extinct. In December 2016, Congress amended the Clean Water Act by adding Section 123, which requires EPA and OMB to take actions related to restoration efforts in the Basin.

GAO was asked to review restoration efforts in the Basin. This report examines (1) efforts to improve water quality in the Basin from fiscal years 2010 through 2016; (2) approaches to collaboration that entities have used for selected efforts; (3) sources of funding and federal funding expenditures; and (4) the extent to which EPA and OMB have implemented Clean Water Act Section 123. GAO reviewed documentation, including laws, policies, and budget information; surveyed federal, state, tribal, and nongovernmental entities that GAO determined had participated in restoration efforts; and conducted interviews with officials from most of these entities.

What GAO Recommends

GAO is making three recommendations, including that EPA develop a program management plan for implementing the Columbia River Basin Restoration Program and that OMB compile and submit an interagency crosscut budget. EPA agreed with its recommendation. OMB did not comment, and GAO maintains its recommendations are valid.

View GAO-18-561. For more information, contact Alfredo Gómez at (202) 512-3841 or gomezj@gao.gov.

What GAO Found

Various entities, including federal and state agencies and tribes, implemented restoration efforts to improve water quality in the Columbia River Basin from fiscal years 2010 through 2016, according to GAO survey results.

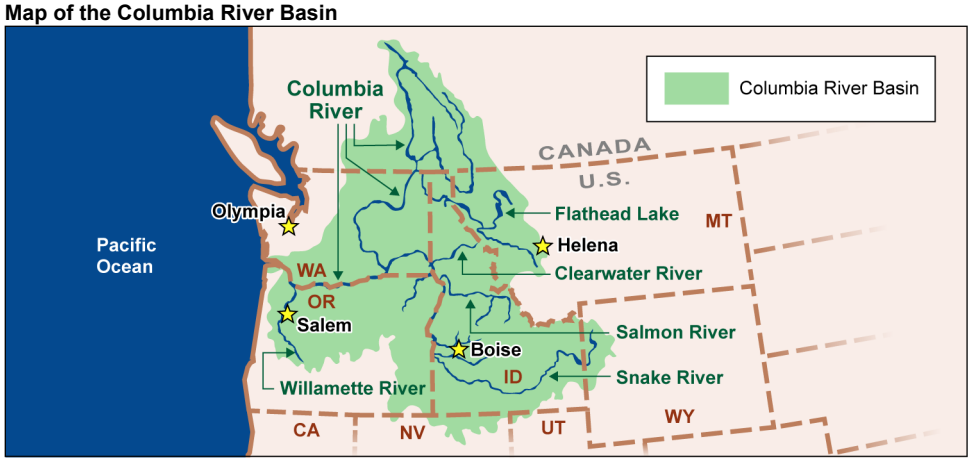
Entities implemented a range of restoration efforts. Efforts included activities to improve surface water quality and restore and protect habitat. For example, the Kootenai Tribe of Idaho implemented projects on the Kootenai River to restore and maintain conditions that support all life stages of native fish.

Entities used various collaborative approaches. Entities' approaches to collaboration for selected water quality-related efforts in the Basin varied. For example, the Environmental Protection Agency (EPA) sought various entities' voluntary involvement to coordinate toxics reduction efforts in the Basin.

Total federal expenditures could not be determined. Entities reported using a mix of federal and nonfederal funding sources for restoration efforts in the Basin, but total federal expenditures could not be determined, in part because there is no federal funding dedicated to restoring the Basin.

EPA and Office of Management and Budget (OMB) have not yet implemented Section 123. According to EPA officials, the agency has not yet taken steps to establish the Columbia River Basin Restoration Program, as required by the Clean Water Act Section 123. EPA officials told GAO they have not received dedicated funding appropriated for this purpose; however, EPA has not yet requested funding to implement the program or identified needed resources. By developing a program management plan that identifies actions and resources needed, EPA would have more reasonable assurance that it can establish the program in a timely manner. Also, an interagency crosscut budget has not been submitted. According to OMB officials, they have had internal conversations on the approach to develop the budget but have not requested information from agencies. A crosscut budget would help ensure Congress is better informed as it considers funding for Basin restoration efforts.

Map of the Columbia River Basin



Sources: U.S. Army Corps of Engineers; Map Resources (state borders). | GAO-18-561

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Abbreviations

Basin	Columbia River Basin
BPA	Bonneville Power Administration
BLM	Bureau of Land Management
CCMP	Comprehensive Conservation and Management Plan
EPA	Environmental Protection Agency
FERC	Federal Energy Regulatory Commission
FWS	United States Fish and Wildlife Service
NMFS	National Marine Fisheries Service
NOAA	National Oceanic and Atmospheric Administration
NRCS	Natural Resources Conservation Service
OMB	Office of Management and Budget
PCB	Polychlorinated biphenyls
TMDL	Total Maximum Daily Load
USGS	United States Geological Survey
Working Group	Columbia River Basin Restoration Working Group

U.S. GOVERNMENT ACCOUNTABILITY OFFICE
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August 24, 2018

The Honorable Bill Shuster
Chairman
The Honorable Peter DeFazio
Ranking Member
Committee on Transportation and Infrastructure
House of Representatives

The Columbia River Basin (Basin) is one of North America's largest watersheds, covering approximately 259,000 square miles, of which about 219,400 are in the United States and 39,500 in Canada. The Basin extends predominantly through the states of Idaho, Montana, Oregon, and Washington and into the Canadian province of British Columbia; it encompasses mountains, forests, rivers and tributaries, rangeland, and Pacific Ocean coastline.[1] The Basin has environmental, cultural, and economic significance, and its health is critical to the survival of hundreds of fish and wildlife species and to the well-being and livelihoods of the approximately 8 million people who inhabit and work in the Basin.

Historically, the Basin has constituted the largest salmon-producing river system in the world, with potentially up to 16 million salmon returning to the Basin each year for spawning purposes. The Basin is also integral to the region's shipping network, with ports lining the Columbia River and its tributaries as far upstream as Lewiston, Idaho, the furthest inland seaport in the western United States. However, hydroelectric power generation, agricultural practices, and other human activities have impaired water quality in some areas of the Basin to the point where historic salmon and steelhead stocks and human health are at risk.[2] Many Columbia River

[1]Relatively small areas of the Basin also extend into Nevada, Utah, and Wyoming. For the purposes of this report, we limited the scope of our review to the four states with the largest square mileage in the Columbia River Basin: Idaho, Oregon, Montana, and Washington.

[2]Environmental Protection Agency, *Columbia River Basin: State of the River Report for Toxics* (Portland, OR; January 2009).

tributaries, as well as the Columbia River mainstem and its estuary,[3] have been deemed 'impaired' under Section 303(d) of the Clean Water Act.[4]

Historically, restoration and monitoring efforts in the Basin have focused predominantly on recovering fish species—such as salmon—listed as threatened or endangered under the Endangered Species Act. For example, restoration efforts have included protecting riverside land through acquisitions and conservation easements and adding material to stream beds to create fish spawning and rearing habitat. Over time, these efforts have increased in scope to include a focus on water quality-related concerns—such as reducing river and stream temperatures—because impairments to water quality negatively affect fish populations, among other species.

More recently, public and scientific concern about the Basin has broadened to include a focus on improving water quality by reducing the presence of toxic contaminants—including mercury and the banned manufacturing chemical polychlorinated biphenyls (PCB)—and contaminants of emerging concern found in the Basin's fish, wildlife, water, and sediment.[5] Further, certain entities are increasingly recognizing that their investments to restore and maintain fish and wildlife habitat may not be fully realized if the water in those habitats remains contaminated.

[3]A river's tributaries, or upstream channels, feed into a river's primary downstream channel, also referred to as a river's mainstem. An estuary is a partially enclosed, coastal water body where freshwater from the mainstems of rivers and streams mixes with salt water from the ocean.

[4]33 U.S.C. § 1313(d). The goal of the Clean Water Act is "to restore and maintain the chemical, physical, and biological integrity of the Nation's waters." 33 U.S.C §1251(a). Under section 303(d) of the Clean Water Act, states are required to develop prioritized lists of impaired waters. 33 U.S.C. § 1313(d)(1)(A). These are waters for which technology-based regulations and other required controls are not stringent enough to reduce the impairment enough to meet the water quality standards set by states.

[5]PCBs were at one time manufactured for use in products such as lubricants and industrial transformers but have not been made in the United States since 1977. Long suspected and subsequently classified by the Environmental Protection Agency (EPA) in 1996 as a probable human carcinogen, PCBs have also been linked to a number of serious noncancerous health and environmental effects. Contaminants of emerging concern are characterized by a perceived, potential, or real threat to human health or the environment or by a lack of published health standards. Examples include pharmaceuticals, such as prescription and over-the-counter drugs, and ingredients in personal care products, such as cosmetics and soaps. A contaminant may also be considered to be emerging because a new source of public exposure has been discovered or a new detection method or treatment technology has been developed.

In 1987, Congress amended the Clean Water Act to establish the National Estuary Program to, among other things, identify nationally significant estuaries that are threatened by pollution, development, or overuse, and promote comprehensive management to restore them.[6] Since then, the U.S. Environmental Protection Agency (EPA) has designated 28 estuaries of national significance, including the lower Columbia River and its related tributaries. In addition, in 2006, EPA recognized the Columbia River Basin as one of the 10 key "large aquatic ecosystems" in the nation.[7]

Multiple entities are involved with water quality-related restoration efforts in the Basin, including federal agencies—such as the Bonneville Power Administration (BPA), EPA, the National Oceanic and Atmospheric Administration's (NOAA) National Marine Fisheries Service (NMFS), the U.S. Army Corps of Engineers, and the U.S. Forest Service—states, tribes, and nongovernmental entities.[8] These entities may engage in restoration efforts based on their specific mission or, for example, requirements under federal laws such as the Clean Water Act and the Endangered Species Act. They may also collaborate with other entities in their efforts to restore various aspects of the Basin. For example, in 1995, the Lower Columbia Estuary Partnership was established under the National Estuary Program to better coordinate restoration efforts throughout the estuary of the Basin (approximately 7 percent of the Basin's overall area).[9] In 2005, EPA established the Columbia River Toxics Reduction Working Group to coordinate toxics reduction work and share information among federal, state, tribal, local, and nongovernmental entities throughout the Basin that are engaged in such efforts. In 2016,

[6]Water Quality Act of 1987, Pub. L. No. 100-4, § 317(a), 101 Stat. 61 (codified at 33 U.S.C. § 1330).

[7]Large aquatic ecosystems comprise multiple small watersheds and water resources within a larger geographic area.

[8]For the purpose of our review, we defined "water quality-related restoration efforts" as a group of related projects, subprojects, and associated program activities that are managed in a coordinated way to obtain benefits not available from managing them individually. Under this definition, we included efforts that may directly or indirectly improve water quality, as well as efforts that monitor water quality. We excluded efforts related to drinking water infrastructure or groundwater sources.

[9]The Lower Columbia Estuary Partnership is a nongovernmental entity and has the mission to preserve and enhance the water quality of the estuary to support its biological and human communities. The Partnership partners with EPA, the states of Oregon and Washington, and regional and local environmental organizations, among others.

Congress amended the Clean Water Act by adding Section 123, which requires EPA to establish a Columbia River Basin Restoration Program.[10] Section 123 also requires the Office of Management and Budget (OMB) to prepare an interagency crosscut budget related to federal agencies' efforts to protect and restore the Columbia River Basin.[11]

You asked us to review restoration efforts in the Columbia River Basin, especially efforts intended to improve water quality. This report examines (1) restoration efforts to improve water quality in the Columbia River Basin from fiscal years 2010 through 2016; (2) approaches to collaboration that entities have used for selected efforts, including factors they identified that enabled or hindered collaboration in the Basin; (3) the sources of funding and federal funding expenditures; and, (4) the extent to which EPA and OMB have implemented Clean Water Act Section 123.

To examine water quality-related restoration efforts implemented in the Basin from fiscal years 2010 through 2016, we obtained documentation from and conducted interviews with entities throughout the Basin, including federal agencies, state agencies responsible for managing water quality in their state, federally and non-federally recognized tribes, tribal organizations, and nongovernmental entities. In May 2017, we developed, pretested, and distributed a survey to 41 entities we determined had implemented water quality-related efforts in the Basin from fiscal years 2010 through 2016.[12] We asked the entities to provide information on each program's primary and secondary purposes, one or two key examples of the activities conducted as part of the program, whether the entity was the only entity responsible for implementing the program, whether they received any federal funding to support implementation of the program, and the sources of the federal funding, among other topics.

To examine the approaches to collaboration entities utilized for select water quality-related restoration efforts, we selected five efforts for more

[10]Pub. L. No. 114-322, title IV, § 5010, 130 Stat. 1898 (Dec. 16, 2016), codified at 33 U.S.C. § 1275.

[11]Pub. L. No. 114-322, title IV, § 5010, 130 Stat. 1898 (Dec. 16, 2016), codified at 33 U.S.C. § 1275.

[12]The time frame of fiscal years 2010 through 2016 represented the most current data available at the time of the survey's distribution.

in-depth review.[13] Based on the responses to our survey on efforts in the Basin from fiscal years 2010 through 2016, we selected a limited number of efforts that were among the broadest in scope based on their geographic coverage and the number and type of entities involved. In addition, we selected efforts, in part, to highlight collaborative approaches for efforts implemented by a variety of entity types and with different primary purposes. We conducted interviews with officials and representatives from these efforts on the collaborative approaches they used to plan or implement their efforts and requested related documentation for review. In addition, we separately emailed questions to the 11 federal agencies with water quality-related restoration efforts in the Basin and that responded to our initial survey; in those emails, we solicited agency officials' opinions on practices that may have enabled or hindered collaboration on efforts their respective agencies planned or implemented. We also asked officials and representatives from the five selected efforts and officials from the 11 federal agencies for their opinions about challenges they experienced with collaboration in implementing restoration efforts in the Basin, as well as their suggestions for increasing collaboration on such efforts. In addition, to determine whether there was an existing mechanism for basin-wide collaboration on water quality-related restoration efforts, we reviewed existing legislation and interviewed agency officials.

To examine the sources of funding and federal funding expenditures in the Basin, we obtained budget documents, interviewed agency officials, reviewed responses to funding questions included in our survey, and requested expenditure data for five federal efforts for fiscal years 2014 through 2016.[14] Initially, we intended to use a second survey to collect comprehensive expenditures data for each water quality-related restoration effort that entities identified in response to our initial survey. However, in pretests with agency officials, we identified significant concerns with the accuracy and completeness of the information that we

[13]We selected the following efforts for review: (1) the Corps Northwestern Division Reservoir Control Center Water Quality Program, (2) the Washington State Spokane River & Lake Spokane Dissolved Oxygen Total Maximum Daily Load, (3) the Columbia River Toxics Reduction Working Group, (4) the Lower Columbia Estuary Partnership, and (5) the Confederated Tribes of the Umatilla Indian Reservation Fisheries Habitat Sub-Program.

[14]The efforts for which we collected information on expenditures are different from the five efforts we selected as examples of collaborative approaches for our reporting on approaches to collaboration that entities have used.

would gather through this approach, thereby limiting our ability to compare expenditure data across agencies and efforts. Given the degree of variability, uncertainty, and lack of detail in the information agencies could provide on their water quality-related restoration expenditures, we concluded that the data would not be reliable for the purpose of estimating expenditures of federal funding for water-quality related restoration efforts in the Basin. To provide some information on expenditures, we distributed a second survey to 5 agencies—BPA, Corps, EPA, Forest Service, and the United States Geological Survey (USGS)—and requested expenditures information for a specified restoration effort along with questions about the sources and processes the agencies followed in compiling the information. Based on our review of these responses, we determined that the expenditure information for these specific restoration efforts were sufficiently reliable for purposes of reporting on sources of funding and federal expenditures.

To examine the extent to which EPA and OMB have implemented Clean Water Act Section 123, we reviewed the law and its legislative history. We also requested documentation from, and conducted interviews with, officials at EPA and OMB as the federal entities responsible for implementing the law. We identified program management leading practices in the Project Management Institute's The Standard for Program Management and as discussed in our prior reports.[15] For additional information about our objectives, scope, and methodology, see appendix I.

We conducted this performance audit from October 2016 to August 2018 in accordance with generally accepted government auditing standards. Those standards require that we plan and perform the audit to obtain sufficient, appropriate evidence to provide a reasonable basis for our findings and conclusions based on our audit objectives. We believe that the evidence obtained provides a reasonable basis for our findings and conclusions based on our audit objectives.

[15]Project Management Institute, Inc., *The Standard for Program Management®*, Fourth Edition, 2017. The Project Management Institute is a not-for-profit association that provides global standards for, among other things, project and program management. These standards are utilized worldwide and provide guidance on how to manage various aspects of projects, programs, and portfolios. GAO*, Nuclear Nonproliferation: NNSA Needs to Improve Its Program Management Policy and Practices,* GAO-17-773 (Washington, D.C.: Sept. 28, 2017).

Background

Columbia River Basin

The Columbia River Basin is the fourth largest river basin in the United States and covers parts of seven states and British Columbia, Canada. It provides drainage for hundreds of rivers, creeks, and streams. More than 6 million acres of the Basin are irrigated agricultural land, and the Columbia River and its tributaries produce more hydroelectric power than any other North American river. The Columbia has 12 major tributaries, with the longest being the Snake River. The Columbia River itself flows more than 1,200 miles from its source in the Canadian Rockies to the Pacific Ocean, with the last 300 miles forming the border between the states of Oregon and Washington. The Basin has myriad dams and reservoirs—more than 250 reservoirs and approximately 150 other hydroelectric projects, including more than 35 major federal and nonfederal dams on the Columbia River and its major tributaries in the United States. For more details, see figure 1.

Figure 1: Major Dams on the Columbia River and Its Tributaries in the United States

Sources: U.S. Army Corps of Engineers; Map Resources (state borders). | GAO-18-561

The Basin provides environmental, economic, and social benefits to many public and private interests and is vital to many industries in the Pacific Northwest, including sport and commercial fisheries, agriculture, forestry, transportation, recreation, and electrical power generation. However, activities from these industries have affected the environment in the Basin and, among other impacts, impaired water quality in some areas to the point where human health is at risk and historic salmon and steelhead

stocks are at risk or extinct. Under the Clean Water Act, states have identified many Columbia River tributaries, the Columbia River itself, and its estuary as impaired. Major sources of impairment to water quality include pollutant run-off from agricultural activities and storm-water on impermeable surfaces (e.g., paved parking lots and roads); habitat modification due to the hydroelectric dams and their associated reservoirs; legacy toxic contaminants, such as mercury and PCBs; and contaminants of emerging concern, such as discarded pharmaceuticals. In addition, EPA Superfund sites are located throughout the Basin and may have negatively impacted water quality in locations such as Portland Harbor in Oregon, the Hanford Site in Washington, and the Upper Columbia River at Lake Roosevelt in Washington.[16] Figure 2 shows some sources that may lead to impairment of the Basin, including point and nonpoint sources of pollution.

[16]Congress enacted the Comprehensive Environmental Response, Compensation, and Liability Act in 1980 to protect human health and the environment from the effects of hazardous substances, including those in contaminated media such as groundwater, soil, or sediments. The act established the Superfund program, which is the federal government's principal program to clean up the nation's most contaminated hazardous waste sites, and EPA is the agency responsible for administering the program. Pub. L. No. 96-510 (1980) (codified as amended at 42 U.S.C. §§ 9601 – 9675).

Figure 2: Point and Nonpoint Sources of Pollution That May Impair Water Quality in the Columbia River Basin

Source: GAO analysis of state agency documentation. | GAO-18-561

Note: The figure shows that water quality impairments may stem from pollution by point sources, such as factories and wastewater treatment plants that discharge wastewater from pipes or other discrete points. Impairments may also stem from pollution by nonpoint sources such as vessel pollution; agricultural fields and livestock; failing septic systems; forestry operations; and stormwater runoff from roofs, lawns, parking lots, and roads.

In the early to mid-1990s, the states of Washington and Oregon sponsored monitoring studies that identified dozens of sites in the lower reaches of the Columbia River where contaminants exceeded water quality standards for the presence of pesticides, toxic metals, and cyanide, among other findings.[17] Further, in 1992, an EPA survey of contaminants in fish reported a potential health threat to tribal members and other people who eat fish from the Basin.[18] More recently, a 2009 EPA report summarized findings contained in studies by USGS and NMFS (in conjunction with the University of California-Davis).[19] The report noted that significant levels of toxic chemicals were found in fish and the waters they inhabit, including toxics banned from use since the 1970s, such as dichlorodiphenyltrichloroethane (commonly known as DDT) [20] and PCBs, as well as emerging contaminants, such as chemicals used for flame retardants. This has led states to periodically issue fish, and in some cases shellfish, advisories throughout the Basin warning the public not to consume more than specified quantities of contaminated aquatic species or, in some cases, at all. In addition to potential human health impacts, other studies have found that some contaminants have negative

[17]See e.g., Tetra Tech, Inc., *Lower Columbia River Bi-State Program: The Health of the River 1990-1996, Integrated Technical Report,* a report prepared for the Lower Columbia River Bi-State Water Quality Program, May 20, 1996. The Lower Columbia River Bi-State Water Quality Program was a public-private partnership administered by the states of Oregon and Washington that found a range of contaminants in the lower Columbia River in the early to mid-1990s.

[18]To evaluate the likelihood that tribal people would be exposed to high levels of contaminants in fish, EPA funded a survey of tribal members' fish consumption rates. The survey found that tribal members in the Basin eat significantly greater amounts of fish than the general U.S. population (6 to 11 times the consumption of an average American). Environmental Protection Agency, *National Study of Chemical Residues in Fish*, EPA 823-R-92-008a (1992). A follow-up 2002 EPA fish contaminant study found toxics in the fish that tribal members in the Basin eat. Environmental Protection Agency, *Columbia River Basin Fish Contaminant Survey, 1996-1998,* EPA 910-R-02-006 (2002).

[19]Environmental Protection Agency, *Columbia River Basin*.

[20]The United States banned DDT in 1972 because of its toxicity and environmental effects.

impacts on fish and wildlife populations in the Basin.[21] Since the 1990s, fewer sites in the Basin have been monitored for water quality, and investment in such monitoring has decreased, according to an EPA official. For example, according to staff from the Lower Columbia Estuary Partnership, monitoring sites on the mainstem lower Columbia River have decreased over time and currently one site is being monitored for toxics.

Selected Legislation Related to Water Quality in the Columbia River Basin

The Clean Water Act and Endangered Species Act are the primary federal statutes driving many of the restoration efforts in the Columbia River Basin. A range of other laws, treaties, court decisions, and authorities also serve to create requirements for entities to implement restoration efforts in the Basin.[22]

Clean Water Act: The Clean Water Act was enacted in 1972 to "restore and maintain the chemical, physical, and biological integrity of the nation's waters."[23] It establishes the basic structure for establishing surface water quality standards, as well as regulating discharges of pollutants into the waters of the United States, and provides various regulatory and non-regulatory tools for doing so. Under the Clean Water Act, EPA may allow states under certain circumstances to implement their own clean water programs and to enforce their requirements. EPA establishes by regulation the requirements for state enforcement

[21]For example, in 2007, endocrine-disrupting compounds that block or mimic hormones and harm fish and wildlife were detected at 22 of 23 sites in the Columbia River estuary. E.B. Nilsen, et al. "Pharmaceuticals, personal care products and anthropogenic waste indicators detected in streambed sediments of the Lower Columbia River and selected tributaries" (Paper presented at the 6th International Conference on Pharmaceuticals and Endocrine Disrupting Chemicals in Water, National Ground Water Association, October 2007). These compounds can cause male fish to morph into female fish within a life cycle, negatively affecting population ratios. They can also affect a fish's ability to avoid predators and resist disease. These effects inhibit recovery of the salmon and steelhead in the Basin that are listed as threatened and endangered under the Endangered Species Act.

[22]For example, some Indian tribes living in the Columbia River Basin consider salmon to be part of their spiritual and cultural identity, and fishing is still the preferred livelihood of many tribal members. Treaties between individual tribes and the federal government acknowledge the importance of salmon to the tribes and guarantee tribes certain fishing rights. See, e.g., United States v. Washington, 853 F.3d 946 (9th Cir. 2017).

