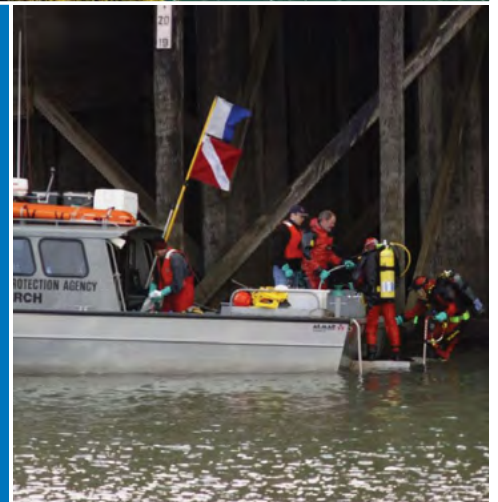




# 2019 Status Update: Columbia River Basin Toxics Reduction

July 2019



# 2019 Status Update Columbia River Basin Toxics Reduction

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## Purpose

This report is an update on work efforts in the Columbia River Basin to reduce toxic contaminants which threaten the health of people, fish and wildlife in the Basin. This work has been led through a broad effort based on coordination and partnerships by the [Columbia River Toxics Reduction Working Group \(Working Group\)](#). Since 2005, the Working Group has been working collaboratively to develop and implement toxics reduction and assessment actions including: water quality monitoring, agricultural best management practices (BMPs) and performance-based certification programs, green infrastructure, green chemistry, public education, collection and disposal of pesticides and pharmaceuticals, and the clean-up of contaminated sites.

Specifically, this report provides information derived from the Working Group partners on the most successful actions in reducing and assessing toxics since 2010 and the work efforts that are needed to reduce toxics in the Basin to benefit human health and the health of fish and wildlife.

## Background on the Columbia River Basin

The Columbia River Basin is one of the world's great river basins in watershed size, river volume, and environmental and cultural significance. Covering nearly 260,000 square miles – approximately the size of the state of Texas – the Columbia River Basin is the nation's sixth largest watershed. The Basin drains portions of Canada's British Columbia province and seven U.S. states, but mostly Montana, Idaho, Washington, and Oregon. Within its boundaries lies multiple tribal reservations and 45 million acres of tribally co-managed land. The Basin contains great geographic and land-use diversity, including alpine peaks, forested slopes, semi-arid grassland and rangeland, arable agricultural land, and an extensive estuary. From its source in the Canadian Rockies, the mainstem Columbia River flows more than 1,200 miles to the Pacific Ocean. Its average annual flow – 270,000 cubic feet per second – makes it the United States' fourth largest river by discharge. Significant tributaries include the Kootenai, Pend Oreille, Spokane, Okanagan, Yakima, Snake, John Day, Deschutes, Willamette, and Cowlitz Rivers.



## Toxic Contaminants Are a Priority Focus

The Basin's aquatic ecosystem is critical to supporting the fish and wildlife and over 8 million people who reside within the watershed and depend on its resources for their health and livelihood. There is concern about the health of the Basin's aquatic ecosystem and the potential risk to human health due to the presence of toxics found in the fish, wildlife, water, and sediment.

Toxic contamination is a human health risk and key environmental justice issue for tribal people and other high fish-consuming populations. Columbia River salmon and steelhead runs were once the largest in the world. As many as 16 million fish would return annually to spawn in the Basin. Columbia River tribes have depended on native fish species, including (but not limited to) salmon, steelhead, sturgeon, and lamprey for thousands of years for spiritual, cultural, and nutritional sustenance. Human activities including hydrologic modifications for flood control and power generation, industry, urban development, mining, and agricultural practices have affected fish spawning and rearing habitat, blocked or impeded fish passage, and contributed toxic contaminants that have impaired water quality. As a result, many of the Basin's salmon and steelhead stocks are threatened or endangered. The Columbia River Basin Fish and Wildlife Program does not include actions to assess or reduce toxics. Many scientists believe that recovery of



salmon, steelhead, and other fish populations cannot be achieved without reducing toxics in water and sediment.

In 1992, the Environmental Protection Agency's (EPA) [National Study of Chemical Residues in Fish](#) found bioaccumulative toxics in Columbia River Basin fish tissue. Recognizing the historic importance of fish in the diets of tribal people and the potential human health impacts of toxics, the Columbia River Inter-Tribal Fish Commission (CRITFC) and EPA developed the [1994 Fish Consumption Survey of the Umatilla, Nez Perce, Yakama, and Warm Springs Tribes of the Columbia River Basin](#) which found that tribal people were consuming 9 to 12 times more fish than the average US resident. EPA and CRITFC followed up that study with the [Columbia River Fish Contaminant Study 1996-1998](#) which found 92 pollutants in fish from 24 tribal fishing sites, including contaminants with human health impacts such as polychlorinated biphenyls (PCBs), dioxin, mercury, dichlorodiphenyltrichloroethane (DDT), and furans.