[23]The Federal Water Pollution Control Act Amendments of 1972, Pub. L. No. 92-500, § 2, 86 Stat. 816, codified as amended at 33 U.S.C. §§ 1251-1387 (2017) (commonly referred to as the Clean Water Act). For consistency throughout this report, we refer to the statute and its amendments as the Clean Water Act.

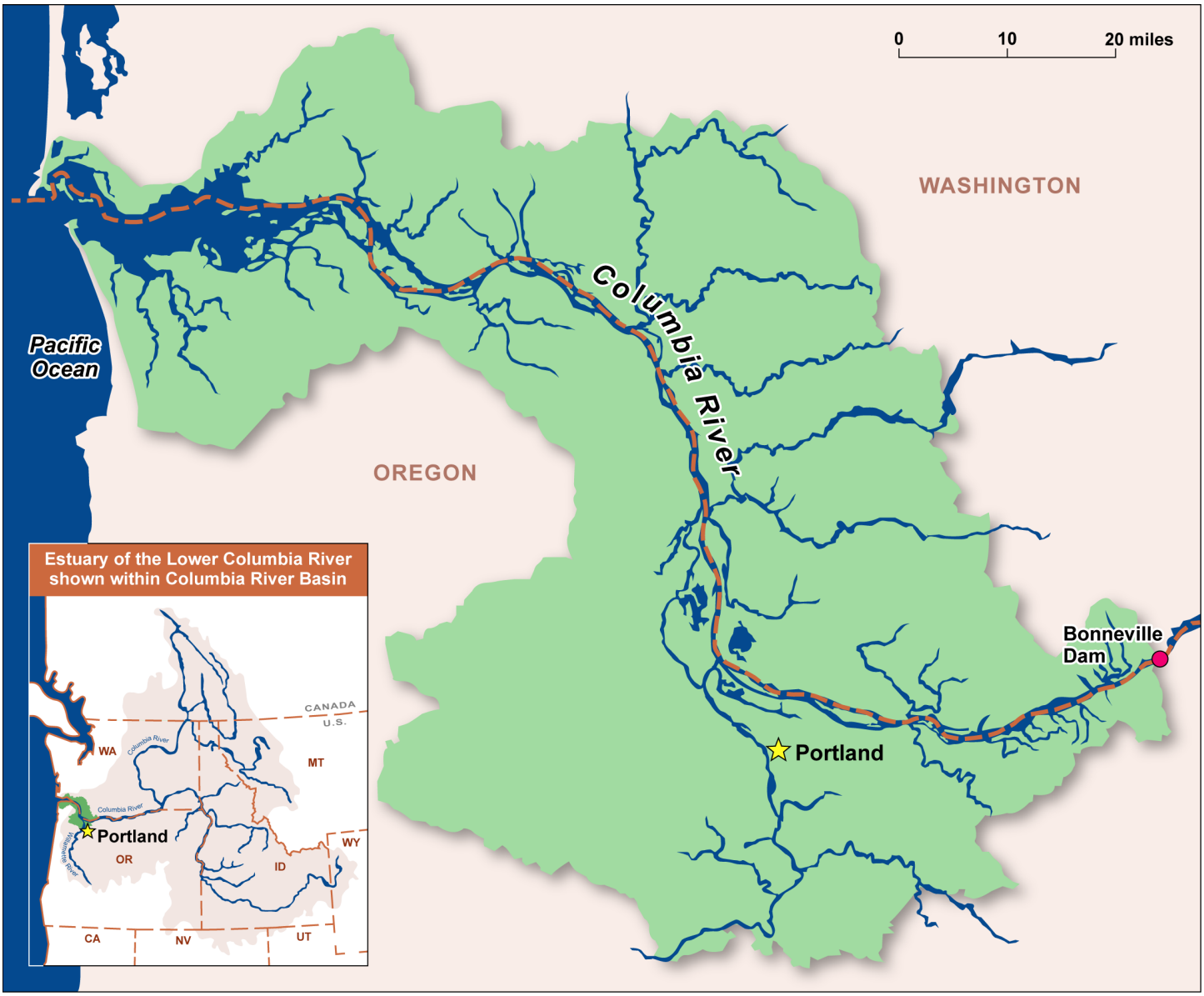
authority, such as the authority to seek injunctive relief and civil and criminal penalties.

National Estuary Program: In 1987, amendments to the Clean Water Act added Section 320, which established the National Estuary Program to promote comprehensive planning for, and conservation and management of, nationally significant estuaries, among other things. EPA oversees the program and has designated 28 estuaries as being of national significance, including the Lower Columbia Estuary.[24] Based on this designation, in 1995 EPA and the governors of Washington and Oregon established the Lower Columbia Estuary Partnership. The Partnership works with federal, state, tribal, local, and nongovernmental entities to improve the lower Columbia River and its estuary by protecting and restoring ecosystems and enhancing clean water for current and future generations of fish, wildlife, and people. Under Clean Water Act Section 320, as the management conference for the estuary, the Lower Columbia Estuary Partnership is required to develop and implement a comprehensive conservation and management plan (CCMP) to restore and maintain the chemical, physical, and biological integrity of the estuary, including water quality.[25] The CCMP for the lower Columbia River estuary covers the lower 146 miles of the Columbia River and its associated tributaries, or about 7 percent of the Basin overall, and is intended to reflect a scientific characterization of, and stakeholder concerns about, the estuary, including its water quality, habitats for animal and plant life, and other resource challenges. Figure 3 shows the area covered by the Lower Columbia Estuary Partnership's CCMP.

[24]According to the EPA, the "estuary of national significance" designation reflects both that these estuaries face chronic challenges to their water quality and the health and abundance of their living resources and that they are important to local, regional, and national economies. See Environmental Protection Agency, *National Estuary Program 2008-2010 Program Evaluation Report* (Washington, D.C.: Apr. 2, 2014).

[25]Under Clean Water Act Section 320, the management conference for each estuary of national significance develops a CCMP. CCMPs recommend priority corrective actions and compliance schedules addressing point and nonpoint sources of pollution.

Figure 3: Map of the Lower Columbia River Estuary



Sources: Lower Columbia Estuary Partnership; U.S. Army Corps of Engineers; Map Resources (state borders). | GAO-18-561

Clean Water Act Section 123 on Columbia River Basin Restoration: The Water Infrastructure Improvements for the Nation Act of 2016 amended the Clean Water Act by adding Section 123 on Columbia River

Basin Restoration.[26] The law requires EPA to establish the Columbia River Basin Restoration Program, which is to be a collaborative stakeholder-based program for environmental protection and restoration activities through the Basin. Legislation calling for establishment of a Columbia River Basin restoration program within EPA was introduced in 2010.[27] According to a Congressional committee report accompanying the bill, a main finding was that while EPA in 2006 recognized the Columbia River Basin as one of the nation's large aquatic ecosystems and had in place an organizational structure to manage restoration efforts being implemented in the lower Columbia River estuary, there was no congressionally authorized program or dedicated appropriations to support the water quality restoration and toxic reduction efforts throughout the Basin.[28] Section 123 directs EPA to assess trends in water quality in the Basin, collect and assess data on potential causes of water quality problems, develop a program to provide grants to various entities, and establish a voluntary interagency Columbia River Basin Restoration Working Group (Working Group).[29] The law also requires the President's annual budget submission to include an interagency crosscut budget prepared by OMB that displays, for each federal agency involved in the protection and restoration of the Columbia River Basin, funding amounts obligated for those purposes in the preceding fiscal year, the estimated budget for the current fiscal year, and the proposed budget for the next fiscal year for related activities at each agency. Figure 4 shows the requirements of Clean Water Act Section 123.

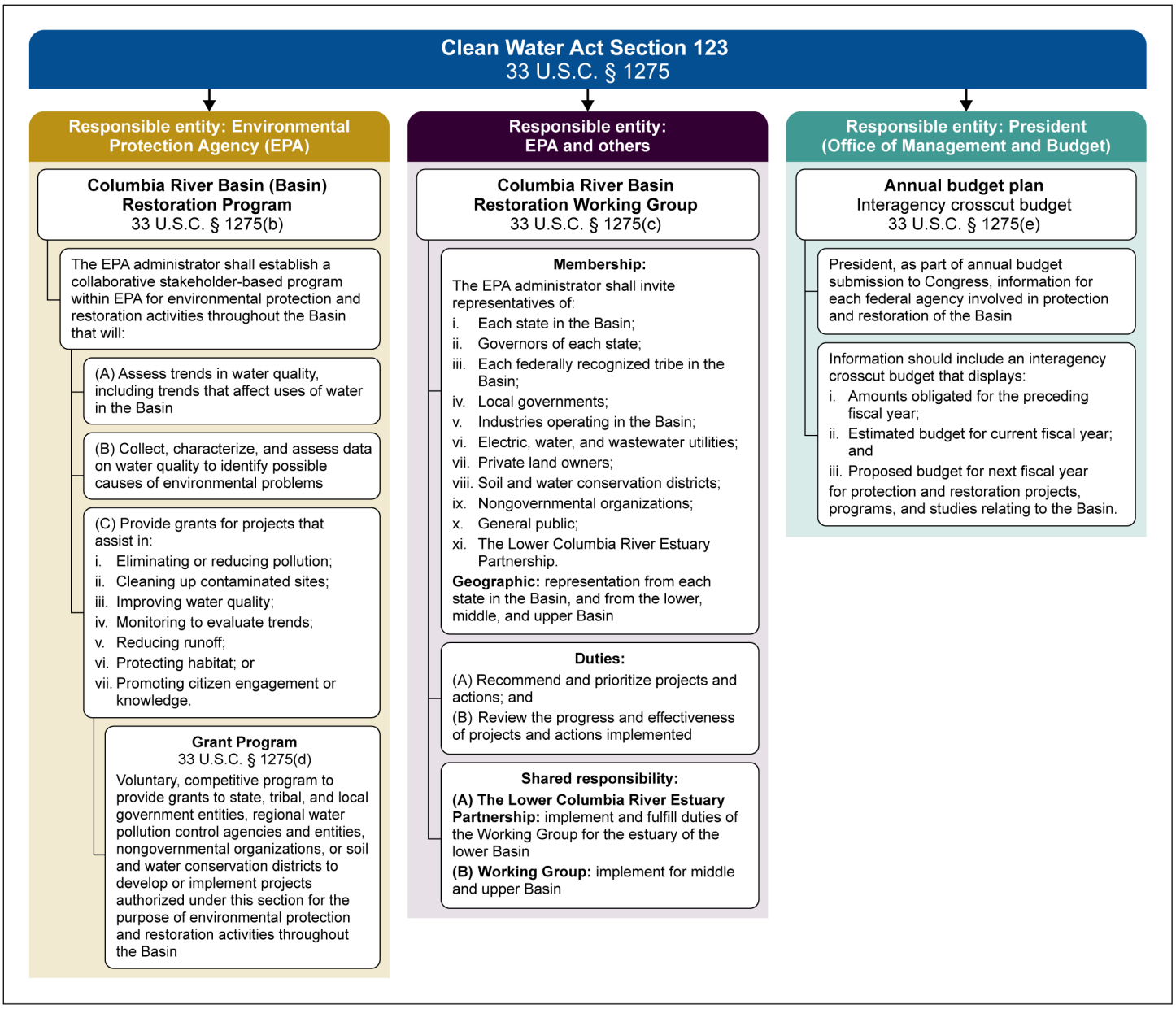
[26]Pub. L. No. 114-322, title IV, § 5010, 130 Stat. 1898 (Dec. 16, 2016), codified at 33 U.S.C. § 1275.

[27]See S. 3052, "The Columbia River Restoration Act of 2010," Feb. 23, 2010.

[28]S. Rep. No. 111-358, at 2 (2010).

[29]The Working Group is to include, among others, representatives from each state located in whole or in part in the Basin and each of the lower, middle, and upper basins of the Columbia River. Membership in the Working Group is to be on a voluntary basis, and the working group is to recommend and prioritize projects and actions and review the progress and effectiveness of projects and actions implemented.

Figure 4: Requirements of the Clean Water Act Section 123



Source: GAO analysis of Clean Water Act Section 123 on Columbia River Basin Restoration, as amended by the Water Infrastructure Improvements for the Nation Act of 2016. Pub. L. No. 114-322, title IV, § 5010, 130 Stat. 1898 (Dec. 16, 2016), codified at 33 U.S.C. § 1275. | GAO-18-561

Endangered Species Act: Enacted in 1973, the purpose of the Endangered Species Act is to protect and recover imperiled species and

the ecosystems upon which they depend.[30] It is jointly administered by the U.S. Fish and Wildlife Service (FWS) and NMFS. Generally, the FWS manages land and freshwater species, and NMFS manages marine species and anadromous fish, such as salmon.[31] Under the Endangered Species Act, species may be listed as either endangered or threatened.[32] In the Basin, numerous species have been listed, including 13 species of salmon and steelhead. Under Section 7 of the act, federal agencies are to ensure that any actions they authorize, fund, or carry out, whether on federal or private lands, do not jeopardize listed species. To fulfill this responsibility, the agencies often must formally consult with FWS or NMFS, which issues a biological opinion assessing whether the agency action is likely to jeopardize the continued existence of the species or result in destruction or adverse modification of critical habitat.[33] For example, three federal agencies—the Corps, BPA, and Bureau of Reclamation—operate and manage federal dams and other hydroelectric facilities that comprise the Federal Columbia River Power System under a biological opinion NMFS issued in 2008.The biological opinion includes, among other measures, performance standards for the survival rate of fish migrating upstream or downstream past the associated dams and reservoirs. Additional required mitigation actions include those related to habitat restoration, predation management, and hatchery management to mitigate for the adverse effects of the system, as well as numerous research, monitoring, and evaluation actions to support and inform adaptive management decisions.[34]

[30]16 U.S.C. §§ 1531-1544.

[31]Anadromous fish species migrate between saltwater and freshwater during their lifetime.

[32]"Endangered" means a species is in danger of extinction throughout all or a significant portion of its range. "Threatened" means a species is likely to become endangered within the foreseeable future.

[33]16 U.S.C § 1536.

[34]Biological opinions related to operation and management of the Federal Columbia River Power System have been the subject of ongoing litigation since 2001. NMFS issued the most recent FCRPS biological opinion in 2008 and issued supplements in 2010 and 2014. On April 17, 2018, the court held that NMFS would not need to produce a revised biological opinion until March 2021. Although the court is not requiring a new biological opinion in 2018, the Endangered Species Act incidental take coverage for the Federal Columbia River Power System expires at the end of 2018, according to NMFS officials. To ensure compliance with the Endangered Species Act, these officials said NMFS and other agencies are proceeding with a consultation, with the intent to produce a new biological opinion by the end of December 2018.

Large Aquatic Ecosystems: EPA has designated specific areas around the country as "large aquatic ecosystems." Such ecosystems comprise multiple small watersheds and water resources within a large geographic area. Over the years, EPA has worked with other federal agencies, state and local governments, tribes, and others to develop specific geographic-based programs to protect and restore these areas, including the Chesapeake Bay and the Great Lakes.[35] In 2006, EPA recognized the Columbia River Basin as a large aquatic ecosystem to help promote the development of new cooperative initiatives and efforts to improve water quality, remove contaminated sediments, restore native fish species, and preserve and restore aquatic habitat and ecosystems throughout the Basin. In 2008, EPA's Office of Water established a national Council of Large Aquatic Ecosystems to work within the agency and better support and promote efforts being implemented by the geographic-based programs to protect these large aquatic ecosystems.[36] EPA incorporated strategic goals and objectives for most large aquatic ecosystems into its strategic plan for fiscal years 2006 through 2011 and into its national water program guidance.[37] Over time, for the majority of these large aquatic ecosystems—such as the Chesapeake Bay, Great Lakes, Long Island Sound, and Puget Sound—EPA formally established dedicated program offices and received congressional appropriations specifically for

[35]For more information on the Chesapeake Bay and Great Lake's restoration efforts, see GAO, *Chesapeake Bay: Restoration Effort Needs Common Federal and State Goals and Assessment Approach,* GAO-11-802 (Washington, D.C.: Sept. 15, 2011) and *Great Lakes Restoration Initiative: Improved Data Collection and Reporting Would Enhance Oversight,* GAO-15-526 (Washington, D.C.: July 21, 2015).

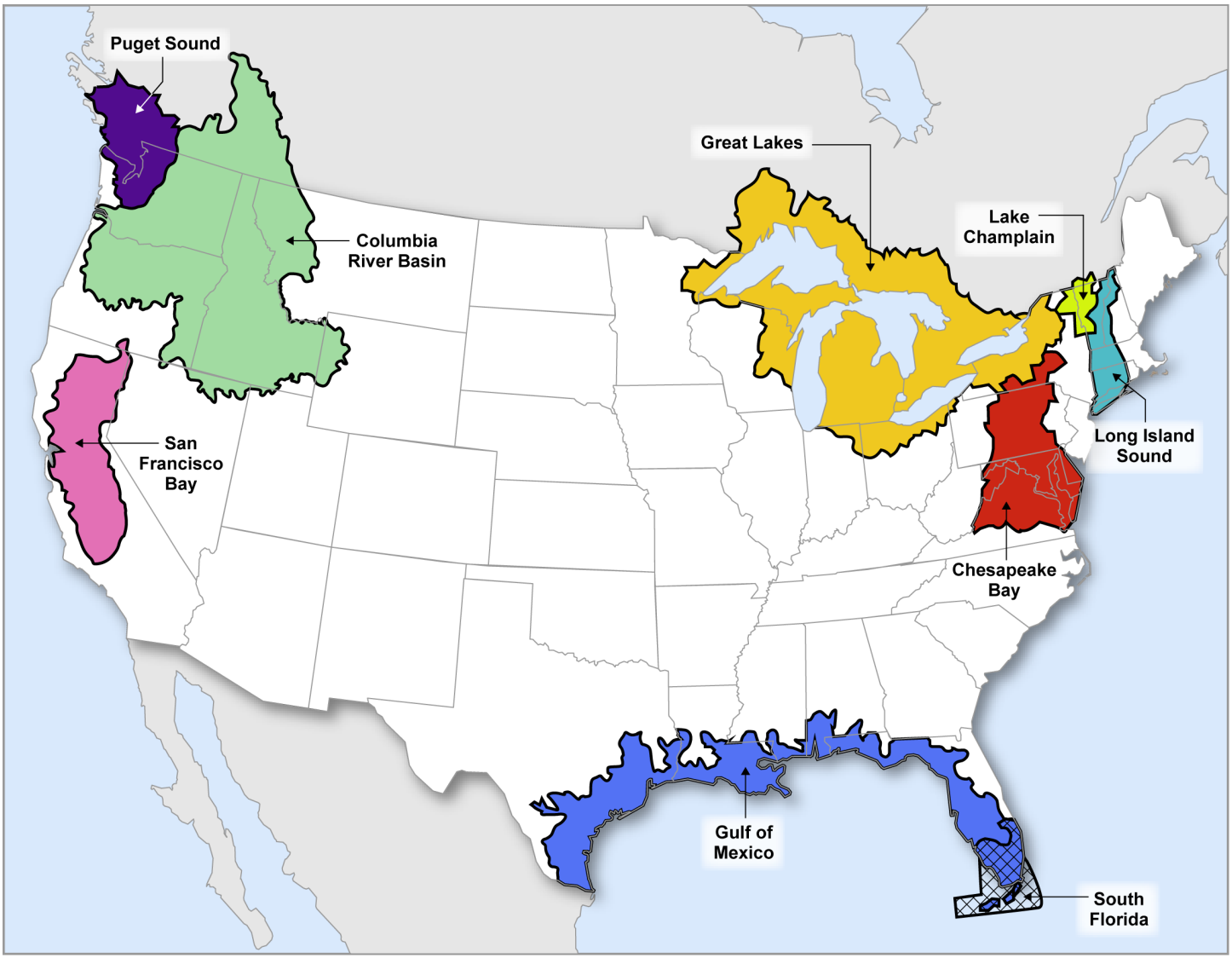
[36]EPA recognized 10 large aquatic ecosystems at the time the council was formed in 2008, including: (1) Chesapeake Bay, (2) Columbia River, (3) Great Lakes, (4) Gulf of Mexico, (5) Lake Champlain, (6) Long Island Sound, (7) Pacific Islands, (8) Puget Sound, (9) San Francisco Bay, and (10) South Florida. The primary goals of the council were to encourage the exchange of best management practices, improve coordination between site-specific programs and EPA's core national programs, strengthen linkages with EPA's strategic plan and budget, and focus EPA research based on each large aquatic ecosystem's identified needs. According to EPA officials we interviewed, the council met on a limited number of occasions over the course of a few years before such meetings ended in 2011.

[37]For the Columbia River Basin, this included goals for number of acres of wetland habitat restored in the Lower Columbia River watershed, acres of known contaminants cleaned up, and reductions in concentrations of toxic contaminants in water and fish tissue.

restoration efforts in each large aquatic ecosystems geographic area.[38] See figure 5 for the large aquatic ecosystems designated by EPA throughout the United States.

[38]EPA receives funding for restoration efforts for most of the large aquatic ecosystems through the Geographic Programs account within the Environmental Program and Management appropriation. EPA also receives funding through this appropriation for other smaller-scale restoration efforts for specific geographic areas such as Lake Pontchartrain, Louisiana, and components of the coastal watersheds of southeast New England. While EPA's budget and the appropriation acts refer to "geographic programs," EPA officials stated that this is simply another way of referring to large aquatic ecosystems.

Figure 5: EPA's Large Aquatic Ecosystems



Sources: GAO analysis of Environmental Protection Agency documents; Map Resources (map). | GAO-18-561

Note: This figure includes 9 of the 10 areas EPA has designated as large aquatic ecosystems. The Pacific Islands are not shown.

Entities Involved in Water Quality-Related Restoration Efforts in the Basin

Multiple entities conduct activities related to restoration efforts in the Basin, including federal agencies, state agencies, federally and non-federally recognized tribes,[39] tribal organizations, and nongovernmental entities.[40] Along with their primary water, power, resource, and other management and regulatory responsibilities, federal, state, and tribal entities are responsible under various laws, treaties, executive orders, and court decisions for protecting, mitigating, and enhancing fish and wildlife resources in the Basin, among other things.[41]

Eleven federal agencies, within six departments, are involved with water quality-related restoration efforts in the Basin. The departments and agencies, and their respective roles, include:

- **U.S. Department of Agriculture**
  - **Forest Service:** Manages national forests and grasslands under the principles of multiple use and sustained yield.
  - **Natural Resources Conservation Service (NRCS):** Assists farmers, ranchers, and other landowners in developing and carrying out voluntary efforts to protect the nation's natural resources.
- **U.S. Department of Commerce**
  - **NMFS:** Conserves, protects, and manages living marine resources to ensure their continuation as functioning components of marine ecosystems and to afford economic opportunities;

[39]Laws, treaties, and executive orders create federal responsibilities to Indian tribes and guide federal agency activities that affect the tribes of the Columbia River Basin. Federal laws create a responsibility for federal agencies to support tribal self-government, facilitate tribal participation in federal activities, and assist in the management of tribal resources. In addition, treaties between the United States and certain tribes in the Basin document the agreements reached between the federal government and the tribes in exchange for the tribes ceding most of their ancestral lands. Federal agencies have a general trust responsibility to protect tribal rights reserved under these treaties. Typically, each treaty describes the boundaries of the tribal lands ceded, the boundaries of lands reserved for habitation by the tribe, payments to be made to the tribe, and certain rights of the tribe under the treaty, including specific hunting and fishing rights.

[40]For a complete list of entities contacted for this report, see appendix I.

[41]For more details on authorities related to federal fish and wildlife activities in the Basin, see GAO, *Columbia River Basin: A Multilayered Collection of Directives and Plans Guides Federal Fish and Wildlife Activities*, GAO-04-602 (Washington, D.C: June 4, 2004). For a complete list of our previous work in this area, see the Related GAO Products page at the end of this report.

implements the Endangered Species Act for marine and anadromous species; and supports on-the-ground habitat restoration projects with funding and technical assistance.