Convened in 2005, the Working Group has played an important role in facilitating information sharing and collaboration between entities and individuals throughout the Basin. The Working Group led the development of the [2009 Columbia River Basin State of the River Report for Toxics](#) which addressed four contaminants: DDT, PCBs, mercury, and polybrominated diphenyl ethers (PBDEs) and the risk they pose to people, fish and wildlife, and highlighted successful efforts to reduce those contaminants. The 2009 report was followed by the [2010 Columbia River Basin Toxics Reduction Action Plan](#), which identified sixty-one actions needed across

five categories: increasing public understanding to reduce toxics; increasing toxics reduction actions; conducting monitoring to identify sources and reduce contaminants; developing a regional research program; and developing a shared data management system. In 2014, the Working Group released its [Strategy for Measuring, Documenting, and Reducing Chemicals of Emerging Concern](#), providing an outline for a research and monitoring strategy and a characterization of the impacts of chemicals of emerging concern on human health, aquatic life and terrestrial wildlife.

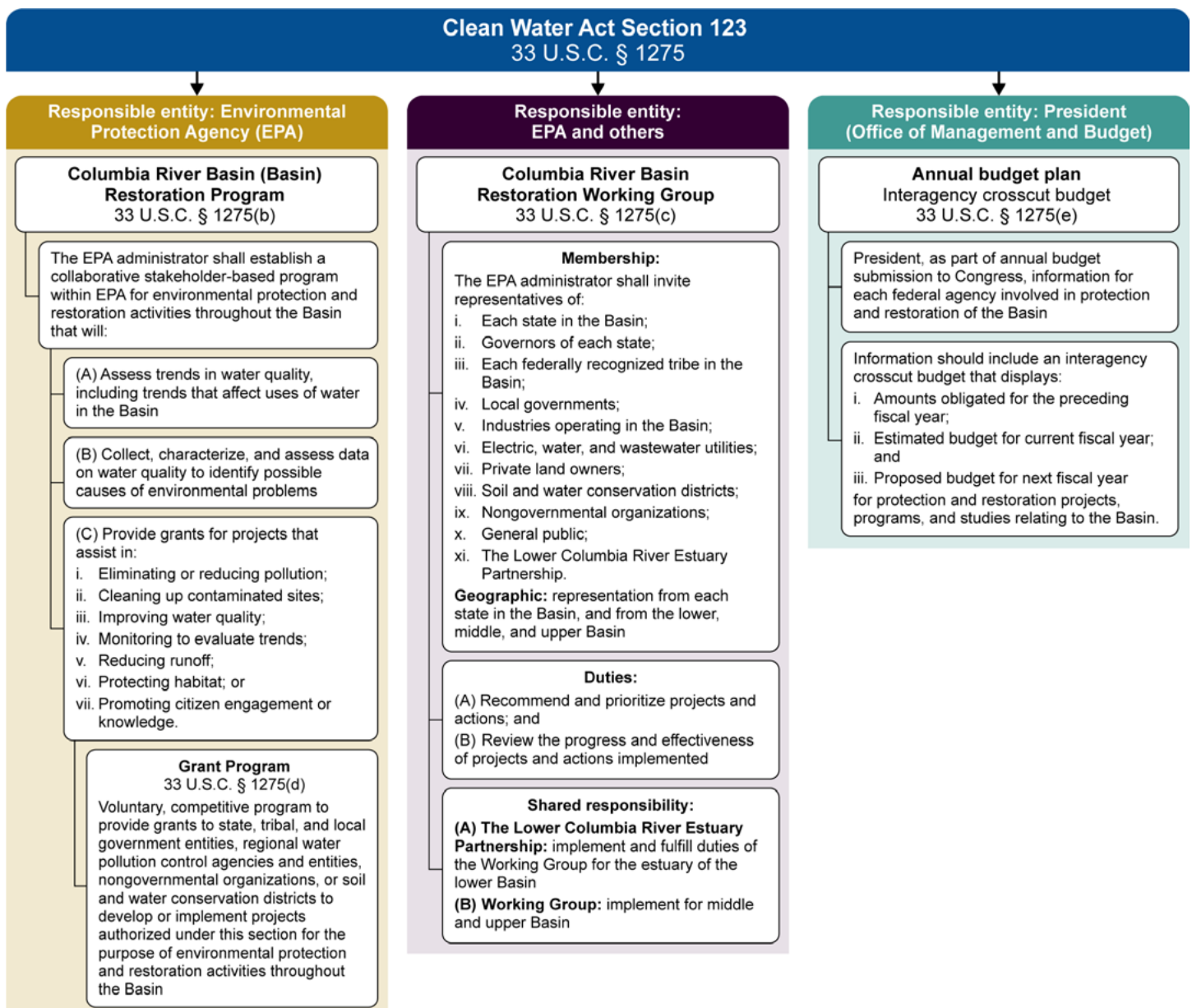




# Columbia River Basin Restoration Act–Clean Water Act Section 123

On December 9, 2016, Congress passed the Columbia River Basin Restoration Act (CRBRA) as part of the Water Resources Development Act (WRDA), also known as the Water Infrastructure Improvements for the Nation (WIIN) Act of 2016. The WRDA was signed into law by the President on December 16, 2016. The legislation focuses on the U.S. portion of the Columbia River Basin including the States of Oregon, Washington, Idaho, and Montana. The newly created Section 123 of the Clean Water Act (CWA) directs

EPA to establish a Columbia River Basin Restoration Program which includes a Working Group that is representative of states, tribal governments, industry, and other entities. Clean Water Act Section 123 also directs EPA to develop a voluntary, competitive grant program for “environmental protection and restoration programs throughout the Basin.” The CRBRA is the first legislation to officially designate the national importance of Columbia River Basin restoration. Many entities in the Basin who recognized that the current [Columbia River Basin Fish and Wildlife Program](#) has not addressed toxics reduction supported the legislation as a critical opportunity to better assess and reduce toxic contaminants in water and fish.



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

The Government Accountability Office (GAO) began an investigation of Columbia River Basin restoration efforts in early 2017. Released in August 2018, GAO's final report, [Columbia River Basin: Additional Federal Actions Would Benefit Restoration Efforts](#), recommended that EPA develop a program management plan for implementing the CWA Section 123 Columbia River Basin Restoration Act with a schedule of actions to be undertaken by EPA. In January 2019, Congress appropriated \$1 million to EPA for implementation of the Act.