- **U.S. Department of Defense**
  - **Corps:** Designs, builds, and operates hydroelectric civil works projects in the Basin to provide electric power, navigation, flood control, and environmental protection.
- **U.S. Department of Energy:** Addresses U.S. energy, environmental, and nuclear challenges through science and technology solutions, including clean-up of the former Hanford plutonium production site for nuclear weapons in Washington.
  - **Bonneville Power Administration (BPA):** BPA provides power and transmission services and markets the electricity generated by the Corps and Reclamation dams comprising the Federal Columbia River Power System.
- **U.S. Department of the Interior**
  - **Bureau of Land Management:** Administers public lands and subsurface mineral resources under the principle of multiple use and sustained yield.
  - **FWS:** Manages wildlife refuges; conserves, protects, and enhances fish, wildlife, and plants; and implements the Endangered Species Act for terrestrial species, migratory birds, certain marine mammals, and certain fish.
  - **Reclamation:** Designs, constructs, and operates water projects for multiple purposes, including irrigation, hydropower production, municipal and industrial water supply, flood control, recreation, and fish and wildlife.
  - **USGS:** Conducts objective scientific studies and provides information to address problems dealing with natural resources, geologic hazards, and the effects of environmental conditions on human and wildlife health.
- **EPA:** Protects human health and safeguards the natural environment by protecting the air, water, and land, including administration of the Clean Water Act.

Various Entities Implemented a Range of Restoration Efforts for Improving Water Quality in the Columbia River Basin from Fiscal Years 2010 through 2016

In response to our survey, various entities—federal and state agencies, tribes and tribal organizations, and nongovernmental entities—identified a range of restoration efforts they implemented related to improving water quality in the Columbia River Basin from fiscal years 2010 through 2016. Although there have been some plans to guide certain restoration efforts for parts of the Basin, there is no overall plan to guide water quality-related restoration efforts throughout the Columbia River Basin or a requirement for a federal agency or others to develop such a plan.

We found that entities implemented their restoration efforts under a range of authorities and programmatic missions. At the federal and state levels, many of the restoration efforts were implemented as part of programs with a broader geographic scope than the Basin. For example, many of EPA's efforts are part of programs that have a nationwide focus, such as the Clean Water Act Section 106 Water Pollution Control Grant Program, which provides grants to states, territories, interstate agencies, and eligible tribes to establish and administer water pollution control programs for the prevention, reduction, and elimination of pollution. Conversely, other restoration efforts have been implemented exclusively in the Columbia River Basin. For example, the Shoshone-Bannock Tribe's Yankee Fork Restoration Program works to improve the floodplain and riparian zones along dredged sections of the Yankee Fork Salmon River.[42] Appendix II provides a list of the restoration efforts implemented in the Columbia River Basin from fiscal years 2010 through 2016, based on entities' responses to our survey. See table 1 for examples of a range of restoration efforts implemented by various entities in the Basin from fiscal years 2010 through 2016.

[42]The Yankee Fork Salmon River is located in Idaho. Riparian zones or areas include the narrow bands of green adjoining rivers, streams, or springs.

Table 1: Examples of Restoration Efforts by Federal, State, Tribal, and Nongovernmental Entities to Improve Water Quality in the Columbia River Basin from Fiscal Years 2010 through 2016

Entity and restoration effort	Description
Federal	
Bonneville Power Administration's Fish and Wildlife Program	Provides funding for projects implemented by a number of other federal agencies and entities to protect, mitigate, and enhance fish and wildlife, including related spawning grounds and habitat, on the Columbia River and its tributaries. According to BPA, this is consistent with the Columbia Basin Fish and Wildlife Program developed by the Northwest Power and Conservation Council.
National Oceanic and Atmospheric Administration's Ecotoxicology Program	Works with the Lower Columbia Estuary Partnership and other federal agencies to conduct research to evaluate the impacts of toxic contaminants on salmon in the Lower Columbia River that are listed as threatened or endangered.
State	
Oregon State Department of Environmental Quality's Pesticide Stewardship Partnership Program	Identifies potential concerns and improves water quality affected by pesticide use around Oregon, including the Columbia River Basin. The partnerships combine local expertise and water quality sampling results to encourage voluntary changes in pesticide use and management practices.
Washington State Department of Ecology's Columbia River Basin Local Source Control	Provides pollution prevention advice and regulatory assistance to businesses and other organizations that generate small quantities of dangerous waste through a partnership with local governments, cities, counties, and health districts. The effort is designed to help business owners manage waste and prevent polluted runoff from damaging the state's streams, rivers, and Puget Sound.
Tribal	
Kootenai Tribe of Idaho's Kootenai River Native Fish and Conservation Aquaculture Program	Uses conservation aquaculture techniques to prevent the extinction and restore a healthy self-sustaining population of Kootenai River white sturgeon and re-establish a healthy self-sustaining population of burbot in the Lower Kootenai River.
Nez Perce Tribe's Hazardous Environmental Response Team Program	Provides a tribal response to petroleum and hazardous material spills impacting Nez Perce Reservation rivers, groundwater, and soil.
Nongovernmental	
Columbia Riverkeeper's Water Quality Monitoring and Adopt-a-River Program	Uses volunteers to conduct monthly monitoring at more than 100 sites for pollution indicators—including conductivity, pH, water clarity (turbidity), dissolved oxygen, temperature, E. coli, and toxics (as part of targeted studies)—to help the organization identify sources of pollution problems and prioritize restoration efforts.
Lower Columbia Estuary Partnership's Habitat Restoration Program	Manages projects that restore and protect habitat between Bonneville Dam and the mouth of the Columbia River, as the habitat restoration in turn supports the recovery of salmon and other wildlife and helps to protect human uses of the river.

Source: GAO analysis of Columbia River Basin entities' responses to GAO survey and agency documents. | GAO-18-561

Based on responses to our survey, we found that entities implemented restoration efforts in the Columbia River Basin for a variety of purposes, such as improving surface water quality or reducing toxic pollutants. Specifically, our survey listed five purposes and asked entities to identify whether each was a primary purpose, secondary purpose, or not a purpose of the respective restoration effort. Overall, the most common primary purposes identified were improving surface water quality and

restoring and protecting habitat. For example, the Forest Service identified monitoring surface water quality as the sole purpose for its Pacific Northwest Region Aquatic Inventory and Monitoring effort, which inventories and monitors watershed and stream habitat conditions to provide information and feedback to improve resource protection and restoration programs. Similarly, FWS identified restoring and protecting habitat as the primary purpose of its National Fish Habitat Partnership Pacific Region effort. This effort—part of a nationwide program—focuses on restoring aquatic habitat important to fish species of regional significance in the Columbia River Basin. See table 2 for the purposes identified in our survey and examples of associated restoration efforts.

Table 2: Purposes Identified in the GAO Survey and Examples of Associated Restoration Efforts Implemented in the Columbia River Basin from Fiscal Years 2010 through 2016

Purpose	Restoration Effort [a]
Improving surface water quality	Bureau of Reclamation's Pacific Northwest Region Water Quality Program conducts sampling and monitoring at projects to assess impact on water quality and ensure compliance with federal and state water quality standards. The program also provides support for water quality activities implemented by other entities, such as states, tribes, and individual landowners.
Monitoring surface water quality	U.S. Geological Survey's National Water Quality Program provides an understanding of whether water quality conditions are getting better or worse over time and how natural features and human activities affect those conditions.
Reducing toxic pollutants	Idaho Department of Environmental Quality's Pollution Prevention Technical Assistance Program provides technical expertise to entities, such as businesses, to help them incorporate pollution prevention techniques.
Recovering threatened or endangered species	Confederated Tribes of the Colville Reservation's Anadromous Fish Program and Resident Fish Program provides ceremonial and subsistence fisheries for the tribal membership.
Restoring and protecting habitat	Salmon-Safe's Certification Program oversees peer-reviewed certification and accreditation programs to link site development land management practices with the protection of agricultural and urban watersheds.[b]

Source: GAO analysis of Columbia River Basin entities' responses to GAO survey. | GAO-18-561

[a]Entities may have identified more than one primary purpose associated with the restoration effort.

[b]Salmon-Safe is a nonprofit entity based in Portland, Oregon. Its mission is to transform land management practices so Pacific salmon can thrive in West Coast watersheds.

In addition, we found that restoration efforts implemented in the Columbia River Basin can directly or indirectly support improving water quality. For example, some restoration efforts directly support improving water quality, such as efforts whose primary purpose included monitoring surface water quality. Other restoration efforts indirectly support improving water quality. For example, NRCS' Conservation Stewardship Program's primary purpose is helping agricultural producers, ranchers, and forest

landowners expand their conservation activities to enhance natural resources while simultaneously improving their operations. These efforts do not directly focus on improving water quality, but activities implemented through these efforts may indirectly improve water quality in the Columbia River Basin.

Entities Used Various Collaborative Approaches for Selected Restoration Efforts

We found that entities' approaches to collaboration for selected water quality-related restoration efforts in the Basin from fiscal years 2010 through 2016 varied based on the specific circumstances of the given effort. This was in part because there is no overall coordinating body to guide water quality-related restoration efforts throughout the Columbia River Basin or a requirement prior to the enactment of Section 123 for federal agencies or others to develop such a body.[43] For example, certain efforts are required by law or regulation to use specific types of collaborative approaches (e.g., stakeholder review of proposed program plans), and other efforts that are voluntary in nature may use different approaches to engaging and maintaining collaborative efforts among relevant entities. For example, the Washington State Department of Ecology and others developed the dissolved oxygen total maximum daily load (TMDL) for the Spokane River and Lake Spokane through a regulatory process that included public review and comment.[44] In contrast, entities such as the Lower Columbia Estuary Partnership and the Columbia River Toxics Reduction Working Group sought the voluntary involvement of other entities through their mutual interest in a common outcome, in this case restoring the lower Columbia River estuary and reducing toxics in the Basin, respectively.

[43]We discuss Section 123 in more detail later in the report.

[44]To improve the condition of water bodies that states identify as impaired, the Clean Water Act requires states to develop pollutant budgets, known as TMDLs, generally for each pollutant impairing a water body. A TMDL is a numeric target for a specific pollutant and reflects the maximum amount of the pollutant that a water body can contain and still be considered in compliance with water quality standards. TMDLs are to identify the applicable water body, pollutant of concern, and pollutant sources—as well as the share of pollutant reduction to be achieved by both point sources and nonpoint sources. After states develop TMDLs, they take the lead in implementing these plans. According to EPA, as of February 2017, more than 230 TMDLs had been approved and were in place for waters in the Basin. For additional information about TMDLs, see GAO, *Clean Water Act: Changes Needed If Key EPA Program Is to Help Fulfill the Nation's Water Quality Goals*, GAO-14-80 (Washington, D.C.: Dec. 5, 2013).

In addition, based on responses to our survey, the majority of restoration efforts in the Basin involved multiple entities. Specifically, for restoration efforts implemented in the Basin from fiscal years 2010 through 2016, respondents reported that approximately 71 percent of the efforts involved more than one entity and that approximately 29 percent were implemented solely by a lead entity.

To highlight examples of collaborative approaches entities used for water quality-related restoration efforts, we selected five efforts for review.[45] While these efforts are not generalizable to all restoration efforts in the Basin, they highlight specific collaborative approaches entities used for individual restoration efforts, as follows:

- **Effort 1: The Corps Northwestern Division Reservoir Control Center Water Quality Program (2008-present)** is a federally led effort designed to implement the 2008 Federal Columbia River Power System biological opinion, and collaboration is enabled through coordination meetings, facilitated by a neutral third party, to manage Corps project operations affecting water quality. For example, according to Corps guidelines, day-to-day coordination of Corps operations (e.g., voluntary water spill over dams)[46] to meet the biological opinion's requirements and comply with water quality standards occurs through biweekly or more frequent meetings of its operational-level interagency Technical Management Team.[47] The team operates under institutionalized collaboration procedures that provide guidance for, among other things, membership, member roles and responsibilities, and procedures for meetings and decision making. According to agency documentation, meetings of the

[45]We selected the five case examples to highlight various types of collaboration approaches among the efforts with the broadest scope in terms of their geographic coverage and the number and type of stakeholders involved. In addition, we selected efforts in part to ensure that we included collaboration approaches for efforts with different primary purposes.

[46]We have previously reported that, when water is sent through a dam's turbines to generate electricity, this action may restrict spilling water over the dam to aid juvenile fish passage. Significantly reducing the amount of water spilled over the dams may affect the survival rates of some juvenile populations, which may in turn affect the number of adult salmon and steelhead returning to spawn in the future. See GAO, *Columbia River Basin Salmon and Steelhead: Federal Agencies' Recovery Responsibilities, Expenditures and Actions*, GAO-02-612 (Washington, D.C.: July 26, 2002).

[47]The Technical Management Team's membership includes officials from federal agencies; the states of Idaho, Montana, Oregon, and Washington; and tribes affected by the Federal Columbia River Power System.

Technical Management Team are facilitated by an impartial contracted facilitator whose position is designed to enable team members the opportunity to fully participate in discussions and help members resolve conflicts as they arise.

- **Effort 2: Washington State's Spokane River & Lake Spokane Dissolved Oxygen TMDL (2004-present)** is a state-led effort, regulatory in nature, and collaboration is enabled through an associated Foundational Concepts guiding document.[48] Under the Clean Water Act, Washington State was required to develop a TMDL and associated water quality improvement plan for the Spokane River and Lake Spokane because the state identified several segments of these water bodies as having impaired water quality. In a 2004 draft TMDL, the state proposed phosphorus discharge requirements necessary for the river to meet the state's water quality standards. However, not all responsible for point source pollution discharges believed that well-established technology existed that could achieve these requirements, according to the Foundational Concepts document. The state developed the document specifically to enhance and further enable a collaborative approach among the regulatory agencies and the pollution dischargers involved in revising and finalizing the TMDL, according to Washington State officials. The final TMDL document, issued in 2010, noted that technology was available that could bring current discharges much closer to the levels required by water quality standards, and that Washington State could develop a plan, approved by EPA, that would provide reasonable assurance that the standards could be achieved within 10 years.
- **Effort 3: The Columbia River Toxics Reduction Working Group (2005-present)** is an EPA-led effort, voluntary in nature, and collaboration is enabled by a joint signed executive statement signed in 2011.[49] EPA developed the group—in conjunction with other

[48]Spokane River TMDL Collaboration, *Foundational Concepts for the Spokane River TMDL Managed Implementation Plan* (June 30, 2006). The Foundational Concepts document was developed by the Washington State Department of Ecology, Washington State point source pollution dischargers, local governments, the Idaho State Department of Environmental Quality, EPA, the Spokane Tribe of Indians, environmental groups, and Avista Utilities (corporate owner of Long Lake Dam).

[49]Environmental Protection Agency and Columbia River Toxics Reduction Working Group, *"Executive Statement"* (Portland, OR: August, 24, 2011). The executive statement was signed by senior leaders from EPA's Region 10 office; NOAA; FWS; USGS; the states of Idaho, Oregon, and Washington; the Columbia River Inter-Tribal Fish Commission; the Confederated Tribes of the Umatilla Indian Reservation; the Upper Snake River Tribes Foundation; Columbia Riverkeeper; the Lower Columbia Estuary Partnership; Spokane Riverkeeper, and Salmon-Safe.

relevant federal, state, tribal, local, and nonprofit partners—to better coordinate toxics reduction efforts in the Basin and to share related information within the context of each organization's own roles and responsibilities.[50] Executives from the partner agencies, tribes, and organizations demonstrated their leadership commitment for the Columbia River Toxics Reduction Working Group's efforts by signing the joint statement. The executive statement was designed to publicly highlight their commitment to be partners involved with the Columbia River Toxics Reduction Working Group toward the collaborative efforts necessary to reduce toxics in the Basin.[51]

- **Effort 4: The Lower Columbia Estuary Partnership (1995-present)** is an effort led by a nongovernmental organization, voluntary in nature, and collaboration is enabled through a management plan.[52] The Partnership's organizational purpose is to facilitate restoration efforts in the lower Columbia River estuary portion of the Basin by building on existing efforts, providing a regional framework for action, and filling gaps in understanding and planning, among other things. The Partnership's CCMP guides the collaborative efforts of the Partnership and its associated stakeholders and identifies what the

[50]The group was initially formed to examine and compile data on levels of toxic contaminants in the water, sediment, and fish in the Basin. These data were not comprehensive and were scattered among many reports, resulting in the need to compile these data into a report on the potential impacts from toxic contaminants from a basin-wide perspective. In 2009, the group issued a report *"Columbia River Basin: State of the River Report for Toxics,"* with the goal of informing relevant entities about the toxics present and to begin dialogue on potential solutions for improving the Basin's water quality.

[51]According to one EPA official we interviewed, the working group began decreasing its activities starting in 2012 due to a lack of funding to support ongoing efforts and initiate new projects. The working group's last in-person meeting occurred in October 2015, and it is no longer a collaborative mechanism being implemented on a regular basis for basin-wide collaboration. According to the EPA official, the working group plans to reconvene in 2018.

[52]The initial management plan was issued in 1999. *See* The Lower Columbia River Estuary Program, *Comprehensive Conservation and Management Plan* (Portland, OR: 1999). This plan was updated in 2011 with a new set of streamlined actions. *See* Lower Columbia Estuary Partnership, *Comprehensive Conservation and Management Plan 2011 Update (*Portland, OR: 2011). According to the Partnership, the two plans work in tandem to provide context and details on the priority issues, goals, and actions necessary to protect and restore the lower Columbia River.

Partnership should be doing concerning regional coordination activities, as well as how such coordination should be pursued.[53]

- **Effort 5: The Confederated Tribes of the Umatilla Indian Reservation Fisheries Habitat Sub-Program (1987-present)** is a tribal effort, sovereign in nature, and collaboration is enabled through the sub-program's Umatilla River Vision guiding document.[54] This fisheries habitat effort is designed to provide for sustainable harvest opportunities of aquatic species traditionally consumed by the Umatilla through protection, conservation, and restoration of related aquatic habitats, according to Umatilla tribal officials. The vision articulated by the tribe's Fisheries Program is that the Umatilla Basin includes a healthy Umatilla River capable of providing sufficient quantities of the First Foods (i.e., water, salmon, deer, cous, and huckleberry) necessary to sustain the continuity of the tribe's culture.[55] The Umatilla tribes developed the Umatilla River Vision to help identify existing gaps in knowledge and the work that must be accomplished to reestablish a healthy watershed and restore fisheries habitat on the Umatilla Reservation. Umatilla tribal officials we interviewed stated that the document is applicable to all Umatilla aboriginal lands and guides all their restoration efforts and coordination with other entities, including federal and state officials and funding partners.

[53]As the 2011 update to the CCMP notes, "[t]he problems in the lower Columbia River and estuary cannot be solved by one or two agencies, or by the disjointed efforts of different organizations. Only through collaboration will [we] be able to achieve the next level of results we need."

[54]K.L. Jones, *et. al.*, *Umatilla River Vision,* a technical document prepared for the Confederated Tribes of the Umatilla Reservation, Department of Natural Resources, October 2008.

[55]Cous is an herb (*Lomatium cous*) that has edible roots and is a traditional Native American food in the northwestern United States.

In addition, we obtained the views of officials from 11 federal agencies on factors that may enable and hinder collaboration in the Basin.[56] In identifying factors that enabled collaboration in their implementation of specific restoration efforts, officials from the 11 federal agencies most often identified the following: (1) having pre-existing relationships with partners, such as through participation in interagency bodies; (2) having clearly defined roles and responsibilities and common outcomes for restoration efforts across partners; and (3) identifying resource needs and the sources of resources to be used for such efforts.[57] The officials also identified potential actions that could enhance basin-wide collaboration for restoration efforts beyond their individual efforts. For example, one official responded that collaboration could be improved by involving senior- level officials in discussing and establishing priorities for basin-wide restoration, so that each entity could then implement efforts across the Basin in a manner consistent with the priorities agreed to by the senior leaders. Other officials noted that implementing this action would require individual agencies and entities to provide staff time and needed resources to enable collaboration on broader basin-wide priorities, consistent with each agency's individual missions and goals. An official also suggested, to enhance collaboration on basin-wide restoration, proactively involving relevant entities through presentations and document reviews to allow the entities to offer their suggestions and identify any objections they may have for a given effort. In addition, a different official suggested implementing basin-wide restoration monitoring and evaluation to determine which efforts are working well, which are not, and how any

[56]To obtain these views, we emailed six questions to each of the 11 federal agencies with water quality-related restoration efforts and that responded to our questionnaire to identify factors that may have enabled or hindered collaboration for efforts planned and implemented by their respective agencies. We sent the emails to the same agency points of contact who received the first questionnaire designed to identify restoration efforts in the Basin or other officials identified by the agency as the relevant point of contact. We also asked the same officials for their views on (1) the most significant challenges, if any, to enhancing collaboration among stakeholders involved in restoration efforts to improve water quality in the Basin, and (2) suggestions, if any, for steps that could be taken to enhance collaboration among stakeholders involved in such efforts. For more details, see appendix I.

[57]The factors and actions federal officials identified as enabling collaboration were generally consistent with our prior reporting on interagency collaboration. See GAO, *Managing for Results: Implementation Approaches Used to Enhance Collaboration in Interagency Groups,* GAO-14-220 (Washington, D.C.: Feb. 14, 2014); *Managing for Results: Key Considerations for Implementing Interagency Collaborative Mechanisms;* GAO-12-1022 (Washington, D.C.: Sept. 27, 2012); and *Results-Oriented Government: Practices That Can Help Enhance and Sustain Collaboration among Federal Agencies,* GAO-06-15 (Washington, D.C.: Oct. 21, 2005).

given effort may need to change to more efficiently or effectively restore the Basin.

The officials from the 11 federal agencies most often identified the following factors that hindered collaboration in their implementation of specific restoration efforts: (1) lack of sufficient resources, (2) incompatibility of policies and procedures across agencies, and (3) lack of clearly defined common outcomes for restoration efforts across partners.[58] The officials also identified challenges to collaboration for basin-wide restoration beyond their individual efforts. Among other things, one federal official identified as a challenge the variability of missions, authorities, and priorities among various agencies and entities pursuing restoration efforts in the Basin. According to officials, these factors make it difficult to establish mutually agreeable end-goals and means for restoration because various entities have potentially competing interests based on each organization's primary mission. Specifically, prioritizing certain restoration efforts over others—as may occur through adoption of a basin-wide restoration strategy or plan—may lead some entities to not participate in basin-wide restoration activities. According to other officials, this is because an entity is most likely to prioritize its own efforts, not the efforts of other entities. Other challenges to basin-wide collaboration officials cited included the litigation surrounding restoration efforts in the Basin (e.g., lawsuits regarding salmon and steelhead recovery under the Endangered Species Act) and the associated potentially adversarial relationships among entities, as well as limited staff time and resources for collaborating with other entities.

[58]The factors and challenges federal officials identified as hindering collaboration were generally consistent with our prior reporting on interagency collaboration. For more detail, see GAO-14-220, GAO-12-1022, and GAO-06-15.

Entities Reported Using a Mix of Federal and Nonfederal Sources of Funding to Implement Restoration Efforts, but Total Federal Expenditures Could Not Be Determined

Entities responding to our survey reported that most of the restoration efforts they implemented in the Basin were supported through a mix of federal and nonfederal funding sources. For several reasons, we could not determine total federal expenditures to implement the restoration efforts identified through our survey. Instead, we collected data from five federal agencies (BPA, Corps, EPA, Forest Service, and USGS) to provide illustrative examples of federal water quality-related restoration expenditures in the Basin.

Entities Reported Most of their Restoration Efforts in the Basin Were Implemented with a Mix of Federal and Nonfederal Funding Sources

Entities responding to our survey reported that most of their restoration efforts in the Basin were supported through a mix of federal and nonfederal funding sources. With respect to federal funding, responses to our survey indicated that nearly all of the restoration efforts identified through our survey received some level of federal funding. This includes funding appropriated to federal agencies for mission-driven activities that may have a primary purpose other than improving water quality and restoring the Basin. For example, according to agency officials, while improving water quality is not a primary mission of the Corps' and Reclamation's hydropower projects, maintaining compliance with water quality standards is a component of the operation and maintenance of these projects. Similarly, multiple federal agencies are involved in efforts to recover species protected under the Endangered Species Act and restore habitats that have been affected by operations of the Federal Columbia River Power System, particularly eliminating barriers to fish passage, operating fish hatcheries, and monitoring water temperatures to promote fish survival rates; those efforts indirectly benefit water quality.

Several of the federal efforts we identified in our review do not directly implement restoration activities but provide financial and technical assistance to support other entities' implementation of restoration efforts. These efforts include:

- EPA's Clean Water Act Section 319 Nonpoint Source Implementation Grants Program, under which EPA provides grants to states to implement programs and fund programs that address nonpoint source pollution;

- NRCS's Regional Conservation Partnership Program, which provides financial incentives and technical assistance for eligible partners, such as agricultural producers, to implement voluntary conservation measures that address a range of natural resource management concerns, including water quality degradation and loss of fish and wildlife habitat;
- NMFS's Community-Based Restoration Program, which awards funds and provides technical assistance to national and regional partners and local grassroots organizations to restore habitat; and
- FWS's Partners for Fish and Wildlife Program, which provides financial and technical assistance to private landowners to protect or restore wetlands, uplands, and riparian and instream habitats.

For example, in fiscal year 2016, NMFS's Community-Based Restoration Program awarded about $900,000 in grant funds to The Nature Conservancy to support its restoration of 330 acres of floodplain habitat at the confluence of two forks of the Willamette River. This effort provides a range of benefits, including improved water quality, improved fish passage, and increased hydrologic connectivity.[59]

In addition, more than half of the restoration efforts identified through our survey were implemented with a mix of federal and nonfederal funding sources, including most of the state efforts.[60] These sources include support through direct financial awards or indirect support through in-kind services. For example, Reclamation's Pacific Northwest Water Quality Program provided cost-reimbursable services and technical support to stakeholders, such as state agencies and watershed councils, in the design and implementation of water quality improvement plans. Similarly, the Lower Columbia Estuary Partnership's 2017 annual report noted that for each $1 in federal funding the partnership received from EPA, the partnership raised an additional $9 in funding solicited from other federal, state, and private sources.[61] In 2017, the partnership brought in $7.6 million in direct funding, most of which supported projects implemented by local organizations and businesses to restore habitat, monitor restoration

[59]The Nature Conservancy is a nonprofit organization based in Arlington, Virginia. Its mission is conserving the lands and waters on which all life depends.

[60]Sources of nonfederal funding respondents identified in our survey include state general funds, state lottery proceeds, revenue generated from user fees and permits, litigation settlements, and private contributions.

[61]Lower Columbia Estuary Partnership, *2017 Year in Review* (Portland, OR: 2017).

work, and support outdoor education initiatives. The partnership also estimated that in 2017, it received in-kind services from a range of contributors, such as scientists, technical experts, and community members who volunteered more than 18,000 hours of their time to implement various partnership activities. The partnership valued these in-kind services at nearly $430,000.

Some programs, such as the Corps' Aquatic Ecosystem Restoration program, do not provide funding to other entities but include specific cost-sharing requirements for project sponsors to secure contributions of nonfederal funding. For example, nonfederal project sponsors are required to provide 35 percent of the construction costs for projects implemented through the Corps' program, which can include land easements, rights-of-way, and necessary relocations. Other programs, such as NRCS's Regional Conservation Partnership Program, do not include matching requirements for nonfederal funding but work with partners to identify other funding sources to supplement federal funding awards.

Total Federal Expenditures for Basin Restoration Efforts Could Not Be Determined

While we were able to collect information about the general sources of funding that supported implementation of the restoration efforts in the Basin respondents identified in our survey, we could not determine the total amounts of federal expenditures for these efforts for several reasons. First, unlike efforts to restore other large aquatic ecosystems, there was no congressionally authorized program to protect and restore the Basin prior to 2016 or federal funding dedicated specifically for this purpose, according to EPA officials.[62] In the absence of dedicated federal funding or a congressionally authorized program focused on restoring the Basin, agency data on water quality-related restoration expenditures in the Basin is not readily available. Second, because some of the efforts are supported with funding from national and statewide programs that have a broader geographic scope than the Basin, it can be difficult to identify the portion of program expenditures that were for activities located within the Basin. This includes national-level programs, such as

[62]Of the 10 large aquatic ecosystems that EPA has recognized over the years, 8 have received federal appropriations dedicated to implementing restoration efforts in those areas. The large aquatic ecosystems that receive dedicated funding for restoration efforts are: Chesapeake Bay, Great Lakes, South Florida, Gulf of Mexico, Lake Champlain, San Francisco Bay, Long Island Sound, and Puget Sound. Collectively, in fiscal year 2018, EPA received about $ 440.5 million in appropriations for these eight ecosystems, most of which funded restoration efforts in the Great Lakes, Chesapeake Bay, and Puget Sound.

the Forest Service's National Best Management Practices Program and EPA's Clean Water Act grant programs, as well as statewide water quality permit programs. For instance, officials we interviewed from the Washington State Department of Ecology explained that, because the state typically do not track expenditures by region or location, it would be difficult to provide consistent and comparable estimates of expenditures for their statewide programs because of the various methodologies they use to compile the information. Third, it can be difficult to determine how much of a program's expenditures were for water quality-related restoration when the effort was implemented primarily for a different purpose or multiple purposes that may indirectly contribute to improving water quality. Several entities that responded to our survey indicated that they do not track expenditures by activity and that it would be difficult to estimate the portion of spending on restoration-related efforts. For example, Forest Service officials told us that for its Integrated Resource Restoration program, it is difficult to track expenditures for specific restoration activities in which the funding goes towards multiple objectives, such as vegetation management and wildlife species, in addition to water quality and aquatic resources.

While data on total federal expenditures for restoring the Basin could not be determined, we collected expenditures from five federal agencies to provide illustrative examples of their spending on the restoration efforts they conducted across the Basin. Using responses to our initial survey, we selected efforts that respondents identified as being implemented for a variety of restoration purposes and for which information on expenditures would be available. As shown in table 3, we collected data on expenditures for fiscal years 2014 through 2016 for specific efforts implemented by the Corps, BPA, EPA, Forest Service, and USGS.

Table 3: Federal Expenditures for Selected Restoration Efforts in the Columbia River Basin for Fiscal Years 2014 through 2016

Federal agency	Restoration effort	Federal expenditures by fiscal year (in millions of dollars)			Total
		2014	2015	2016	
U.S. Army Corps of Engineers	Ecosystem Restoration Programs[a]	6.59	3.55	5.52	**15.66**
Bonneville Power Administration	Columbia River Fish & Wildlife Program[b]	85.53	94.42	96.67	**276.62**
Environmental Protection Agency	Lower Columbia Estuary Partnership[c]	9.49	5.94	21.74	**37.17**
U.S. Forest Service	Pacific Northwest Region Watershed and Aquatic Restoration	17.58	36.15	37.89	**91.62**
U.S. Geological Survey	National Water Quality Programs[d]	12.11	14.70	12.93	**39.74**

Source: GAO analysis of entities' responses to our survey. | GAO-18-561.

[a]The amounts reported for this effort are the Corps' expenditures for projects from a combination of the following three programs: (1) Aquatic Ecosystem Restoration Program, (2) Lower Columbia Ecosystem Restoration Program, and (3) Project Modifications for Improvement of the Environment. While the Corps implements these programs under various authorities, they each focus on restoring aquatic ecosystems. The amounts also include expenditures of funding the Corps received from other federal entities to support two projects implemented through these efforts. According to agency officials, expenditures for these programs represent a small portion of the Corps' overall spending on efforts related to improving water quality and restoring the Columbia River Basin.

[b]The amounts reported for this effort are expenditures of revenues collected from electricity ratepayers. The effort is carried out in partnership with the Northwest Power and Conservation Council, which, among other things, makes recommendations on which projects should be implemented to support the objectives of the effort.

[c]The amounts reported for the effort are expenditures of federal funds provided for administration and management of the Lower Columbia Estuary Partnership through the National Estuary Program under Section 320 of the Clean Water Act as well as funding and in-kind services obtained by the partnership from other federal sources, such as Bonneville Power Administration and the Corps.

[d]The amounts reported for this effort are expenditures of federal funds for a combination of the following programs: (1) National Water Quality Program, (2) Ground Water and Stream Water Flow Program, (3) National Research Program, and (4) Reimbursable Program. The amounts include funding through appropriations, matching contributions, and reimbursable funds.

The following examples provide more detailed information about each effort for which we collected information on federal expenditures:

- **Corps' Ecosystem Restoration Programs.**[63] The Corps implements several ecosystem restoration programs under various authorities for the purposes of restoring and protecting aquatic habitats and environmental quality throughout the Basin. Through the Aquatic Ecosystem Restoration Program and the Project Modifications for Improvement of the Environment program, the Corps is authorized to carry out cost-effective restoration projects at facilities it operates throughout the Basin. Under the Lower Columbia River Basin Restoration Program, the Corps conducts studies and ecosystem restoration projects to protect, monitor, and restore fish and wildlife habitat in the Lower Columbia River Estuary.[64] Collectively, for fiscal years 2014 through 2016, the Corps reported expending approximately $15.6 million in federal funding to conduct 25 aquatic ecosystem restoration projects across the Basin; this amount included

[63]The amounts we report include the Corps' expenditures for projects from a combination of the following three programs: (1) Aquatic Ecosystem Restoration Program, (2) Lower Columbia Ecosystem Restoration Program, and (3) Project Modifications for Improvement of the Environment.

[64]The program was authorized under Section 536 of the Water Resources Development Act of 2000, which directs the Corps to follow the CCMP developed for Lower Columbia River Estuary as a guide in prioritizing projects carried out through this program.

costs for program coordination.[65] For example, the Corps partnered with the City of Portland on the Westmoreland Park Ecosystem Restoration project to remove barriers to fish passage for endangered salmon swimming in Crystal Springs Creek on their way to the Willamette River (see figure 6). For fiscal years 2014 through 2016, the Corps reported about $1.4 million in total expenditures for the project, which included activities such as restoring a stream channel and surrounding wetland vegetative zone along with replacing three small culverts with wider, natural bottom fish-friendly culverts to improve water quality and restore fish passage upstream.

Figure 6: Before and After Pictures of Tacoma Street Culvert Replacement in Portland, Oregon

Source: Copyright © City of Portland, courtesy Bureau of Environmental Services. | GAO-18-561

- **BPA's Columbia River Basin Fish and Wildlife Program.** According to BPA, this is one of the largest fish and wildlife protection programs in the country, annually funding hundreds of projects implemented in the Columbia River Basin by a wide range of federal, state, local, tribal, academic, and nongovernmental entities across

[65]Nonfederal project sponsors contributed additional funding of about $1 million in fiscal years 2014 through 2016.

four states.[66] The program is implemented in partnership with the Northwest Power and Conservation Council, which makes recommendations on projects that should be funded and reviews the program at least every 5 years to develop updates as needed. BPA reported that from fiscal years 2014 through 2016, it provided an average of about $90 million per year in funding for projects that directly or indirectly benefitted water quality-related restoration efforts in the Basin, including projects to restore damaged fish habitat, improve hatchery practices, research, monitoring and evaluation, and water rights acquisitions. For example, in 2015, the program awarded $180,000 to fund habitat restoration actions to improve ecological functions, including water quality, as part of the Buckmire Slough Phase #1 project located near Vancouver Lake in southwest Washington (see figure 7).[67] This restoration project reconnected about 65 acres of shallow water salmon habitat by removing two earthen berms and collapsed culverts and installed a channel-spanning pedestrian bridge to maintain trail access. According to BPA officials, the removal of the barriers helped improve fish passage and water flow through Buckmire Slough to the larger watershed that includes Vancouver Lake, the Lake River, and the Columbia River.

[66]The Northwest Power Act requires BPA to protect, mitigate, and enhance fish and wildlife to the extent affected by the development and operation of any hydroelectric project of the Columbia River and its tributaries consistent with the Northwest Power and Conservation Council's Fish and Wildlife Program. 16 U.S.C § 839b(h)(10)(A).

[67]Buckmire Slough is located on the northwestern side of Vancouver Lake in Clark County, Washington.

Figure 7: Pre- and Post-Construction Photos of Fish Barrier Removal and Pedestrian Trail Bridge Project in Buckmire Slough, Washington

Source: U.S. Army Corps of Engineers. | GAO-18-561

- **EPA's Lower Columbia Estuary Partnership.** EPA reported that the Lower Columbia Estuary Partnership had total expenditures of about $37 million in federal funding from fiscal years 2014 through 2016. The funding supported a range of efforts and restoration objectives for the lower portion of the Columbia River Basin, including habitat restoration; long-term monitoring strategy for sediment, fish tissue, and water quality; outdoor education programs; and citizen and professional involvement. According to EPA officials, the Lower Columbia Estuary Partnership has received about $600,000 annually in funding through Clean Water Act Section 320, which primarily supports the administrative and management functions of the partnership, including work to solicit funding from other federal and nonfederal sources to implement restoration projects throughout the estuary.[68]

  Additionally, from fiscal years 2014 through 2016, the Lower Columbia Estuary Partnership received approximately $3.4 million in funding from BPA and other federal partners to support implementation of a

[68]According to EPA officials, the states of Washington and Oregon contribute matching funds of about $300,000 each for administering the Lower Columbia Estuary Partnership.

long-term monitoring strategy for sediment, fish tissue, and water quality in the lower Columbia River and estuary. The funding helped support the Partnership's scientific and coordination staff as well as support sub-awards to outside experts in project design, data acquisition, and data analysis. The Partnership also received about $10 million in funding from BPA and other federal entities to fund multi-year projects, implemented by the Partnership and other local governments and nonprofit organizations, that contributed to the goal of restoring and protecting 25,000 acres of habitat to help the recovery of threatened and endangered salmon in the lower Columbia River and estuary.

- **Forest Service's Region 6 (Pacific Northwest) Watershed and Aquatic Restoration Program.** According to Forest Service officials, this program includes all required inventory, assessment, planning and design, and permitting needed to implement watershed protection and restoration projects in the agency's Pacific Northwest Region. Examples of the types of projects implemented through this program include: restoring fish passage and hydrologic connectivity at road-stream crossings; upgrading roads that are needed and decommissioning roads that are no longer needed; and protecting and restoring riparian areas to protect and restore stream temperatures. Forest Service reported expenditures of about $92 million in fiscal years 2014 through 2016 for these types of aquatic restoration projects implemented in national forests that contribute water flow to the Columbia River Basin. This includes about $4.6 million in funding received from other federal agencies, such as BPA, the Corps, Reclamation, FWS, Bureau of Land Management, and the Federal Highway Administration. It also includes approximately $19 million in funding provided to other federal, state, tribal, nongovernmental, and local entities to support implementation of their restoration-related projects in the Basin.
- **USGS's National Water Quality Programs.** USGS reported total expenditures of about $40 million from fiscal years 2014 through 2016 for Columbia River Basin water quality-related restoration efforts. This includes funding through appropriations, matching funds, and cost-reimbursable activities for projects and studies implemented through its national programs and Idaho, Oregon, Washington, and Wyoming-Montana regional Water Science Centers. This includes around $12 million in expenditures for National Water Quality Program activities, which provide an understanding of whether water quality conditions are improving or worsening over time, and how natural features and human activities affect those conditions. One of the efforts

implemented through this program during this time frame was a regional study, the Pacific Northwest Stream Quality Assessment; USGS expenditures for this effort were about $3.3 million. The objectives of the regional study included determining the status of stream quality across the region by assessing various water quality factors that are stressors on aquatic life—such as contaminants, toxicity, and streamflow—and evaluating their relative influence on biological communities.

EPA and OMB Have Not Yet Implemented Clean Water Act Section 123

EPA and OMB have not yet implemented actions required under Clean Water Act Section 123, which was enacted in 2016. Specifically, EPA has not yet established the Columbia River Basin Restoration Program, including its associated Working Group. In addition, OMB has not yet prepared and submitted as part of the President's annual budget request an interagency crosscut budget on federal agencies' budgets for and spending on environmental protection and restoration efforts in the Basin.

EPA Has Not Yet Established the Columbia River Basin Restoration Program

According to EPA officials we interviewed, the agency has not yet taken steps to establish the Columbia River Basin Restoration Program, including the Columbia River Basin Restoration Working Group, as directed by Clean Water Act Section 123.[69] In addition, agency officials told us that they were not currently planning to do so, as the agency has not received dedicated funding appropriated for this purpose.[70] These officials acknowledged, however, that the agency has not yet requested funding to implement the program nor initiated any studies or assessments to identify what resources it may need to establish the program.

We have previously reported that the Project Management Institute's The Standard for Program Management provides generally recognized leading practices for program management.[71] It provides an overview of a program's three life cycle phases and associated actions with each

[69]The act did not specify a date by which EPA is required to implement these activities.

[70]Prior versions of draft bills introduced to establish a Columbia River Basin Restoration Program included authorizations of appropriations of between $33 million and $50 million per year to implement the program.

[71]Project Management Institute, Inc. *The Standard for Program Management*®, (Fourth edition) 2017; GAO-17-773.

phase.[72] The primary purpose of the first phase—program definition—is to progressively elaborate the goals and objectives to be addressed by the program, define the expected program outcomes and benefits, and seek approval for the program. This phase has two distinct but overlapping sub-phases:

- Program formulation: involves development of the business case for the program, including initiating studies and estimates of scope, resources, and cost.
- Program planning: commences upon formal approval of the program and leads to the formation of a program team to develop the program management plan.

Upon completion of this first phase, an entity is to prepare a program management plan and, with final approval, the program commences.

Consistent with the practices established in The Standard for Program Management, a program management plan would include, among other components, a schedule of the actions an entity is to take, as well as the resources and funding needed to establish a program. By developing a program management plan that includes a schedule of the actions the entity will take and the resources and funding needed to establish and implement the program and submitting this plan to the appropriate congressional authorizing committees as part of the fiscal year 2020 budget process, EPA will have more reasonable assurance that it can establish the program in a timely manner. Further, in establishing the program under Section 123, EPA will need to also establish the Working Group, which is to recommend and prioritize projects and actions and review the progress and effectiveness of restoration projects and actions implemented throughout the Basin.

[72]The three life cycle phases are: (1) program definition, (2) program delivery, and (3) program closure.

OMB Has Not Yet Submitted an Interagency Crosscut Budget on Federal Agencies' Spending for Environmental Protection and Restoration Efforts in the Columbia River Basin

According to OMB officials we interviewed, the agency has not yet submitted an interagency crosscut budget or requested that federal agencies provide information on their budgets and spending for Columbia River Basin environmental protection and restoration efforts as directed by Clean Water Act Section 123.[73] Specifically, the President's budget is to include an interagency crosscut budget displaying amounts budgeted and obligated by each federal agency involved with environmental protection and restoration projects, programs, and studies relating to the Basin.[74] While OMB officials acknowledged the agency is responsible for preparing the interagency crosscut budget for the Basin, they told us that the agency has only had preliminary internal discussions about the best approach for implementing the requirement, including whether to develop guidance that would define key terms and the processes agencies should follow in compiling the requested information.[75] The officials, however, could not identify a time frame for when the agency anticipated finalizing any guidance or when it would begin requesting federal agencies provide OMB the information it needs to include in the interagency crosscut budget submission to Congress.[76] Federal standards for internal control calls for an agency to design control activities to achieve objectives and respond to risks, such as by clearly documenting internal controls in a manner that allows the documentation to be readily available for examination (e.g., the documentation may appear in management directives, administrative policies, or operating manuals).[77] By developing and providing guidance on the types of projects and activities that

[73]33 U.S.C. § 1275(e).

[74]The President's budget requests for fiscal years 2018 and 2019 did not include a Columbia River Basin interagency crosscut budget. The interagency crosscut budget is to display for each federal agency: (1) amounts obligated in the preceding fiscal year; (2) the estimated budget for the current fiscal year; and (3) the proposed budget for the succeeding fiscal year for protection and restoration projects, activities, and studies related to the Columbia River Basin. 33 U.S.C. § 1275(e).

[75]Prior to enactment of Section 123, there was no requirement for federal agencies to compile the information required by Section 123. OMB is also responsible for submitting crosscut agency budgets for other large aquatic ecosystem restoration efforts, including the Chesapeake Bay, Great Lakes, and San Francisco Bay-Delta.

[76]As part of our review, we asked OMB whether it had developed guidance to assist federal agencies in compiling the information needed for preparation of the crosscut budgets for the other restoration efforts, and if so, to provide us with copies of any such documents. OMB did not do so.

[77]GAO, *Standards for Internal Control in the Federal Government*, GAO-14-704G (Washington, D.C.: Sept. 10, 2014).

agencies should include in their reports, as well as what processes they should follow in compiling the related budget and spending information, OMB would have more reasonable assurance that the agencies provide comparable information about their restoration efforts.

According to a 2011 Congressional Research Service report, an interagency crosscut budget is often used to present budget information from two or more agencies whose activities are targeted at a common policy goal or related policy goals.[78] As outlined in a 2015 federal report, an interagency crosscut budget can help facilitate federal agency coordination and collaboration for restoration activities that can benefit from an integrated approach, and it can help increase cost effectiveness.[79] That report also noted that collecting budget information from the agencies involved can help identify high-level trends in restoration-related funding over time. We recognize that agencies will differ in their budget and account management practices as well as the complexities of the federal budget process. However, as the 2011 Congressional Research Service report concluded, by providing agencies guidance and criteria that they can use to determine which projects and programs will be tracked across agencies, the process for developing an interagency crosscut budget can account for the differences in how agencies fund and implement their restoration-related efforts. The report also noted that crosscut budgets can help make data from multiple agencies more understandable and could be used to inform congressional oversight committees, participating agencies, and other entities implementing an ecosystem initiative. By directing each federal agency involved in the protection and restoration of the Basin to collect the information needed for the interagency crosscut budget and to submit this information to OMB for inclusion in the President's budget request for fiscal year 2020, OMB can better inform Congress as it considers funding for restoration efforts in the Basin as part of the annual budget process.

[78]Congressional Research Service, *Crosscut Budgets in Ecosystem Restoration Initiatives: Examples and Issues for Congress*, RL34329 (Washington, D.C.: Aug. 2011). According to this report, one of the primary purposes of a crosscut budget is to, in a timely manner, characterize and organize funding for an initiative in one document that is useful for decision makers.

[79]National Invasive Species Council, *Invasive Species Interagency Crosscut Budget 2015* (Washington, D.C.: May 27, 2015).

Conclusions

Federal agencies and other entities have undertaken a wide range of water quality-related restoration efforts in the Columbia River Basin for many years. The Water Infrastructure Improvements for the Nation Act of 2016 amended the Clean Water Act by adding Section 123 on Columbia River Basin Restoration, which requires the EPA Administrator to establish the Columbia River Basin Restoration Program, including its associated Working Group. This collaborative stakeholder-based program is to oversee and help coordinate environmental protection and restoration activities implemented throughout the Columbia River Basin. However, because EPA has not yet established the Program and Working Group, entities do not currently use a basin-wide collaborative approach to coordinate water quality-related restoration efforts being implemented throughout the Basin. Furthermore, EPA does not have a program management plan for this effort. By developing a program management plan for the effort, consistent with The Standard for Program Management, EPA will have more reasonable assurance that it can implement Clean Water Act Section 123 in a timely and effective manner. Furthermore, by establishing the Columbia River Basin Restoration Program, including the associated Working Group, EPA will be better positioned to carry out its responsibilities, which include prioritizing and evaluating the progress and effectiveness of environmental protection and restoration projects and actions implemented throughout the Columbia River Basin as required by law.

In addition, Clean Water Act Section 123 requires the President's budget to include an interagency crosscut budget displaying amounts budgeted and obligated by each federal agency involved with environmental protection and restoration projects, programs, and studies relating to the Columbia River Basin. Such a crosscut budget would include amounts obligated for the preceding fiscal year; an estimated budget for the current fiscal year; and a proposed budget for the next fiscal year for the Basin. Given the difficulties we identified in determining federal expenditures for water quality-related restoration efforts implemented in the Columbia River Basin, by developing definitions and guidance on the types of projects, programs, and studies federal agencies should include in their reports and processes to follow in compiling their budgets, OMB could help ensure that they provide consistent and comparable information that OMB needs for the crosscut budget submission to Congress. Having consistent and comparable information on federal agency expenditures and budgets is critical to helping ensure that Congress and the relevant appropriating committees can make informed decisions about funding Columbia River Basin restoration efforts in their annual budget deliberations.

Recommendations for Executive Action

We are making a total of three recommendations, one to EPA and two to OMB. Specifically:

The Administrator of the EPA should develop a program management plan that includes a schedule of the actions EPA will take and the resources and funding it needs to establish and implement the Columbia River Basin Restoration Program, including formation of the associated Columbia River Basin Restoration Working Group, and submit this plan to the appropriate congressional authorizing committees as part of the fiscal year 2020 budget process. (Recommendation 1).

The Director of OMB should develop and provide guidance on the types of projects and activities that agencies involved in the protection and restoration of the Columbia River Basin should include in their reports, as well as the processes they should follow in compiling the related budget and spending information. (Recommendation 2).

The Director of OMB should direct each federal agency involved in the protection and restoration of the Columbia River Basin to collect the information OMB needs for the interagency crosscut budget and to submit this information to OMB for inclusion in the interagency crosscut as part of the President's budget request for fiscal year 2020. (Recommendation 3).

Agency Comments

We provided a draft of this report for review and comment to EPA, OMB, and the departments of Agriculture, Commerce, Defense, Energy, and the Interior. We also provided a draft of the report to the Idaho Department of Environmental Quality, Montana Department of Environmental Quality, Oregon Department of Environmental Quality, and Washington State Department of Ecology. EPA provided written comments, which are reproduced in appendix IV, and stated that it agreed with the conclusions and recommendation in our report. The Department of Agriculture also provided written comments, which are reproduced in appendix V. The departments of Defense and the Interior and the Washington State Department of Ecology responded by email that they did not have comments on the draft report. The departments of Commerce and Energy and the Idaho Department of Environmental Quality provided technical comments, which we incorporated as appropriate. OMB, the Montana Department of Environmental Quality, and the Oregon Department of Environmental Quality did not provide any comments.

In its written comments, EPA stated that it agrees with our recommendation to develop a program management plan that includes

schedule of the action it will take and the resources and funding needed to establish and implement the Columbia River Basin Restoration Program and associated Working Group as required under Clean Water Act Section 123. EPA stated that it will work with its partners within the existing governance structures to begin discussions on the development of a program management plan. As an initial step, the agency will reconvene the Columbia River Toxics Reduction Working Group to initiate discussion for how to approach implementation of Section 123. Further, EPA stated it stands ready to work with OMB on an interagency cross cut budget after OMB provides guidance on the types of projects and activities necessary to develop the budget.

We are sending copies of this report to the appropriate congressional committees; the Secretaries of Agriculture, Commerce, Defense, Energy, and the Interior; the Administrator of EPA; the Director of OMB; and other interested parties. In addition, the report is available at no charge on the GAO website at http://www.gao.gov.

If you or your staff have any questions about this report, please contact me at (202) 512-3841 or gomezj@gao.gov. Contact points for our Offices of Congressional Relations and Public Affairs may be found on the last page of this report. GAO staff who made key contributions to this report are listed in appendix VI.

J. Alfredo Gómez
Director, Natural Resources and Environment

Appendix I: Objectives, Scope, and Methodology

This report examines (1) restoration efforts to improve water quality in the Columbia River Basin from fiscal years 2010 through 2016; (2) approaches to collaboration that entities have used for selected efforts, including factors they identified that enabled or hindered collaboration in the Basin; (3) the sources of funding and federal funding expenditures; and, (4) the extent to which the Environmental Protection Agency (EPA) and the Office of Management and Budget (OMB) have implemented Clean Water Act Section 123.

For all four objectives, we reviewed relevant laws, including the Clean Water Act. We also conducted interviews and reviewed documentation from entities around the Basin, including federal agencies, state agencies responsible for managing water quality in their state, federally and non-federally recognized tribes and tribal organizations, and nongovernmental organizations. We also conducted a site visit to Portland, Oregon to meet with officials from federal agencies, a tribal organization, and a nongovernmental entity regarding their activities related to restoration efforts in the Columbia River Basin. We limited the scope of our review to the United States, specifically to the four states with the largest square mileage in the Columbia River Basin: Idaho, Oregon, Montana, and Washington.[1]

To examine restoration efforts to improve water quality in the Columbia River Basin implemented from fiscal years 2010 through 2016, we administered a survey to entities that implement restoration efforts in the Basin (see app. III for a blank copy of the survey).[2] The survey asked each entity to individually list any water quality-related programs they implemented in the Basin from fiscal years 2010 through 2016.[3] The survey included maps of the Columbia River Basin to provide respondents a common point of reference. For each program, we asked respondents to identify:

[1]Relatively small areas of the Basin also extend into Nevada, Utah, and Wyoming. In addition, part of the Basin is located in British Columbia, Canada.

[2]The time frame of fiscal years 2010 through 2016 represented the most current data available at the time of the survey's distribution.

[3]For the purpose of this report, we use "restoration efforts" to indicate activities, including water quality-related programs, in the Columbia River Basin from fiscal years 2010 through 2016. The questionnaire defined "programs" as a group of related projects, subprograms, and associated program activities that are managed in a coordinated way to obtain benefits not available from managing them individually. Some of the restoration efforts identified by respondents may still be ongoing.

- the program's primary and secondary purposes;[4]
- one or two key examples of the activities conducted as part of the program;
- whether the entity was the only entity responsible for implementing the program;
- whether the entity was the lead entity responsible for implementing the program;
- what other entities, if any, were involved with implementing the program;
- the primary authorities under which the entity implemented the program;
- the state(s) and area(s) within the Basin in which the program was implemented;
- a website containing primary source documents and other relevant information on the program;
- whether the entity received any federal funding to support implementation of the program;
- the sources of the federal funding, if any;
- whether the entity tracks expenditures of federal funding specifically for the program;
- for which fiscal years, if any, from fiscal years 2010 through 2016 the entity would be able to provide information on the annual amount of federal funding expended for this program;
- whether the entity would be able to provide actual expenditures, estimated expenditures, or neither for the annual amount of federal funding the entity expended on the program;
- how the entity collected expenditure data;

[4]The questionnaire listed six purposes: 1) improving surface water quality, 2) monitoring surface water quality, 3) reducing toxic pollutants, 4) recovering threatened and endangered species, 5) restoring and protecting habitat, and 6) other. Respondents could select more than one primary purpose for each effort. The "other" category was for respondents to report any purpose(s) that they determined did not fit within any of the other categories, and we asked respondents to provide a written response if they selected "other." For example, for the Washington State Department of Ecology's Floodplains by Design effort, the respondent identified the primary purpose as reducing flood hazards for communities by restoring floodplain habitat, including making improvements to habitat for species listed under the Endangered Species Act among other activities.

- any nonfederal sources of funding that supported the entity's implementation of the program; and
- a primary point of contact for any follow-up questions on the program.

We conducted telephone pretests of the survey with 4 entities and revised it in response to their comments. During this process, we sought to ensure that (1) the questions were clear and unambiguous, (2) we used terminology correctly, (3) the survey did not place an undue burden on respondents, and (4) respondents had sufficient information to answer the questions.

We identified and sent the survey to 41 entities based on the following criteria: federal agencies whose missions relate to restoration efforts in the Basin, state agencies responsible for water quality issues for the four states within our scope, federally and non-federally recognized tribes, tribal organizations, and nongovernmental entities involved with restoration efforts within the Basin. We emailed the survey in an attached pdf form that respondents could return electronically after marking checkboxes or entering responses into open-answer boxes. We sent the survey with a cover letter on May 31, 2017. After 2 weeks, we sent a reminder email, attaching an additional copy of the survey, to entities who had not responded. After 4 weeks, we telephoned all respondents who had not returned the survey and asked them to participate.

We received responses from the entities listed in Table 4. We received 32 completed surveys from all of the 16 federal and state agencies that we contacted and we received responses from 16 of the 25 federally and non-federally recognized tribes, tribal organizations, and nongovernmental entities that we contacted. Because we did not survey every entity implementing restoration efforts in the Basin, the results from our analysis may not include all restoration efforts implemented in the Columbia River Basin from fiscal years 2010 through 2016.

Table 4: List of Entities that Provided Responses to GAO's Survey on Restoration Efforts in the Columbia River Basin from fiscal years 2010 through 2016

Name of Entity
Federal Agencies
Bonneville Power Administration
Bureau of Indian Affairs
Bureau of Land Management
Bureau of Reclamation

Name of Entity
Department of Energy
Environmental Protection Agency
National Oceanic and Atmospheric Administration
Natural Resources Conservation Service
U.S. Army Corps of Engineers
U.S. Fish and Wildlife Service
U.S. Forest Service
U.S. Geological Survey
State Agencies
Idaho Department of Environmental Quality
Montana Department of Environmental Quality
Oregon Department of Environmental Quality
Washington State Department of Ecology
Tribes & Tribal Organizations
Burns Paiute Tribe
Columbia River Inter-Tribal Fish Commission
Confederated Tribes of the Colville Reservation
Cowlitz Indian Tribe
Kalispel Tribe
Kootenai Tribe of Idaho
Nez Perce Tribe
Shoshone-Bannock Tribes
Spokane Tribe of Indians
The Confederated Tribes of Umatilla Indian Reservation
Upper Columbia United Tribes
Upper Snake River Tribes Foundation
Nongovernmental Entities
Columbia Riverkeeper
Lower Columbia Estuary Partnership
Northwest Power and Conservation Council
Salmon-Safe

Source: GAO analysis of to Columbia River Basin entities' responses to GAO survey. | GAO-18-561

Note: The Bureau of Indian Affairs and the Upper Snake River Tribes Foundation stated they had not implemented any restoration efforts to improve water quality in the Columbia River Basin from fiscal years 2010 through 2016.

To assess the accuracy and completeness of the responses, we reviewed and analyzed each completed survey. In particular, we contacted each

respondent at least once to follow-up on their responses and allowed respondents to review, correct, and edit their responses if necessary. During this follow-up, we asked questions to ensure that the responses to each survey were complete, comparable, and accurate and to clarify ambiguous responses. After we completed this follow-up, we analyzed the list of compiled restoration efforts to assess whether each listed restoration effort met general criteria. For example, we assessed the responses to make sure the efforts represented a similar level of aggregation, specifically at a program level. As part of our assessment, we reviewed prior interviews and agency's or entity's documents and websites. For example, in some instances the name of a restoration effort listed in the survey did not match the name of the effort on the agency's website. We recognize that despite implementation of our criteria, some ambiguity may remain about the programs included in the catalog. Based on our assessment, we further refined the list of restoration efforts and developed the final list as presented in Appendix II.

To examine approaches to collaboration that entities—including federal agencies, states, tribes, and nongovernmental entities—have used for select efforts, we selected five case examples for in depth review. We used selection criteria to yield a limited number of efforts in the Columbia River Basin that were among the broadest in scope with regards to their geographic coverage and/or the number and type of entities involved (e.g., interstate vs. intrastate programs, entities from multiple levels of government) based on the survey responses we received. In addition, we selected these efforts, in part, to highlight collaborative practices for efforts implemented by a variety of entity types and with different primary purposes (i.e., improving or monitoring surface water quality, reducing toxic pollutants, recovering threatened or endangered species, or restoring and protecting habitat). We conducted interviews with officials from these five case example efforts on the collaborative practices they used to plan and implement their programs and requested related documentation for review. We derived the questions we used for the case interviews from our prior reports on practices that may enable collaboration.[5] For example, we asked interviewees about mechanisms

[5]GAO, *Managing for Results: Implementation Approaches Used to Enhance Collaboration in Interagency Groups.* GAO-14-220 (Washington, D.C.: Feb. 14, 2014); *Managing for Results: Key Considerations for Implementing Interagency Collaborative Mechanisms.* GAO-14-220 (Washington, D.C.: Sept. 27, 2012); and *Results-Oriented Government: Practices That Can Help Enhance and Sustain Collaboration among Federal Agencies,* GAO-06-15 (Washington, D.C.: Oct. 21, 2005).

they used for their given effort to define intended outcomes and roles and responsibilities, identify resource needs (e.g., funding, staff) and their sources, and ensure the compatibility of policies and procedures across entities. Our prior reporting served as the conceptual framework for understanding the collaborative practices used by officials leading these case example efforts. We highlight in our report a single illustrative collaborative practice used for each effort.

In addition, we separately emailed four questions to each of the 11 federal agencies with water quality-related restoration efforts and that responded to our survey, to solicit agency officials' opinions on practices that may have enabled or hindered collaboration for efforts planned and implemented by their respective agency. We sent these emails to the same agency points of contact to which we sent the first survey designed to identify restoration efforts in the Basin or to other officials the agency identified as the relevant point of contact. We derived questions we emailed from our prior reporting on factors that may enable collaboration. We asked interviewees to consider efforts for which their agency had their most and least successful experiences in collaborating with other organizations on water quality-related restoration activities and to systematically rank factors, from a list we provided, that enabled or hindered their collaboration with the other organizations. We received written responses from all 11 agencies. Our prior reports served as the conceptual framework for developing the list of factors that we provided to the respondents and from which they selected those that applied to their agency's experience. We highlight the most commonly identified collaboration enablers and hindrances.

We systematically asked officials from the five case efforts and the 11 federal agencies that received the four questions we emailed for their perspectives on the most significant challenges, if any, to enhancing collaboration among entities involved in restoration efforts to improve water quality in the Basin. We also systematically asked the same officials for their suggestions, if any, for steps that could be taken to enhance collaboration among entities involved in restoration efforts to improve water quality in the Basin. We highlight some of the challenges and suggestions respondents offered. Last, to determine whether a mechanism exists for basin-wide collaboration on water quality-related restoration programs, we reviewed existing legislation and interviewed agency officials.

To examine the sources of funding and federal funding expenditures in the Columbia River Basin, we interviewed agency officials, reviewed

budget documents, analyzed responses to funding questions included in our initial survey, and analyzed expenditure data for selected federal efforts for fiscal years 2014 through 2016. Initially, we intended to use a second survey to collect comprehensive data on expenditures for each restoration effort that entities identified in response to our initial survey. However, in pretests with agency officials, we identified significant concerns with respect to the accuracy and completeness of information that we would gather through this approach that would limit our ability to compare expenditure data across agencies and efforts. Given the degree of variability, uncertainty, and lack of detail in the information agencies could provide, we concluded that the data would not be reliable for the purposes of estimating their expenditures of federal funding for their water-quality related restoration expenditures throughout the Columbia River Basin.

To provide some information on expenditures, we decided to modify our comprehensive approach by shortening the time frame to fiscal years 2014 through 2016 and limiting the request to one restoration effort for each of the 11 federal agencies. We selected the 11 restoration efforts based on our review of the agencies' responses to questions in our initial survey relating to the primary purpose(s) of the program and availability of expenditure data. We then conducted interviews with agency officials to learn more about the selected efforts and the availability and reliability of expenditure data. Based on these interviews, we determined that for 6 of the 11 programs, the efforts had limited activities in the Basin during this time frame or the agencies would only be able to provide limited information or would not be able to provide sufficiently reliable expenditure data for the selected effort.

We then distributed a second survey to 5 agencies— Bonneville Power Administration (BPA), U.S. Army Corps of Engineers, EPA, U.S. Forest Service, and U.S. Geological Survey. In this survey, we requested expenditures information for a specified restoration effort and asked about the sources and processes the agencies followed in compiling the information. Based on our review of these responses, we determined that the expenditure information for these specific restoration efforts was sufficiently reliable for purposes of our reporting objective.

To examine the extent to which EPA and OMB have implemented Clean Water Act Section 123, we reviewed the law and legislative history. We also requested documentation from and conducted interviews with knowledgeable officials at EPA and OMB. We also identified program management leading practices reported by the Project Management

Institute's The Standard for Program Management and discussed in our prior reports.[6] For example, we considered the applicable leading practices for schedule and cost estimates, as well as other practices such as the development of program management plans.

[6]Project Management Institute, Inc., *The Standard for Program Management®*, Fourth Edition, 2017; GAO*, Nuclear Nonproliferation: NNSA Needs to Improve Its Program Management Policy and Practices,* GAO-17-773 (Washington, D.C.: Sept. 28, 2017); and *Oil and Gas Wells: Bureau of Land Management Needs to Improve Its Data and Oversight of Its Potential Liabilities*, GAO-18-250 (Washington, D.C.: May 16, 2018).

Appendix II: Catalog of Columbia River Basin Water Restoration Efforts, Fiscal Years 2010 through 2016

Table 5 provides a list of 188 Columbia River Basin water quality-related restoration efforts identified by 11 federal agencies, 4 state agencies, 4 nongovernmental organizations, and 11 tribes and tribal entities in their responses to our May 2017 survey, along with a brief description of each effort and the restoration purpose(s) it supported. This list is primarily based on the survey responses. The survey included definitions of key terms including program, implement, and purposes of the programs. After we received survey responses, we conducted multiple reviews of the information, including asking the entities to review and edit the information they provided. In some cases we supplemented their responses with additional information available through other sources, such as interviews with officials and reviews of agency documents, as appropriate.

Given the size of the Basin and number of entities involved, for our survey we specifically requested respondents report the restoration efforts at a programmatic level. In some instances, we decided to consolidate certain efforts that appeared to be part of the same overall program and exclude other efforts that appeared to be project-level efforts. Although we made every attempt to gather a comprehensive list of restoration efforts implemented by the entities listed below, including verifying the information with the respective entities, this list may not capture all of the relevant restoration efforts they implemented in the timeframe covered by our review. Further, entities may have not have listed all of their relevant efforts. We also acknowledge that the list does not reflect restoration efforts in the Columbia River Basin that were implemented by other entities not included within the scope of our review.

Table 5: Restoration Efforts Related to Improving Water Quality Implemented by Federal Agencies, State Agencies, Tribes and Tribal Organizations, and Non-governmental Organizations in the Columbia River Basin from Fiscal Years 2010 through 2016

Name of Effort[a]	Description of Effort[b]	Purpose(s) of Restoration Effort[c]					
		Improve surface water quality	Monitor surface water quality	Reduce toxic pollutants	Recover threatened or endangered species	Restore and protect habitat	Other
FEDERAL DEPARTMENTS AND AGENCIES							
U.S. Department of Agriculture							
Natural Resources Conservation Service							
Agricultural Conservation Easement Program-Wetlands Reserve Easements	Provides financial and technical assistance directly to private landowners and tribes to restore, protect, and enhance wetlands through the purchase of a wetland reserve easement. These easements can provide benefits such as habitat for endangered and threatened fish species and improved water quality by filtering sediments and chemicals.	●	○	○	◒	●	—
Agricultural Water Enhancement Program	Provided financial and technical assistance to agricultural producers to implement water enhancement activities on agricultural land to conserve surface and ground water and improve water quality. The Agricultural Act of 2014 repealed the program and established the Agricultural Conservation Easement Program.	◒	○	○	○	○	●
Conservation Reserve Program	Provides technical assistance to the Farm Service Agency, which administers this program. The program makes rental payments to enrolled farmers who agree to remove environmentally sensitive land from agricultural production and to plant species that will improve environmental health and quality. The long-term goal of the program is to reestablish valuable land cover to help improve water quality, prevent soil erosion, and reduce the loss of wildlife habitat.	◒	○	○	◒	●	●

Name of Effort[a]	Description of Effort[b]	Purpose(s) of Restoration Effort[c]					
		Improve surface water quality	Monitor surface water quality	Reduce toxic pollutants	Recover threatened or endangered species	Restore and protect habitat	Other
Conservation Stewardship Program	Provides financial assistance to landowners to maintain existing conservation practices and to implement additional conservation enhancement to improve land stewardship and sustainability of their business operations.	◒	○	○	◒	◒	●
Conservation Technical Assistance	Provides land users with proven technology and the delivery system needed to achieve the benefits of a healthy and productive landscape. The primary purposes of the program include, among others, reducing soil loss from erosion, enhancing the quality of fish and wildlife habitat, and improving the long term sustainability of various lands such as forestland.	◒	○	○	◒	◒	●
Emergency Watershed Protection Program - Floodplain Easement Option	Purchases conservation easements from landowners to restore, protect, maintain, and enhance the functions of floodplains while conserving their natural values such as serving as fish and wildlife habitat, improving water quality, retaining flood water, and recharging groundwater.	●	○	○	◒	●	●
Environmental Quality Incentives Program	Provides financial and technical assistance to agricultural producers to plan and implement conservation practices that improve soil, water, plant, animal, air and related natural resources on agricultural land and non-industrial private forestland. The program may also help producers meet federal, state, tribal, and local environmental regulations.	●	○	○	◒	◒	●
Grassland Reserve Program	Emphasized support for working grazing operations, enhancement of plant and animal biodiversity, and protection of grassland under threat of conversion to other uses. The Agricultural Act of 2014 repealed this program and established the Agricultural Conservation Easement Program.	○	○	○	◒	●	●

Name of Effort[a]	Description of Effort[b]	Purpose(s) of Restoration Effort[c]					
		Improve surface water quality	Monitor surface water quality	Reduce toxic pollutants	Recover threatened or endangered species	Restore and protect habitat	Other
Healthy Forests Reserve Program	Helps landowners to restore, enhance and protect forestland resources on private lands through easements and financial assistance. The program aids the recovery of endangered and threatened species, improves plant and animal biodiversity and enhances carbon sequestration.	○	○	○	●	●	●
Regional Conservation Partnership Program	Provides financial and technical assistance to connect partners with producers and private landowners to design and implement voluntary conservation solutions to increase the conservation, restoration and sustainable use of natural resources on a regional or watershed scale.	●	○	○	◒	●	●
Resource, Conservation, and Development Program	Provides financial and technical assistance to encourage and improve the capability of state and local governments, tribes, and nonprofit organizations to develop and carry out plans and projects that conserve and improve the use of land, develop natural resources, and improve and enhance the social, economic, and environmental conditions in primarily rural areas.	◒	○	○	◒	◒	●
Watershed and Flood Prevention Operations Program	Provides financial and technical assistance to help federal, state, local, and tribal governments work cooperatively to protect and restore watersheds up to 250,000 acres.	●	○	○	○	◒	●
Wetlands Reserve Program	Provided financial and technical assistance to help landowners establish long-term conservation and wildlife practices to protect, restore, and enhance wetlands on their property. The Agricultural Act of 2014 repealed this program and established the Agricultural Conservation Easement Program.	●	○	○	◒	●	—

Name of Effort[a]	Description of Effort[b]	Purpose(s) of Restoration Effort[c]					
		Improve surface water quality	Monitor surface water quality	Reduce toxic pollutants	Recover threatened or endangered species	Restore and protect habitat	Other
Wildlife Habitat Incentives Program	Worked with landowners to develop and improve wildlife habitat on agricultural land, nonindustrial private forest land, and Indian land. The Agricultural Act of 2014 repealed this program and established the Agricultural Conservation Easement Program.	○	○	○	◒	●	—
U.S. Forest Service							
Aquatic Research, Inventory, Assessment, and Monitoring Program	Conducts basic and applied research to develop knowledge, methods and technologies that support scientifically sound recommendations for the management, conservation, and restoration of terrestrial, riparian, and aquatic ecosystems.	◒	●	○	●	◒	●
Aquatic Inventory and Monitoring (Pacific Northwest Region)	Conducts inventory and monitoring of watershed and stream habitat conditions to provide information and feedback to improve resource protection and restoration programs.	○	●	○	○	○	○
Burned Area Emergency Response Program	Determines the need for and implements emergency actions as necessary after a fire on National Forest System lands to prevent or minimize unacceptable erosion and loss of soil productivity, deterioration of water quality and downstream damage, changes to ecosystem function, establishment of non-native invasive species, and degradation of cultural and natural resources.	◒	○	○	◒	◒	●
Collaborative Forest Landscape Restoration Program	Encourages collaborative, science-based ecosystem restoration of priority National Forest System landscapes to reduce the risk of catastrophic wildfires, improve water quality and quantity, increase carbon sequestration, and build on innovative implementation and monitoring with program partners.	◒	◒	○	◒	◒	●

Name of Effort[a]	Description of Effort[b]	Purpose(s) of Restoration Effort[c]					
		Improve surface water quality	Monitor surface water quality	Reduce toxic pollutants	Recover threatened or endangered species	Restore and protect habitat	Other
Environmental Compliance and Protection Program	Ensures compliance with federal environmental laws, including restoring and cleaning up solid and hazardous waste sites on National Forest System lands, such as mitigating impacts associated with abandoned mines, oil and gas exploration sites, and illegal dump sites.	●	◒	●	◒	◒	—
Integrated Resource Restoration Pilot Program (Northern and Intermountain Regions)	Facilitates and supports an integrated approach to landscape-scale restoration by working across disciplines to more efficiently achieve restoration outcomes and intended benefits. The program consolidates several budget line items to provide flexibility to focus on high priority restoration work, address unexpected challenges, and conduct larger, multi-year projects.	●	◒	◒	●	●	●
Minerals and Geology Management Program	Includes the restoration of ecosystems and watersheds affected by past mining practices and provides the geologic expertise and scientific information necessary for sustained forest management and watershed health and restoration.	◒	◒	○	○	○	◒
National Best Management Practices Program	Improves management of water quality consistent with the Clean Water Act and state water quality programs through application of Best Management Practices, which are specific practices or actions used to reduce or control impacts to water bodies from nonpoint sources of pollution, most commonly by reducing the loading of pollutants from such sources into stormwater and waterways.	●	●	◒	◒	●	●
PacFish/InFish Biological Opinion Monitoring Program	Monitors stream and riparian habitats to determine if aquatic conservation strategies can effectively maintain or restore riparian and aquatic habitats for recovery of endangered and threatened fish within the interior Columbia River Basin.	○	○	○	●	◒	●

Name of Effort[a]	Description of Effort[b]	Purpose(s) of Restoration Effort[c]					
		Improve surface water quality	Monitor surface water quality	Reduce toxic pollutants	Recover threatened or endangered species	Restore and protect habitat	Other
Water Rights and Uses (Northern Region)	Obtains instream flow water rights to protect aquatic habitat from future stream dewatering.	◒	○	○	○	●	—
Watershed and Aquatic Restoration (Pacific Northwest Region)	Conducts inventories, assessments, planning and design, and permitting needed to implement watershed protection and restoration projects, such as restoring fish passage and hydrologic processes at road-stream crossings and decommissioning roads that are no longer needed.	●	◒	●	●	●	●
U.S. Department of Commerce							
National Oceanic and Atmospheric Administration							
Community-based Restoration Program	Provides financial and technical assistance to non-federal entities to support implementation of habitat restoration projects, including hydrologic reconnection, fish passage, and other projects that restore habitat and contribute to recovery of listed species while also improving surface water quality.	◒	◒	○	●	●	—
Damage Assessment, Remediation, and Restoration Program	Protects and restores natural resources harmed by oil spills, hazardous wastes sites, and vessel groundings.	◒	◒	◒	◒	●	○
Ecotoxicology Program	Works with the Lower Columbia Estuary Partnership and other partners to conduct research to evaluate the impacts of toxic contaminants on listed salmon in the Lower Columbia River.	○	●	○	◒	○	—
Endangered Species Conservation	Develops and administers programs, policies, and regulations to implement the Endangered Species Act with the goal of protecting and recovering endangered and threatened marine and anadromous species, such as salmon, and the habitats on which they depend.	◒	◒	◒	●	●	○
Pacific Coastal Salmon Recovery Fund	Provides financial assistance to states and tribes for projects that protect, conserve, and restore West Coast salmon populations and their habitat.	◒	◒	◒	●	●	—

Name of Effort[a]	Description of Effort[b]	Purpose(s) of Restoration Effort[c]					
		Improve surface water quality	Monitor surface water quality	Reduce toxic pollutants	Recover threatened or endangered species	Restore and protect habitat	Other
U.S. Department of Defense							
U.S. Army Corps of Engineers (Corps)							
Aquatic Ecosystem Restoration	Carries out cost-effective projects to restore degraded aquatic ecosystems if the projects will improve the quality of the environment and are in the public interest. Nonfederal interests are required to provide 35% of the construction costs for these projects which may be through in-kind services and the provision of lands, easements, rights-of-way, and necessary relocations.	◒	○	○	◒	●	○
Endangered Species Actions: Fish Passage Improvements Program	Implements structural fish passage improvements at Columbia River mainstem and tributary dams to improve survival rates for migrating fish.	◒	◒	○	●	○	●
Endangered Species Actions: Hydro System Improvements Program	Manages operational changes at operating Columbia River dams to improve fish passage, including increased spillage and transport of juvenile salmonids past Columbia and Snake River dams.	◒	○	○	●	◒	●
Endangered Species Actions: Research, Monitoring and Evaluation	Conducts research, monitoring, and evaluation in conjunction with the habitat improvement, fish passage and hatchery programs.	○	●	○	●	◒	●
Hatchery Mitigation Program	Manages hatchery production for mitigation of impacts to fish resulting from construction and operation of federal dams.	○	○	○	◒	○	●
Lower Columbia River Ecosystem Restoration Project	Conducts ecosystem restoration projects and activities necessary to protect, monitor, and restore fish and wildlife habitat in the lower Columbia River estuary, guided by the comprehensive conservation and management plan developed for the estuary under Clean Water Act Section 320.	○	○	○	◒	●	—

Name of Effort[a]	Description of Effort[b]	Purpose(s) of Restoration Effort[c]					
		Improve surface water quality	Monitor surface water quality	Reduce toxic pollutants	Recover threatened or endangered species	Restore and protect habitat	Other
Navigation & Dredging Projects: Sediment Evaluation Framework	Provides a framework and procedures for evaluating potential contaminant-related environmental impacts of dredging and the aquatic placement of dredged material in inland waters and the disposal of dredged material in ocean waters. The framework is designed for use in the Pacific Northwest, including the States of Washington, Oregon, and Idaho.	●	●	●	○	◒	●
Northwestern Division Reservoir Control Center Water Quality Program	Implements the water quality program associated with voluntary spill operations established in the biological opinions for the Lower Columbia and Snake Rivers' hydroelectric dams to increase survival of endangered salmon and steelhead as they pass the dams, to assist their migration to the ocean. Also manages involuntary spill operations due to high flows or limited hydraulic turbine capacity to minimize total dissolved gas in the system.	●	●	○	◒	○	—
Operating Projects Clean-up and Regulatory Compliance Program	Conducts hazardous and solid waste clean-up and compliance projects associated with the construction and operation of Corps projects.	◒	○	●	○	◒	—
Operating Projects Environmental Stewardship Program	Conducts environmental stewardship projects and land management activities, including critical habitat management, at operating Corps project dams.	○	○	○	◒	●	—
Planning Assistance to States Program	Cooperates with states, tribes, and the Trust Territories in preparation of plans for the development, utilization, and conservation of water and related land resources within their respective boundaries.	○	○	○	●	●	●

Name of Effort[a]	Description of Effort[b]	Purpose(s) of Restoration Effort[c]					
		Improve surface water quality	Monitor surface water quality	Reduce toxic pollutants	Recover threatened or endangered species	Restore and protect habitat	Other
Project Modifications for the Improvement of the Environment	Reviews and modifies structures and operations of water resources projects constructed by the Corps for the purpose of improving the quality of the environment when it is determined that such modifications are feasible, consistent with the authorized project purposes, and will improve the quality of the environment in the public interest. In addition, restoration measures may be implemented at the project site or at other locations that have been affected by the construction or operation of the project.	○	○	○	◒	●	●
Specifically Authorized Ecosystem Restoration Projects	Supports the Corps' ecosystem restoration mission by formulating and evaluating projects designed primarily to restore lost or degraded aquatic and related riparian habitat.	●	○	○	◒	●	●
U.S. Department of Energy							
Bonneville Power Administration (BPA)							
Columbia River Basin Fish and Wildlife Program	Provides funding to federal and state agencies, tribes, and other entities to support projects implemented to protect, mitigate, and enhance fish and wildlife, including related spawning grounds and habitat, on the Columbia River and its tributaries.	◒	◒	○	●	●	—
Federal Columbia River Power System (FCRPS) Water Quality Management	Provides funding for the Corps' and Bureau of Reclamation's water quality programs related to power generation operations at projects that are part of the Federal Columbia River Power System.	●	●	○	◒	◒	—
Water Resources Protection Program (Transmission Facilities)	Manages environmental compliance activities, such as installation of oil spill containment and stormwater treatment and filtration systems, at BPA transmission facilities.	◒	○	◒	○	○	●

Name of Effort[a]	Description of Effort[b]	Purpose(s) of Restoration Effort[c]					
		Improve surface water quality	Monitor surface water quality	Reduce toxic pollutants	Recover threatened or endangered species	Restore and protect habitat	Other
Department of Energy							
Hanford Soil and Groundwater Remediation Program	Conducts soil contaminant remediation and groundwater pump-and-treat programs to meet Clean Water Act surface water quality criteria in discharges to the Columbia River as well as comprehensive risk assessments that include contaminant risk to human health and ecological receptors exposed to surface water, pore water, sediment, and fish tissue.	●	◒	●	○	○	●
U.S. Department of Interior							
Bureau of Land Management (BLM)							
Annual Fish Habitat and Water Quality Improvement Program on BLM Lands in Idaho	Assesses and restores water quality conditions, and manages water resources on public lands in Idaho.	●	●	○	●	●	—
Oregon and Washington BLM Fisheries and Aquatic Resources Program – Restoration and Monitoring	Cooperates with other BLM programs and partners to inventory, protect, restore, and enhance BLM's aquatic resources, such as restoring stream channels degraded by past land management activities and monitoring effectiveness of restoration actions.	●	●	◒	●	●	—
Oregon and Washington BLM Riparian and Soil/Water/Air Program – Restoration and Monitoring	Manages water on rangeland allotments by preserving water rights and managing projects, such as stream restoration and road rehabilitation projects, which limit sediment delivery into the waterways to ensure clean water for people, wildlife, and fish.	●	●	●	◒	◒	—

Name of Effort[a]	Description of Effort[b]	Purpose(s) of Restoration Effort[c]					
		Improve surface water quality	Monitor surface water quality	Reduce toxic pollutants	Recover threatened or endangered species	Restore and protect habitat	Other
Bureau of Reclamation							
Columbia/Snake Salmon Recovery Office	Implements actions required by biological opinions associated with operation of the Grand Coulee and Hungry Horse dams. These include hydrosystem, harvest, hatchery, predator control, tributary and estuary habitat, and research, monitoring, and evaluation actions designed to promote recovery and survival of listed salmon and steelhead species and avoid destruction of critical habitat.	●	◒	○	●	●	—
Lewiston Orchards Project	Provides minimum instream flows to restore habitat needed for recovery of listed species associated with operation of facilities near the confluence of the Clearwater and Snake Rivers in Idaho that provide water for irrigation and domestic water use.	◒	◒	○	●	●	—
Pacific Northwest Region Water Quality Program	Conducts sampling and monitoring at Reclamation projects to assess impact on water quality and ensure compliance with federal and state water quality standards and provides support for water quality activities implemented by other entities such as states, tribes, and individual landowners. It also provides assistance and technical support to stakeholders and partners, such as watershed councils and irrigation districts, for their efforts to improve water quality in areas adjacent to Reclamation projects.	●	●	○	○	◒	○
Tualatin Project	Provides irrigation water to 17,000 acres in the Willamette Basin west of Portland, Oregon, while implementing projects for fish and wildlife enhancement, recreation, and flood control.	◒	◒	◒	●	●	○

Name of Effort[a]	Description of Effort[b]	Purpose(s) of Restoration Effort[c]					
		Improve surface water quality	Monitor surface water quality	Reduce toxic pollutants	Recover threatened or endangered species	Restore and protect habitat	Other
Umatilla Basin Project	Restores instream flows needed for fish migration and recovery of listed species while supplying irrigation water to approximately 30,000 acres in north-central Oregon. Restoration activities include channel modifications, construction of fish ladders, fish traps and screens, and construction of water exchange facilities that release stored water to maintain instream flows.	○	◒	○	●	◒	○
Upper Snake Projects Above Brownlee Reservoir Operations and Maintenance	Implements projects and conducts monitoring activities contained in biological opinions associated with operation and maintenance of 12 federal projects located in the Snake River Basin upstream of the Brownlee Reservoir and their potential effects on threatened or endangered species and their designated critical habitat. The scope of actions include managing water storage and release, diversion and pumping, power generation, routine maintenance activities, and augmentation of water flows in the lower Snake River to benefit salmon and steelhead.	◒	◒	○	●	●	○
Yakima River Basin Water Enhancement Project	Implements actions to improve water management, instream flows, water quality, and protect, create and enhance wetlands, and other projects to protect, mitigate, and enhance fish and wildlife and improve habitat in the Yakima River Basin.	◒	◒	○	●	●	—
U.S. Fish and Wildlife Service							
Aquatic Invasive Species Prevention and Control	Coordinates with federal agencies and other partners to prevent, monitor, and control the introduction and spread of aquatic invasive species.	○	○	○	◒	◒	—

Name of Effort[a]	Description of Effort[b]	Purpose(s) of Restoration Effort[c]					
		Improve surface water quality	Monitor surface water quality	Reduce toxic pollutants	Recover threatened or endangered species	Restore and protect habitat	Other
Clean Vessel Act Grant Program	Provides grants to states, the District of Columbia and insular areas for the construction, renovation, operation, and maintenance of pumpout stations and waste reception facilities for recreational boaters and provides grants for educational programs that inform boaters of the importance of proper disposal of their sewage.	●	○	○	○	○	○
Endangered Species Act Implementation	Implements the Endangered Species Act, including developing plans for recovery of listed species and restoration of their ecosystems in the Columbia River Basin, such as the Oregon chub and bull trout.	◒	◒	◒	●	●	○
Environmental Compliance Audit Program	Conducts audits of facilities on National Wildlife Refuges to ensure compliance with environmental laws and regulations.	●	◒	●	◒	●	○
Environmental Contaminants Program	Identifies sources of pollution, investigates effects on species and their habitats, develops solutions to prevent or mitigate adverse impacts of environmental contaminant problems, and partners with others to restore degraded resources and habitats.	●	●	●	●	●	○
Inventory and Monitoring Initiative - National Wildlife Refuge System	Coordinates the design, collection, retention, and analyses of scientific information collected through inventory and monitoring surveys to assess the status and trends of refuge lands, waters, plants, and wildlife, as well as assess responses to management actions.	○	●	○	◒	●	○

Name of Effort[a]	Description of Effort[b]	Purpose(s) of Restoration Effort[c]					
		Improve surface water quality	Monitor surface water quality	Reduce toxic pollutants	Recover threatened or endangered species	Restore and protect habitat	Other
Lower Snake River Compensation Plan	Provides financial assistance for operation of federal and state hatchery programs to return salmon, steelhead, and resident rainbow trout as compensation for losses from operation and maintenance of lower Snake River dams, as well as assistance for fish health management services and monitoring to improve operations and increase efficient of the hatchery programs.	○	○	○	○	○	○
National Fish Habitat Partnerships- Pacific Region	Partners with other federal agencies, states, tribes, nongovernmental organizations, and private entities to conserve, protect, and restore aquatic habitats that support healthy, sustainable populations of fish and other aquatic life.	◒	○	◒	◒	●	○
National Fish Hatchery System- Pacific Region	Operates or administers 24 federally-owned facilities and 53 fish hatchery programs in the Pacific Northwest. These hatcheries work with state, local, and tribal governments and other federal agencies to conserve fisheries as well as implement measures and operations to protect and restore water quality downstream of hatchery operations.	○	○	○	◒	○	○
National Fish Passage Program- Pacific Region	Partners with other federal agencies, states, tribes, nongovernmental organizations, and private entities by providing financial and technical assistance for projects to restore native fish and other aquatic species to self-sustaining levels by reconnecting habitat that has been fragmented by barriers, such as by removing obsolete infrastructure and installing fish-friendly devices to allow fish to move upstream and downstream.	○	○	○	●	●	○

Name of Effort[a]	Description of Effort[b]	Purpose(s) of Restoration Effort[c]					
		Improve surface water quality	Monitor surface water quality	Reduce toxic pollutants	Recover threatened or endangered species	Restore and protect habitat	Other
Natural Resource Damage Assessment and Restoration Program	Uses funds recovered from litigation settlements to plan and carry out activities to restore, replace, or acquire the equivalent of those fish, wildlife, and other natural resources injured by oil spills or releases of hazardous substances.	●	●	●	●	●	—
Partners for Fish and Wildlife Program	Provides financial and technical assistance to private landowners and tribes to help meet the habitat needs of federal trust species, such as threatened bull trout.	◒	○	○	●	●	○
Refuge Clean-up Fund	Provides funding for remediation, abatement, and clean-up projects of contaminated sites on National Wildlife Refuges, such as old firing ranges.	●	◒	●	◒	●	○
Regional Implementation Oversight Group	Participates in a forum for interagency discussion and coordination for implementation of the Federal Columbia River Power System and biological opinions related to salmon recovery efforts and water quality management issues in the Columbia River Basin.	◒	◒	○	◒	◒	—
Sport Fish Restoration Program	Provides grants to states, the District of Columbia, and insular areas' fish and wildlife agencies for fishery projects, boating access, and aquatic education.	○	○	○	○	◒	●
Yakima Basin Integrated Restoration Program	Recovers threatened and endangered native anadromous and resident fish populations in the Yakima Watershed by improving instream flows, restoring degraded aquatic habitat, protecting existing high-quality habitat, and providing access to headwater habitats.	●	●	●	●	●	○
U.S. Geological Survey							
Contaminant Biology Program	Develops and applies advanced laboratory methods and field investigations to understand potential biological health effects from exposures to chemical and microbial hazards in the environment.	○	◒	●	○	○	●

Name of Effort[a]	Description of Effort[b]	Purpose(s) of Restoration Effort[c]					
		Improve surface water quality	Monitor surface water quality	Reduce toxic pollutants	Recover threatened or endangered species	Restore and protect habitat	Other
Environments Program	Conducts research on various ecosystems to provide information to other agencies that they can use to make decisions about how to manage public lands and trust resources.	◒	◒	◒	●	●	—
Groundwater and Stream Flow Information Program	Identifies, measures, and assesses water resources around the country. It is the principal program for monitoring groundwater and streamflow, including floods and droughts, related to groundwater resources at the regional and national scales.	◒	◒	○	◒	◒	●
National Water Quality Program	Provides an understanding of whether water quality conditions are getting better or worse over time and how natural features and human activities affect those conditions.	◒	●	◒	◒	◒	●
Toxic Substances Hydrology Program	Develops and applies advanced analytical methods, field investigations, laboratory studies, and modeling capabilities to understand the sources, movement, and exposure pathways of chemical and microbial hazards in the environment.	●	◒	○	○	○	●
U.S. Environmental Protection Agency							
Clean Water Act Section 106 Water Pollution Control Grant Program	Provides grants to help states, territories, interstate agencies, and eligible tribes establish and carry out effective water pollution control programs and activities, including water quality planning and assessments, developing water quality standards, and monitoring.	●	●	○	○	○	●
Clean Water Act Section 303(d) Impaired Waters and Total Maximum Daily Load Program	Assists states, territories, and authorized tribes in submitting lists of impaired waters and developing Total Maximum Daily Loads (TMDL) that establish the maximum amount of a pollutant allowed in a water body as part of the process for restoring water quality.	●	●	◒	◒	◒	○

Name of Effort[a]	Description of Effort[b]	Purpose(s) of Restoration Effort[c]					
		Improve surface water quality	Monitor surface water quality	Reduce toxic pollutants	Recover threatened or endangered species	Restore and protect habitat	Other
Clean Water Act Section 319 Nonpoint Source Implementation Grants Program	Provides grants to states, territories, and tribes for a wide variety of nonpoint source activities including financial and technical assistance, education, training, technology transfer, demonstration projects, and monitoring.	●	◒	◒	◒	◒	—
Clean Water Act Section 320 National Estuary Program- Lower Columbia Estuary Partnership	Provides financial and technical assistance to collaborative efforts to protect and restore the water quality and ecological integrity of estuaries of national significance, such as development and implementation of the comprehensive conservation management plan for the lower Columbia River estuary.	●	●	●	◒	●	●
Clean Water Act Section 604(b) Water Quality Management Planning Grants	Provides grants to states to carry out water quality management planning to determine the nature and extent of point and nonpoint source pollution and develop plans to solve them. States are encouraged to prioritize to watershed restoration and protection planning and activities.	◒	○	○	○	○	●
Clean Water Indian Set-Aside Grant Program	Provides funding to assist tribes and Alaska Native American villages in planning, designing, and constructing wastewater collection and treatment systems.	◒	◒	◒	○	○	—
Clean Water State Revolving Fund	Provides low-cost funding to water quality protection projects for a wide range of water quality infrastructure projects, including nonpoint source pollution control and watershed and estuary management.	●	◒	◒	◒	◒	—
Columbia Cold Water Refuges Project	Works with partners to restore, enhance, and protect cold water refuges located from the mouth of the Columbia River to its confluence with the Snake River that are essential to supporting healthy salmon and steelhead migration.	●	●	○	●	●	—

Name of Effort[a]	Description of Effort[b]	Purpose(s) of Restoration Effort[c]					
		Improve surface water quality	Monitor surface water quality	Reduce toxic pollutants	Recover threatened or endangered species	Restore and protect habitat	Other
Columbia River Toxics Reduction Working Group	Coordinates activities, shares information, and develops strategies to identify and reduce toxics in the Columbia River Basin in partnership with other federal agencies, states, tribes, and nonprofit organizations.	●	◒	●	◒	◒	—
Clean Water Act 104(b) Wetland Program Development Grants	Provides grants to assist state, tribal, and local government agencies and interstate/intertribal entities with building programs to protect, manage, and restore wetlands. This includes projects that promote the coordination and acceleration of research, investigations, experiments, training, demonstrations, surveys, and studies relating to the causes, effects, extent, prevention, reduction, and elimination of water pollution.	◒	●	◒	◒	●	—
Flathead Basin Commission	Participates as part of 23-member commission that works collectively to monitor and protect water quality, natural resources, and economic well-being of the Flathead Basin in Montana.	●	●	●	◒	◒	—
Hazardous Waste Program	Develops regulations, guidance, and policies that ensure the safe management and clean-up of solid and hazardous waste, including providing funding to states to implement authorized hazardous waste programs, along with programs that encourage source reduction and beneficial reuse of wastes.	◒	○	●	○	○	—
Indian Environmental General Assistance Program	Provides general assistance grants to Indian tribal governments and intertribal consortia to assist them in planning, developing, and building the capacity to administer regulatory and multimedia environmental protection programs on Indian lands.	●	●	◒	◒	◒	●

Name of Effort[a]	Description of Effort[b]	Purpose(s) of Restoration Effort[c]					
		Improve surface water quality	Monitor surface water quality	Reduce toxic pollutants	Recover threatened or endangered species	Restore and protect habitat	Other
Lake Koocanusa Monitoring and Research Working Group, Monitoring and Research Committee	Participates in the Monitoring and Research Committee, which is a forum for Canadian, federal, and state agencies, tribes, industry, academic institutions, and nongovernmental organizations to exchange information, coordinate monitoring and research activities, and provide science-based advice, such as developing of numeric water quality standards for selenium.	●	●	●	◒	◒	—
National Aquatic Resource Surveys	Collaborates with states and tribes to assess the quality of the nation's coastal waters, lakes, reservoirs, rivers, streams, and wetlands using a statistical survey design.	◒	●	◒	◒	◒	○
Office of Resource Conservation and Recovery/Office of Pollution Prevention and Toxics – PCB program	Develops and issues approvals for clean-up and disposal of polychlorinated biphenyls (PCB). The office issues approvals are issued to anyone performing clean-up or disposal of PCB waste and may include schools/school districts, building owners, commercial PCB handlers, federal facilities, and others.	◒	○	●	◒	◒	○
Oil Spill Prevention and Preparedness	Protects water quality, habitat, and endangered species by developing plans to prevent, prepare for, and respond to oils spill that occur in and around inland waters of the United States.	○	○	●	◒	○	●
Pollution Prevention Grant Program	Funds grants and cooperative agreements that implement pollution prevention technical assistance services and training for businesses and support projects that utilize pollution prevention techniques to reduce and/or eliminate pollution from air, water, and/or land.	◒	○	●	○	○	●

Name of Effort[a]	Description of Effort[b]	Purpose(s) of Restoration Effort[c]					
		Improve surface water quality	Monitor surface water quality	Reduce toxic pollutants	Recover threatened or endangered species	Restore and protect habitat	Other
Superfund Program	Protects human health and the environment by cleaning up some of the nation's most contaminated land and responding to environmental emergencies, oil spills, and natural disasters, including at sites within the Columbia River Basin.	◒	○	●	○	○	●
Tri-State Water Quality Council	Established with the states of Washington, Idaho, and Montana, this 28-member council implemented actions addressing both point and nonpoint pollution sources to reduce nutrient loads and restore water quality throughout the Clark Fork-Pend Oreille watershed. It ended in fiscal year 2012.	●	●	●	○	◒	—
Urban Waters Small Grants Program	Provides grants for projects that seek to help protect and restore urban water quality and revitalize adjacent neighborhoods by engaging communities in activities that increase their connection to, understanding of, and stewardship of local urban waterways.	●	○	◒	○	◒	—
STATE AGENCIES							
Idaho Department of Environmental Quality							
401 Program	Oversees certifications of federal permits or licenses including National Pollutant Discharge Elimination System permits, dredge and fill permits, and hydroelectric power plant licenses to ensure compliance with Section 401 of the Clean Water Act.	●	◒	○	●	●	—
Beneficial Use Reconnaissance Program	Determines the quality of the state's waterbodies through biological monitoring and habitat assessment to ensure compliance with the Clean Water Act.	○	●	○	○	○	●
Clean Water State Revolving Fund Loan Program	Provides low-cost financing for a wide range of water quality infrastructure projects.	●	●	●	○	●	○

Name of Effort[a]	Description of Effort[b]	Purpose(s) of Restoration Effort[c]					
		Improve surface water quality	Monitor surface water quality	Reduce toxic pollutants	Recover threatened or endangered species	Restore and protect habitat	Other
Idaho Pollution Prevention Technical Assistance Program	Provides technical assistance to avert potential violations of environmental laws, rules, and programs; enhance compliance; and encourage above-and-beyond compliance actions to protect public health and preserve the environment.	—	○	●	○	○	○
Nonpoint Source Management and 319 Grant Program	Provides grants to prevent and eliminate nonpoint sources of pollution in the state's waterbodies.	●	◒	○	◒	◒	—
Total Maximum Daily Load	Manages the development of water quality improvement plans for water bodies that do not meet water quality standards to ensure compliance with section 303d of the Clean Water Act.	●	○	◒	◒	◒	○
Water Reuse Permitting	Manages permit process to reuse and apply recycled water (treated wastewater) to land for irrigation.	●	◒	○	○	○	●
Montana Department of Environmental Quality							
401/318 Certification Program	Certifies that permitted activities, such as construction and dredge and fill that may impact state waterbodies, are conducted in compliance with water quality standards.	●	◒	●	◒	◒	○
Clean Water State Revolving Fund Loan Program	Provides low-cost financing for a wide range of water quality infrastructure projects.	●	●	●	○	●	○
Federal Superfund and Abandoned Mine Lands	Administers programs to reclaim abandoned mines and clean-up contaminated land throughout the state.	●	●	●	○	◒	—
Montana Pollution Discharge Elimination System	Controls point source discharges of wastewater in order to protect state surface water quality through a permitting process.	●	◒	●	◒	◒	○
Nonpoint Source 319 Project Funding	Distributes annual EPA funding through Section 319 of the Clean Water Act throughout the state to groups interested in implementing projects to reduce nonpoint source pollution to state waterbodies.	●	◒	●	◒	◒	○

Name of Effort[a]	Description of Effort[b]	Purpose(s) of Restoration Effort[c]					
		Improve surface water quality	Monitor surface water quality	Reduce toxic pollutants	Recover threatened or endangered species	Restore and protect habitat	Other
State Superfund and Site Response Program	Prevents exposure of human and ecological receptors to hazardous or deleterious substances released to the air, groundwater, soil, sediment, or surface water.	●	●	●	○	○	○
Total Maximum Daily Load	Identifies sources of pollution to streams, rivers, and lakes within Montana and determines how much pollution those waters can sustain and still fully support the state's needs to satisfy requirements in the Clean Water Act.	●	◒	●	◒	◒	○
Oregon Department of Environmental Quality							
Ambient Water Quality Monitoring Program	Includes collecting long-term water quality data at fixed stations for conventional water quality parameters.	○	●	◒	○	○	○
Biomonitoring program	Collects aquatic insects and other aquatic invertebrates to assess watershed health.	◒	●	○	◒	◒	●
Clean Water State Revolving Fund Loan Program	Provides low-cost financing for a wide range of water quality infrastructure projects.	●	●	●	○	●	○
National Pollutant Discharge Elimination System permit program	Includes issuing permits to regulate discharge of pollutants to surface waters to ensure compliance with the Clean Water Act.	●	◒	●	◒	◒	○
Nonpoint Source Implementation 319 Grants	Uses grants to support implementation and planning projects that address water quality problems in surface and groundwater resources resulting from nonpoint source pollution. This program seeks proposals from government agencies, tribal nations, and nonprofit organizations for projects that will lead to the restoration of beneficial uses in impaired water bodies to ensure compliance with Clean Water Act.	●	●	●	◒	●	○

Name of Effort[a]	Description of Effort[b]	Purpose(s) of Restoration Effort[c]					
		Improve surface water quality	Monitor surface water quality	Reduce toxic pollutants	Recover threatened or endangered species	Restore and protect habitat	Other
Pesticide Stewardship Partnership Program	Identifies potential concerns and improves water quality affected by pesticide use around Oregon and combines local expertise and water quality sampling results to encourage voluntary changes in pesticide use and management practices.	●	●	●	◒	◒	—
Section 401 Removal and Fill Certification	Reviews and evaluates the water quality impacts of projects that require a federal permit or license to conduct any activity that may result in a discharge (including dredge and fill material) in water bodies under Section 401 of the Clean Water Act.	◒	◒	◒	◒	◒	—
TMDL and Nonpoint Source Program	Includes quantifying pollutant loads for impaired waterbodies and the needed pollutant reductions in order to meet water quality standards and approves TMDL implementation plans from persons or designated management agencies identified responsible for implementing the TMDL by controlling and reducing nonpoint source pollution.	●	◒	◒	◒	◒	●
Water Quality Standards	Uses water quality standards to assess whether the quality of Oregon's rivers and lakes is adequate for fish and other aquatic life, recreation, drinking, agriculture, industry, and other uses to ensure compliance with the Clean Water Act.	●	○	●	●	●	●
Water Quality Toxics Monitoring	Samples and monitors water, fish, and sediment on a rotating basis throughout the state.	○	●	◒	◒	○	○

Name of Effort[a]	Description of Effort[b]	Purpose(s) of Restoration Effort[c]					
		Improve surface water quality	Monitor surface water quality	Reduce toxic pollutants	Recover threatened or endangered species	Restore and protect habitat	Other
Washington Department of Ecology							
401 Water Quality Certification for FERC Licensed Hydropower Dams	Works with the Federal Energy Regulatory Commission (FERC) on a licensing process for hydropower dams. When an applicant requests a license, either to re-license an existing dam or for new construction, the department works with the utility, reviews studies, analyses, and plans. If the department determines that water quality standards are attainable, it issues a 401 certification with conditions to ensure that the standards will be met. These conditions become part of the new FERC license.	●	◒	◒	●	●	—
Clean Water State Revolving Fund Loan Program	Provides low-cost financing for a wide range of water quality infrastructure projects.	●	●	●	○	●	○
Coastal Protection Fund- Terry Husseman Account	Supports locally sponsored on-the-ground projects to restore or enhance the natural environment through grants. Typical projects address water quality issues and fish and wildlife habitat protection or enhancement in or adjacent to waters of the state (i.e., streams, lakes, wetlands, or the ocean).	●	○	○	●	—	—
Federal Columbia River Power System Total Dissolved Gas Abatement	Includes conditioning FERC licenses to minimize pollution resulting from the operation of five Public Utility Dams in the mid-Columbia Basin area as required by Clean Water Act Section 401.	●	◒	○	●	●	—
Floodplains by Design	Focuses on coordinating investment in and strengthening the integrated management of floodplain areas throughout Washington via partnerships with local, state, federal, and private organizations.	◒	○	◒	●	●	●

Name of Effort[a]	Description of Effort[b]	Purpose(s) of Restoration Effort[c]					
		Improve surface water quality	Monitor surface water quality	Reduce toxic pollutants	Recover threatened or endangered species	Restore and protect habitat	Other
Forest Practices	Evaluates whether forest practices rules protect fish, wildlife, and water quality through effective monitoring on lands managed specifically for timber production (i.e., industrial timberlands).	●	●	○	◒	◒	—
Freshwater Ambient Monitoring Program	Monitors freshwater water quality through monthly monitoring at fixed and rotating stations.	●	●	◒	◒	◒	—
Freshwater Fish Contaminant Monitoring Program	Analyzes fish tissue from lakes and rivers throughout the state for various chemicals to help inform the public about safe levels for eating fish.	●	●	●	◒	◒	—
Local Source Control	Provides free, on-site technical assistance to help small businesses identify and resolve possible sources of pollution to prevent pollution from entering state waterbodies. This effort also includes monitoring.	●	○	◒	○	○	—
Municipal Stormwater National Pollutant Discharge Elimination System (NPDES) Permits	Develops and administers NPDES municipal stormwater permits to ensure compliance with the Clean Water Act.	●	◒	●	◒	◒	—
Nonpoint Work	Addresses nonpoint sources of pollution in the state through a number of activities, including working with partners to identify pollution problems and follows up with landowners to offer options and funding to help them fix water pollution problems.	●	●	●	●	●	—
NPDES and State Waste Discharge Permitting Program	Issues permits to address water pollution from point sources into surface or groundwater or publicly-owned treatment works to ensure compliance with Washington state water quality standards and the Clean Water Act.	◒	○	◒	◒	◒	●
Persistent and Bioaccumulative Toxics Monitoring	Includes monitoring levels of persistent, bioaccumulative toxics in the environment, including emerging toxics and mercury trends in fish tissue.	◒	●	●	○	○	—

Name of Effort[a]	Description of Effort[b]	Purpose(s) of Restoration Effort[c]					
		Improve surface water quality	Monitor surface water quality	Reduce toxic pollutants	Recover threatened or endangered species	Restore and protect habitat	Other
Reducing Persistent, Bioaccummulative, and Toxic Chemicals	Includes developing chemical action plans for lead, polycyclic aromatic hydrocarbons, and polychlorinated biphenyls to identify the most important sources and recommend how to reduce or eliminate them.	◒	○	●	○	○	—
Reducing Toxic Chemicals in Products	Focuses on reducing and eliminating the use of toxic chemicals in consumer products as required by various Washington state laws.	◒	—	●	—	—	—
Revisions to the Water Quality Standards for Surface Waters of the State of Washington (Chapter 173-201A WAC)	Includes revising, expanding, and clarifying some of the tools that help in criteria implementation of the Water Quality Standards for Surface Waters of the State of Washington (Chapter 173-201A WAC).	●	○	●	◒	◒	○
Spokane River Regional Toxics Task Force	Leads efforts to find and reduce toxic compounds in the Spokane River in Washington. The goal of the task force is to develop a comprehensive plan to bring the Spokane River into compliance with water quality standards for PCBs.	●	●	●	○	○	—
Toxics Clean-up	Remedies accidental spills of dangerous materials and past business practices that have contaminated land and water throughout Washington.	●	○	●	◒	○	—
Water Clean-up Plans: Total Maximum Daily Load (TMDL) and Straight to Implementation	Oversees TMDL and Straight to Implementation projects that address nonpoint and point pollution sources. For example, the Straight to Implementation process is a water quality improvement tool that permits the clean-up of a watershed without having to use a TMDL.	●	●	●	●	●	—
Water Quality Assessment (Integrated Report for Sections 303(d) and 305(b) of the Clean Water Act)	Includes preparing a federally required assessment that lists the water quality status for water bodies in the state to ensure compliance with sections 303(d) and 305(b) of the Clean Water Act.	●	●	●	◒	◒	○

Name of Effort[a]	Description of Effort[b]	Purpose(s) of Restoration Effort[c]					
		Improve surface water quality	Monitor surface water quality	Reduce toxic pollutants	Recover threatened or endangered species	Restore and protect habitat	Other
Water Quality Combined Funding Program	Funds projects that improve and protect water quality throughout Washington State.	●	◒	●	◒	◒	—
Watershed Health Monitoring	Samples randomly selected streams and rivers across the state to obtain a consistent, objective picture of biological, chemical, and habitat conditions and to track trends in order to answer questions about the overall condition of watersheds.	◒	●	●	◒	●	—
NONGOVERNMENTAL ENTITIES							
Columbia Riverkeeper							
Clean Water Enforcement	Includes enforcing the Clean Water Act, reviewing permits, and reducing toxics through pollution reduction activities.	●	◒	●	◒	◒	○
Hanford	Includes encouraging public participation in efforts and organizations related to the Hanford Nuclear Reservation.	●	○	●	◒	●	○
Salmon Protection	Focuses on protecting the salmon populations in the Columbia River using a variety of approaches that include habitat restoration and protection and reducing toxic exposure.	◒	○	◒	◒	●	○
Toxics Reduction	Focuses on achieving measurable reductions in toxic pollution in the fish, wildlife, and people associated with the Columbia River through actions such as supporting scientific studies to understand how toxics are impacting the Columbia River's fish and wildlife, working for new laws that limit toxic pollution, and using legal mechanisms to hold illegal polluters accountable for threatening public health and fish.	●	◒	●	●	●	○

Name of Effort[a]	Description of Effort[b]	Purpose(s) of Restoration Effort[c]					
		Improve surface water quality	Monitor surface water quality	Reduce toxic pollutants	Recover threatened or endangered species	Restore and protect habitat	Other
Water Quality Monitoring and Adopt-a-River	Utilizes volunteers to monthly monitor more than 100 strategic sites for key pollution indicators that include conductivity, pH, water clarity (turbidity), dissolved oxygen, temperature, E. coli, and toxics (as part of targeted studies) to help the organization identify sources of pollution problems and prioritize restoration efforts.	◒	●	◒	◒	◒	○
Lower Columbia Estuary Partnership							
Action Effectiveness Monitoring Program	Focuses on providing information on all restoration actions in the lower Columbia River and tidal tributaries. The objectives of action effectiveness monitoring include: to provide information on whether restoration actions are meeting goals or whether future actions are necessary; to assess ecosystem impacts associated with restoration; and to identify which actions are working best and determine how the program can improve the efficacy of actions.	●	◒	○	●	●	○
Columbia Basin Toxics Reduction Working Group	Coordinates activities, shares information, and develops strategies to identify and reduce toxics in the Columbia River Basin in partnership with other federal agencies, states, tribes, and nonprofit organizations.	●	◒	●	◒	◒	○
Ecosystem Monitoring Program	Aims to collect key information on ecological conditions for a range of habitats throughout the lower river characteristic of those used by out-migrating juvenile salmon and provide information toward the recovery of threatened and endangered salmon.	●	◒	◒	●	●	●

Name of Effort[a]	Description of Effort[b]	Purpose(s) of Restoration Effort[c]					
		Improve surface water quality	Monitor surface water quality	Reduce toxic pollutants	Recover threatened or endangered species	Restore and protect habitat	Other
Habitat Restoration Program	Manages projects that restore and protect habitat between the Bonneville Dam and the mouth of the Columbia River, as the habitat restoration in turn supports the recovery of salmon and other wildlife and helps protect human uses of the river.	●	○	○	●	●	○
Stewardship Program & Schoolyard Stormwater Program	Includes schoolyard stormwater infiltration projects and student and volunteer riparian planting projects along water quality limited streams.	●	○	◒	◒	●	○
Northwest Power and Conservation Council							
2014 Columbia River Basin Fish and Wildlife Program	Mitigates the impacts of hydropower dams on fish and wildlife and helps direct more than $250 million per year to more than 350 projects throughout the Columbia River Basin.	●	●	◒	◒	●	●
Salmon-Safe							
Salmon-Safe certification	Includes certification assessment of farms in interior Columbia River Basin to evaluate conformance with best management practices for protecting water quality and fish habitat, as well as provide guidance for urban development projects in Portland that are candidates for Salmon-Safe certification to increase environmental performance related to stormwater management.	●	●	●	●	●	●

Name of Effort[a]	Description of Effort[b]	Purpose(s) of Restoration Effort[c]					
		Improve surface water quality	Monitor surface water quality	Reduce toxic pollutants	Recover threatened or endangered species	Restore and protect habitat	Other
TRIBES AND TRIBAL ORGANIZATIONS							
Burns Paiute Tribe							
Burns Paiute Tribe Wildlife Program	Implements actions to restore, protect, and enhance native trout species and their associated habitats in the Malheur River Basin; manage and suppress non-native brook trout that are limiting Endangered Species Act listed bull trout in the basin; and assess action effectiveness. Restores, protects, and enhances fish and wildlife habitat on 33,541 acres in the Malheur River Basin as mitigation for the construction and operation of the Federal Columbia River Power System.	○	◒	○	●	●	●
Columbia River Inter-Tribal Fish Commission							
Administration of the Pacific Coastal Salmon Recovery Fund Program for the Columbia River Inter-Tribal Fish Commission Tribes	Administers funding to tribes from the Fund to support conservation efforts in California, Oregon, Washington, Idaho, and Alaska. Congress established the Fund in 2000 to reverse the declines of Pacific salmon and steelhead.	○	◒	○	●	●	●
Confederated Tribes of the Colville Reservation							
Anadromous Fish Program and Resident Fish Program	Provides ceremonial and subsistence fisheries for tribal membership.	◒	◒	○	●	●	—
Cowlitz Indian Tribe							
Cowlitz Indian Tribe Aquatic Habitat Program	Includes developing and implementing habitat restoration actions that restore ecosystem processes necessary to increase populations of Endangered Species Act listed salmon and steelhead.	○	○	○	◒	●	—
Kalispel Tribe							
Cold Water Refugia Enhancement	Includes enhancing available cold water refugia for native trout recovery.	◒	◒	○	●	●	—

Name of Effort[a]	Description of Effort[b]	Purpose(s) of Restoration Effort[c]					
		Improve surface water quality	Monitor surface water quality	Reduce toxic pollutants	Recover threatened or endangered species	Restore and protect habitat	Other
Tribal Clean Water Act 106	Uses grants from EPA to implement water quality standards and other related activities, such as stream monitoring, as authorized under Section 106 of the Clean Water Act.	◒	●	◒	○	○	○
Tribal Clean Water Act 319	Implements activities, such as repairing stream banks to reduce sediment and increase shade, to manage nonpoint point sources of pollution for the tribe under Section 319 of the Clean Water Act.	●	○	○	○	○	○
Kootenai Tribe of Idaho							
Kootenai River Ecosystem Restoration Program	Identifies the best management strategies to enhance aquatic biota in the Kootenai River ecosystem to recover native species assemblages across multiple levels of the food chain.	●	●	○	◒	◒	—
Kootenai River Habitat Restoration Program	Includes developing and implementing large-scale river restoration projects on Kootenai River to restore and maintain Kootenai River habitat conditions that support all life stages of Kootenai River white sturgeon and other native aquatic focal species.	◒	◒	○	◒	●	—
Kootenai River Native Fish and Conservation Aquaculture Program	Includes focusing on two fish species key to the tribe: the Kootenai River white sturgeon and burbot. Under the program, conservation aquaculture techniques are utilized to prevent the extinction of and restore a healthy self-sustaining population of Kootenai River white sturgeon and re-establish a healthy self-sustaining population of burbot in the Lower Kootenai River.	○	◒	○	●	○	●
Kootenai Tribal Wildlife Program	Includes acquiring, restoring, protecting, and managing key habitats to protect wildlife and mitigate for losses associated with hydroelectric operations.	◒	○	○	◒	●	—

Name of Effort[a]	Description of Effort[b]	Purpose(s) of Restoration Effort[c]					
		Improve surface water quality	Monitor surface water quality	Reduce toxic pollutants	Recover threatened or endangered species	Restore and protect habitat	Other
Nez Perce Tribe							
Brownfields Program-CERCLA 128(a)	Focuses on timely survey and inventory of Brownfield sites, as well as focuses on oversight and enforcement authorities, provides meaningful public participation, approves clean-up plans and certifies that clean-ups are complete, and maintains a Public Record of sites addressed by the program.	◒	◒	●	○	○	—
Bureau of Indian Affairs Rights Protection Implementation program implemented by Nez Perce Tribe Department of Fisheries Resources Management	Includes enforcing tribal fishing regulations to ensure harvest is consistent with limitations established for Endangered Species Act-listed species, and monitors fish harvest to manage fisheries within limitations consistent with the act.	○	○	○	●	○	○
Clean Water Act Section 106 Water Quality Program	Includes collecting water quality data for Reservation water bodies. The program uses the data to determine the overall health and condition of the tribe's surface waters, among other activities, such as conducting assessments and studies related to water quality, in order to characterize waters, identify trends over time, identify emerging problems, determine whether pollution control programs are working, help direct pollution control efforts to where they are most needed, and respond to emergencies such as floods and spills. The tribe received treatment in the same manner as a state to implement the Clean Water Act 106 Water Quality Monitoring Program in 1990.	◒	●	○	○	○	●
Clean Water Act Section 319 Nonpoint Source Pollution Prevention Program	Aims to reduce nonpoint source pollution on the Nez Perce Reservation, restore and maintain degraded systems/habitats, preserve natural ecosystems, and educate landowners and the general public.	●	◒	◒	○	●	—

Name of Effort[a]	Description of Effort[b]	Purpose(s) of Restoration Effort[c]					
		Improve surface water quality	Monitor surface water quality	Reduce toxic pollutants	Recover threatened or endangered species	Restore and protect habitat	Other
Hazardous Environmental Response Team Program	Provides a tribal response to petroleum and hazardous material spills impacting Reservation rivers, groundwater, and soil.	◒	◒	●	○	○	—
Leaking Underground Storage Tanks Program-RCRA	Oversees the management of 18 regulated facilities on Nez Perce Reservation with underground storage tanks, which are regulated under the Resource Conservation and Recovery Act.	◒	○	●	○	○	—
Lower Snake River Compensation Program as implemented by Nez Perce Tribe Department of Fisheries Resources Management	Includes rearing Endangered Species Act-listed steelhead at Dworshak hatchery and monitoring fish harvest to manage fisheries within limitations consistent with the act.	○	○	○	●	○	○
Mitchell Act as implemented by Nez Perce Tribe Department of Fisheries Resources Management	Includes monitoring the releases and returns of coho salmon reared by the tribe.	○	○	○	○	○	●
Nez Perce Tribe Conservation Enforcement Program	Includes enforcing tribal fishing regulations to ensure harvest is consistent with limitations established for Endangered Species Act-listed species.	○	○	○	◒	○	●
Nez Perce Tribe Snake River Basin Adjudication Fish and Habitat fund as implemented by Nez Perce Tribe Department of Fisheries Resources Management	Includes restoring habitat in the Snake River Basin with such actions as removing passage barriers. Also includes transplanting Pacific Lamprey captured at lower Columbia River dams to suitable spawning habitat in the Basin.	●	○	○	◒	●	●
Northwest Power and Conservation Council 2014 Columbia River Basin Fish and Wildlife Program - as implemented by the Nez Perce Tribe Department of Fisheries Resources Management	Includes restoring habitat in the Snake River Basin as mitigation for the construction and operation of the Columbia River hydropower system and supplementing runs of chinook salmon using hatcheries as mitigation for the construction and operation of the Columbia River hydropower system.	●	○	○	●	●	○

Name of Effort[a]	Description of Effort[b]	Purpose(s) of Restoration Effort[c]					
		Improve surface water quality	Monitor surface water quality	Reduce toxic pollutants	Recover threatened or endangered species	Restore and protect habitat	Other
Pacific Coastal Salmon Recovery Fund as implemented by the Nez Perce Tribe Department of Fisheries Resources Management	Includes restoring habitat in the Snake River Basin through Idaho Office Species Conservation allocation of Pacific Coastal Salmon Recovery Fund.	○	○	○	●	●	●
Wetlands Program Clean Water Act Section 104(b)(3)	Aims to inventory existing wetlands on Nez Perce tribal land, assess the functions and conditions of those wetlands, characterize water quality and track groundwater level in wetlands, and plan for proper management of the tribe's wetland resources.	●	●	○	◒	●	—
Spokane Tribe of Indians							
Lake Roosevelt Fisheries Evaluation Program	Includes monitoring water quality and primary productivity in all of Lake Roosevelt, as well as monitoring fish assemblages and conducting predator removal.	◒	●	◒	◒	●	—
Section 106 EPA Water Quality Monitoring	Includes monitoring flows, temperatures, turbidity, and suspended solids in streams, as well as monitoring dissolved gas, oxygen, and temperature below a hydroelectric facility.	◒	●	◒	◒	◒	—
Section 319 EPA Nonpoint Source Pollution Competitive Grants Program	Includes activities such as stream bank stabilization and tree and shrub planting.	●	◒	○	○	●	—
Confederated Tribes of the Umatilla Indian Reservation							
Fisheries - Fisheries Habitat Sub-Program	Includes designing, implementing, and maintaining habitat enhancement projects, as well as maintains and applies an updated knowledge of floodplain, channel, and watershed function as it relates to healthy aquatic conditions and fish populations.	◒	◒	○	●	●	—

Name of Effort[a]	Description of Effort[b]	Purpose(s) of Restoration Effort[c]					
		Improve surface water quality	Monitor surface water quality	Reduce toxic pollutants	Recover threatened or endangered species	Restore and protect habitat	Other
Fisheries - Research, Monitoring and Evaluation Sub-Program	Includes reintroducing spring Chinook salmon, Pacific Lamprey, and freshwater mussels into the tribe's aboriginal territory and monitors and evaluates the status and trends of Endangered Species Act-listed species.	◒	◒	○	●	◒	—
Water Resources Program - Water Quality Sub-Program	Includes monitoring surface water quality on a quarterly basis.	◒	●	○	○	◒	—
The Shoshone- Bannock Tribe							
Endangered Species Act Habitat Restoration Program	Includes removing culverts where fish passage was impeded and replacing with bridges or bottomless culverts, increasing the available habitat for Endangered Species Act listed fish.	◒	◒	○	●	●	○
Salmon River Basin Nutrient Enhancement Program	Collects chemical, physical, and biological data to evaluate the efficacy of nutrient treatments designed to increase freshwater productivity and the growth and survival of stream-dwelling salmon in the upper Salmon River Basin.	●	●	○	●	●	○
Yankee Fork Restoration Program	Improves floodplain and riparian zones along dredged sections of the river to restore natural river channel characteristics, floodplain function, hydraulic and sediment regimes, and aquatic habitat in order to provide benefits to fish and wildlife.	◒	◒	○	●	●	◒
Upper Columbia United Tribes (UCUT)							
Columbia River Toxics Reduction Working Group	Coordinates activities, shares information, and develops strategies to identify and reduce toxics in the Columbia River Basin in partnership with other federal agencies, states, tribes, and nonprofit organizations.	●	●	●	◒	◒	●

Legend: ● = primary; ◒= secondary; ○ = none; — = not applicable; ✓ = yes; ✗ = no.

Source: GAO analysis of Columbia River Basin entities' responses to GAO survey and other documentation, including agency documents and websites. | GAO-18-561

[a]For the purpose of this report, we use "restoration efforts" to indicate activities, including water quality-related programs, in the Columbia River Basin from fiscal years 2010 through 2016. The survey defined "programs" as a group of related projects, subprograms, and associated program activities managed in a coordinated way to obtain benefits not available from managing them individually. Some of the restoration efforts identified by respondents may still be ongoing.

[b]The sources of information for this column include respondents surveys, agency documents, and websites.

[c]In our survey, we asked respondents to identify if the purpose was a primary purpose, a secondary purpose, or not a purpose of this program. By primary purpose, we meant the main purpose of the effort was to achieve the respective outcome. By secondary purpose, we meant that the effort was primarily intended to achieve another purpose, but as part of its implementation also contributed to a secondary purpose. We provided the following six definitions of for the purposes listed in the survey: (1) improving surface water quality: includes programs intended to improve the physical, chemical, and/or biological characteristics of water within the Columbia River Basin, such as reducing stormwater runoff or other sources of conventional pollutants; (2) monitoring surface water quality: includes programs intended to monitor the physical, chemical, and/or biological characteristics of waters within the Columbia River Basin, including for the purposes of establishing baselines, identifying trends, and assessing the effectiveness of restoration programs; (3) reducing toxics pollutants: includes programs intended to reduce or eliminate sources of toxic pollutants and clean-up contaminated sites; (4) recovering threatened or endangered species: includes programs intended to promote the recovery of threatened or endangered species listed under the Endangered Species Act; (5) restoring and protecting habitat: includes programs intended to restore degraded habitats and protect high-quality habitats from future degradation, such as addressing non-native invasive aquatic species; and (6) other. For the other purpose, we asked respondents to provide a written explanation.

Appendix III: Survey Distributed to Entities in the Columbia River Basin

U.S. GOVERNMENT ACCOUNTABILITY OFFICE

Introduction

The U.S. Government Accountability Office (GAO), an independent, nonpartisan agency that works for Congress, received a bi-partisan request to review restoration efforts to improve water quality in the Columbia River Basin, including but not limited to reducing toxic pollutants and conducting water-quality related monitoring efforts. As part of our review, we are asking federal, state, tribal, and regional entities to identify their restoration efforts and programs implemented in the basin during fiscal years 2010-2016.[1] We plan to provide information on these programs as part of a report to Congress in 2018.

To complete the questionnaire, you may need to coordinate your responses with other staff familiar with your agency's, tribe's, or organization's restoration programs. Thank you in advance for your cooperation.

Instructions

This questionnaire can be completed using Adobe Acrobat and returned as an e-mail attachment to USGAOColumbiaRiverBasin@GAO.gov. To do this, first open the attached Adobe .pdf file and save the file to your computer. Then you may enter your responses directly into the file you have saved.

To complete this questionnaire, follow these steps:

- **Please populate a new form for each restoration program** and add as many new forms as needed to list all of your agency's, tribe's, or organization's programs.
- In order to respond, you will need to **enable Java for Adobe Acrobat**. If a yellow bar appears at the top of the form, you need to enable Java which will turn the bar green. If a green bar automatically appears you should not need to enable it. **Please work from a PC** to ensure Adobe functionality is consistent.
- Please use your mouse to navigate by clicking on the narrative box you will populate.
    - To answer a question that requires you to type in a response, click on the answer box _____ and begin typing. The box will expand to accommodate your answer, which you can scroll through .
    - To mark a button, simply click on the center of the button. To change your response to a question, click on the intended button and the marked one will automatically be deselected..
- If you have more than 20 programs, save the questionnaire with the first 20 program names. Then, save another new version of the original blank questionairre to your desktop (save as "Part II"). Use this second questionairre for programs #21-40, as needed.
- When you complete work on the questionnaire, prior to closing the document, please print a complete copy in order to have a backup of the populated questionnaire(s) you completed. This hardcopy back-up will help to ensure that any potential software errors do not result in lost information.
- When returning the questionnaire, please also attach any relevant supporting documentation in your e-mail response.
- Return the questionnaire and related attachments to USGAOColumbiaRiverBasin@GAO.gov by **June 14th, 2017.**

If you have any questions about the scope of our review, what types of programs to include in your responses, or experience difficulty gathering the requested information, please contact Michael Meleady at 206-287-4831 or meleadym@gao.gov, or David Lysy at 617-788-0559 or lysyd@gao.gov.

[1]A federal fiscal year starts October 1 of the prior calendar year and ends September 30 of the same calendar year as the fiscal year identified. For example, fiscal year 2010 started on October 1, 2009 and ended September 30, 2010.

Definitions

In responding to our questions, please consider the following definitions for relevant terms and phrases:

Improving surface water quality: Programs intended to improve the physical, chemical, and/or biological characteristics of surface waters within the Columbia River Basin, such as reducing stormwater runoff or other sources of conventional pollutants.

Monitoring surface water quality: Programs intended to monitor the physical, chemical, and/or biological characteristics of waters within the Columbia River Basin, including for the purposes of establishing baselines, identifying trends, and assessing the effectiveness of restoration programs. Water quality is most often monitored in relation to its suitability for a particular purpose.

Reducing toxic pollutants: Programs intended to reduce or eliminate sources of toxic pollutants, such as cleaning up contaminated sites which potentially contribute to contamination of waters in the Columbia River Basin. Toxic pollutants are materials discharged into the environment that may cause, among other things, death, disease, and/or birth defects in organisms that ingest or absorb them. The quantities and length of exposure necessary to cause these effects can vary widely from one pollutant to the next. We use the term to include, among others, those pollutants specifically listed by the U.S. Environmental Protection Agency (EPA) Administrator under section 307(a) or any other listed under section 405(d) of the Clean Water Act.

Recovering threatened or endangered species: Programs intended to promote the recovery of threatened or endangered species listed under the Endangered Species Act.

Restoring and protecting habitat: Programs intended to restore degraded habitats and protect high-quality habitats from future degradation, such as addressing non-native invasive aquatic species.

Scope

The questions below ask for information on water quality-related restoration programs that your agency, tribe, or organization has implemented in the Columbia River Basin. ***Please note*** that we are seeking information on your activities at the program (not project) level.

- By ***programs*** we mean a group of related projects, subprograms, and associated program activities that are managed in a coordinated way to obtain benefits not available from managing them individually. Such programs improve water quality, whether directly or indirectly, as referenced in the above definitions. ***Please note*** that for the purposes of our review, we are ***excluding*** programs related to drinking water infrastructure or groundwater sources.

- By ***implement*** we mean actively participating in or managing the performance of the restoration program, or having provided funding to support another agency's, tribe's, or organization's implementation of the water quality-related restoration program.

Restoration Programs Implemented to Improve Water Quality in the Columbia River Basin

A. **Between October 1, 2009 and September 30, 2016, did your agency, tribe, or organization implement any water quality restoration programs in the Columbia River Basin?** Please include water quality-related programs such as those intended to monitor surface water quality, reduce toxic pollutants in the environment, recover endangered or threatened species, or restore or protect habitat. Please do not include programs related to drinking water infrastructure or groundwater sources.

- ○ Yes
- ○ No →Skip to question 19.

B. **What are the names of these programs?** Please list each of them below. The following pages list questions #1-18, which you will populate for your first program. If you have additional programs, question #19 allows you to add additional pages to this questionnaire to populate questions #1-18 for programs #2, #3, etc.

Program #	Program title
1	
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1. **What is the name of the program?**

2. **Were the following a primary purpose, a secondary purpose, or not a purpose of this program**? By primary purpose, we mean the main purpose of the effort was to achieve the respective outcome. By secondary purpose, we mean that the effort was primarily intended to achieve another purpose, but as part of its implementation also contributed another outcome.

	Primary purpose	Secondary purpose	Not a purpose
Improving surface water quality (i.e., Programs intended to improve the physical, chemical, and/or biological characteristics of waters within the Columbia River Basin, such as reducing stormwater runoff or other sources of conventional pollutants)	○	○	○
Monitoring surface water quality (i.e., Programs intended to monitor the physical, chemical, and/or biological characteristics of waters within the Columbia River Basin, including for the purposes of establishing baselines, identifying trends, and assessing the effectiveness of restoration programs)	○	○	○
Reducing toxic pollutants (i.e., Programs intended to reduce or eliminate sources of toxic pollutants and clean-up contaminated sites)	○	○	○
Recovering threatened or endangered species (i.e., Programs intended to promote the recovery of threatened or endangered species listed under the Endangered Species Act)	○	○	○
Restoring and protecting habitat (i.e., Programs intended to restore degraded habitats and protect high-quality habitats from future degradation, such as addressing non-native invasive aquatic species)	○	○	○
Other (Please specify):	○	○	○

3. **Please briefly describe one or two key examples of the activities conducted as part this program**.

Example 1

Example 2

4. **Was your agency, tribe, or organization the only agency, tribe, or organization responsible for implementing this program**?

○ Yes → SKIP to question 7.
○ No

5. **Was your agency, tribe, or organization the lead agency, tribe, or organization responsible for implementing this program?**

○ Yes
○ No

6. **What agencies, tribes, or organizations were also involved in implementing this program?** Please indicate the name of each agency, tribe, or organization for each type.

		If yes, what are the names of these agencies, tribes, and/or organizations?
Federal agency	○ Yes → ○ No	
State agency	○ Yes → ○ No	
Local government agency	○ Yes → ○ No	
Tribe or tribal organization	○ Yes → ○ No	
Non-governmental organization	○ Yes → ○ No	
Other (please specify)	○ Yes → ○ No	

7. **What were the primary authorities under which your agency, tribe, or organization implemented this program?** Please provide the federal or state citation(s) for each authority.

		If yes, what is the citation for this authority?
Treaty	○ Yes → ○ No	
Statute	○ Yes → ○ No	
Regulation	○ Yes → ○ No	
Case resolution (such as a court order, consent decree, settlement agreement, or administrative order)	○ Yes → ○ No	
Executive order	○ Yes → ○ No	
Agency policy or initiative	○ Yes → ○ No	
Interagency agreement (such as a Memorandum of Agreement or Memorandum of Understanding)	○ Yes → ○ No	
Other (please specify)	○ Yes → ○ No	

8. **In which of the following states within the Columbia River Basin is the program implemented?** Please review map 1, below, as a reference.

	Yes	No
All states in the Basin	○	○
The Washington portion of the Basin	○	○
The Oregon portion of the Basin	○	○
The Idaho portion of the Basin	○	○
The Montana portion of the Basin	○	○
Another portion of the Basin (please specify):	○	○

Map 1. Columbia River Basin and State Boundaries.

Source: Northwest Power and Conservation Council; Map Resources (state borders).

9. **In which of the following ecoprovinces within the Columbia River Basin is the program implemented?** Please review map 2, below, as a reference.

	Yes	No
Columbia Estuary	○	○
Lower Columbia	○	○
Columbia Gorge	○	○
Columbia Plateau	○	○
Columbia Cascades	○	○
Intermountain Columbia	○	○
Mountain Columbia	○	○
Blue Mountains	○	○
Mountain Snake	○	○
Middle Snake	○	○
Upper Snake	○	○
Another ecoprovince (please specify):	○	○

Map 2. Ecoprovinces of the Columbia River Basin.

Source: StreamNet, a project of the Pacific States Marine Fisheries Commission; Map Resources (state borders).

10. What is the URL for any website(s) containing primary source documents and other relevant information on this program?

11. Between October 1, 2009 and September 30, 2016 (i.e., federal fiscal years 2010-2016), did your agency, tribe, or organization receive any federal funding to support implementation of this program?

- ○ Yes
- ○ No → SKIP to question 17.
- ○ Don't know (Please explain):

12. Which of the following sources of federal funding did your agency, tribe, or organization receive?

	Yes	No
Appropriation	○	○
Grant	○	○
Inter-agency transfer	○	○
Revenue (e.g., user fees)	○	○
Other (please specify):	○	○

13. Does your agency, tribe, or organization track expenditures of federal funding specifically for this program (i.e., separately from other programs)?

- ○ Yes
- ○ No (Please explain):
- ○ Don't know (Please explain):

14. If we were to ask for the annual amount of federal funding your agency, tribe, or organization has expended on this program, for which fiscal years would you be able to provide this information?

	Yes	No
Fiscal year 2016 (starting October 1, 2015 and ending September 30, 2016)	○	○
Fiscal year 2015 (starting October 1, 2014 and ending September 30, 2015)	○	○
Fiscal year 2014 (starting October 1, 2013 and ending September 30, 2014)	○	○
Fiscal year 2013 (starting October 1, 2012 and ending September 30, 2013)	○	○
Fiscal year 2012 (starting October 1, 2011 and ending September 30, 2012)	○	○
Fiscal year 2011 (starting October 1, 2010 and ending September 30, 2011)	○	○
Fiscal year 2010 (starting October 1, 2009 and ending September 30, 2010)	○	○
Other (Please explain):	○	○

15. If we were to ask for the annual amount of federal funding your agency, tribe, or organization has expended on this program, would you be able to provide actual expenditures, estimated expenditures, or neither?

	Yes	No
Actual expenditures	○	○
Estimated expenditures	○	○
Neither actual nor estimated expenditures	○	○

16. If we were to ask your agency, tribe, or organization to provide expenditure data for this program, how would you collect the data?

	Yes	No
Database query	○	○
Manual calculations based on agency/organization records	○	○
Other (Please explain):	○	○

17. What non-federal sources of funding supported your agency's, tribe's, or organization's implementation of this program? Please list funding sources. Please do not include actual dollar figures.

18. Please provide the following information for the primary point-of-contact at your agency, tribe, or organization that GAO should use for any follow-up questions we may have on this program.

Name:	
Title:	
Program position:	
Agency/tribe/organization name:	
E-mail:	
Phone #:	

19. Does your agency, tribe, or organization have another water quality-related program to list?

○ Yes (Select the "yes" button and additional pages will be added to this questionnaire for your next program.)

○ No (Please ***print a copy*** of your questionnaire as a backup, ***save it*** to a folder on your computer, and return it as an email attachment to USGAOColumbiaRiverBasin@GAO.gov)

Appendix IV: Comments from the Environmental Protection Agency

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 10
1200 Sixth Avenue, Suite 155
Seattle, WA 98101-3123

OFFICE OF THE REGIONAL ADMINISTRATOR

JUL 25 2018

Mr. J. Alfredo Gómez
Director, Natural Resources and Environment
Government Accountability Office
441 G St. N.W.
Washington, D.C. 20548

Dear Mr. Gómez:

Thank you for the opportunity to review and comment on the GAO Draft Report, *Columbia River Basin: Additional Federal Efforts Would Benefit Restoration Efforts* (GAO-18-561). The U.S. Environmental Protection Agency appreciates the impressive undertakings of your staff to understand and assess the governance, scope and complexities of the water quality related restoration efforts that have been implemented in the Columbia River Basin in fiscal years 2010 through 2016. The significant coordination and time spent with multiple federal agencies, state agencies, Tribal governments and organizations and non-governmental entities is evident in this thorough and thoughtful draft.

The EPA understands the facts and findings contained in GAO's Draft Report and does not have any corrections or suggested changes. As discussed in our exit interview, the EPA is committed to our continued collaboration with our partners to advance Columbia River water quality restoration and protections. The EPA is knowledgeable on the Columbia River Basin Restoration Act (CWA Section 123) language and responsibilities but has not been able to advance in the development of the Program and the formal establishment of the Columbia River Basin Restoration Working Group as called for because funding to implement CWA Section 123 provisions has not yet been put in place.

You have identified correctly the significant Columbia River Basin efforts and accomplishments in which the EPA has been engaged during the study period of your review. We will continue to focus on these efforts with our partners and we also will work with existing entities focused on collaboration and partnership in the Basin, including the Columbia River Federal Caucus, the Columbia River Federal Executives, and the Northwest Power and Conservation Council, to discuss potential options for development of the Columbia River Basin Restoration Program as called for in CWA Section 123. The many entities in the Columbia River Basin governance structure and the complexities of developing a new program that enhances and coordinates the many ongoing programs and work efforts, as identified in the Draft Report, limits our ability to commit at this time to a specific time frame for this report. As called for in CWA Section 123, the EPA will work to align and coordinate with key entities to develop a program management and budget plan for water quality related restoration efforts.

1) Recommendation: *The Administrator of the EPA should develop a program management plan – that includes schedule of the action it will take and the resources and funding needed to establish and implement the Columbia River Basin Restoration Program, including formation of the associated Columbia River Basin Restoration Working Group – and submit this plan to the appropriate authorizing committees as part of the Fiscal Year 2020 budget process.*

Response: The EPA will work with our partners within the existing governance structures referenced above to begin discussions on the development of a program management plan for implementing the Columbia River Restoration Program, which will include program formulation and program planning components. As an initial step, we will reconvene the Columbia River Toxics Reduction Working Group to initiate discussion for an approach to implementing CWA Section 123. The EPA also stands ready to work with Office of Management and Budget (OMB) on an interagency cross cut budget following future OMB guidance on the types of projects and activities necessary for the cross-cut budget process as called for in CWA Section 123.

The EPA would like to acknowledge and emphasize the collaborative nature of existing Columbia River Basin restoration actions led by federal, state, tribal and non-governmental entities. We intend to draw upon this strong collaborative partnership as we move forward to develop the Columbia River Basin Restoration Program and water quality restoration efforts as called for in CWA Section 123.

Should you have any questions about this letter please feel free to contact me at (206) 553-1234 or Mary Lou Soscia, the EPA Columbia River Coordinator at (503) 326-5873, or soscia.marylou@epa.gov.

Sincerely,

Chris Hladick
Regional Administrator

2

Appendix V: Comments from the Department of Agriculture

USDA United States Department of Agriculture
Forest Service
Washington Office
1400 Independence Avenue, SW
Washington, D.C. 20250

File Code: 1420
Date: JUL 27 2018

Mr. J. Alfredo Gómez
Director, Natural Resources and Environment
U.S. Government Accountability Office
441 G. Street, NW
Washington, DC 20548

Dear Mr. Gómez:

The U.S. Department of Agriculture appreciates the opportunity to respond to the U.S. Government Accountability Office (GAO) draft report "Columbia River Basin: Additional Federal Efforts Would Benefit Restoration Efforts (GAO-18-561)". The USDA has no substantive concerns with the principal findings or recommendations of the report.

Protection and restoration of water quality and fish habitat is an integral component of the Forest Service's programs in the Basin. We continue to implement this work in an integrated and coordinated way with other agencies, using existing mechanisms including the Interior Columbia River Basin Deputy Team and the Regional Interagency Executive Committee.

Thank you again for the opportunity to review the draft report. If you have any questions, please contact Antoine L. Dixon, Chief Financial Officer at 202-205-0429.

Sincerely,

Victoria Christiansen

VICTORIA CHRISTIANSEN
Interim Chief

Caring for the Land and Serving People

Printed on Recycled Paper

Appendix VI: GAO Contact and Staff Acknowledgments

GAO Contact

J. Alfredo Gómez, (202) 512-3841 or gomezj@gao.gov.

Staff Acknowledgments

In addition to the individual named above, Barbara Patterson (Assistant Director), Heather Dowey (Analyst in Charge), Stephen Betsock, Mark Braza, John Delicath, Carol Henn, Karen Howard, Vondalee Hunt, David Lysy, Jeff Malcolm, Michael Meleady, Dan C. Royer, Kiki Theodoropoulos, and Sarah Veale made key contributions to this report.

Related GAO Products

Puget Sound Restoration: Additional Actions Could Improve Assessments of Progress. GAO-18-453. Washington, D.C.: July 19, 2018.

Long Island Sound Restoration: Improved Reporting and Cost Estimates Could Help Guide Future Efforts. GAO-18-410. Washington, D.C.: July 12, 2018.

Great Lakes Restoration Initiative: Improved Data Collection and Reporting Would Enhance Oversight. GAO-15-526. Washington, D.C.: July 21, 2015.

Great Lakes Restoration Initiative: Further Actions Would Result in More Useful Assessments and Help Address Factors That Limit Progress. GAO-13-797. Washington, D.C.: September 27, 2013.

Chesapeake Bay: Restoration Effort Needs Common Federal and State Goals and Assessment Approach. GAO-11-802. Washington, D.C.: September 15, 2011.

Recent Actions by the Chesapeake Bay Program Are Positive Steps Toward More Effectively Guiding the Restoration Effort, but Additional Steps Are Needed. GAO-08-1131R. Washington, D.C.: August 28, 2008.

South Florida Ecosystem: Restoration Is Moving Forward but Is Facing Significant Delays, Implementation Challenges, and Rising Costs.GAO-07-520. Washington, D.C.: June 4, 2007.

Chesapeake Bay Program: Improved Strategies Are Needed to Better Assess, Report, and Manage Restoration Progress. GAO-06-96. Washington, D.C.: October 28, 2005.

Great Lakes: Organizational Leadership and Restoration Goals Need to Be Better Defined for Monitoring Restoration Progress. GAO-04-1024. Washington, D.C.: September 28, 2004.

Columbia River Basin: A Multilayered Collection of Directives and Plans Guides Federal Fish and Wildlife Activities. GAO-04-602. Washington, D.C.: June 4, 2004.

Great Lakes: An Overall Strategy and Indicators for Measuring Progress Are Needed to Better Achieve Restoration Goals. GAO-03-515. Washington, D.C.: May 21, 2003.

Columbia River Basin Salmon and Steelhead: Federal Agencies' Recovery Responsibilities, Expenditures and Actions. GAO-02-612. Washington, D.C.: July, 26, 2002.

South Florida Ecosystem Restoration: Substantial Progress Made in Developing a Strategic Plan, but Actions Still Needed. GAO-01-361. Washington, D.C.: May 27, 2001.

Comprehensive Everglades Restoration Plan: Additional Water Quality Projects May be Needed and Could Increase Costs. GAO/RCED-00-235. Washington, D.C.: September 14, 2000.