## Representative Working Group and Competitive Grant Program

EPA is working to implement the Columbia River Basin Restoration Program including the establishment of a representative Working Group and the development of a competitive grant program. CWA Section 123 directs the EPA Administrator to convene a Columbia River Basin Restoration Working Group. Participation in the Working Group is voluntary and invited entities may decline to participate. EPA plans to launch a voluntary, competitive grant program in the Fall of 2019 following the Act's requirements on federal cost share and geographic allocations within the Basin. Eligible grant recipients are expected to include states, tribal governments, regional water pollution control agencies and entities, local governments, nongovernmental organizations, and soil and water conservation districts.

## Status Report

In October 2018, the Columbia River Toxics Reduction Working Group agreed to revisit the [2010 Columbia River Basin Toxics Reduction Action Plan](#) and work with EPA to provide a status report on major accomplishments in toxics reduction, monitoring, and prevention across the Basin as well as significant needs for future work to reduce and assess toxic contaminants. This report reflects a summary of interviews conducted between April and June 2019. Appendix A includes the interview methodology and the names of individuals, and their respective entities, that were interviewed for this report.

## Summary of Major Accomplishments

Since the release of the 2010 Action Plan, Working Group partners and other interested parties noted the following major successes and accomplishments:

- Columbia River Toxics Reduction Working Group
- Passage of the Columbia River Basin Restoration Act, Clean Water Act Section 123
- Safer Chemical Alternatives
- Pollution Prevention Programs
- Oregon's Pesticide Stewardship Partnerships
- Performance-Based Agricultural Certification Programs
- Regulatory Actions
- Site-Specific Clean-up Actions

## Columbia River Toxics Reduction Working Group

Major accomplishments include the [2009 Columbia River Basin State of the River Report for Toxics](#), the [2010 Columbia River Basin Toxics Reduction Action Plan](#), and regular check-ins with state, tribal, and federal executives in the Basin to reaffirm a commitment to toxics reduction. In 2014, the Working Group and EPA developed the [Columbia River Strategy for Measuring, Documenting and Reducing Chemicals of Emerging Concern](#). Another key success was the 2014 Pesticide Stewardship Partnership Workshop in Walla Walla, Washington. Agricultural producers, the U.S. Department of Agriculture's National Resources Conservation Service, industry representatives and state, tribal, and federal leaders assembled to share information on pesticide reduction best management practices (BMPs). In partnership with the Northwest Power and Conservation Council, the Working Group produced the [2018 Polycyclic Aromatic Hydrocarbons \(PAHs\) Toxic Contaminant Story Map](#) as a pilot mapping tool to display PAH monitoring data in water and sediment throughout the Basin, educate the

public on aquatic and public health impacts of PAHs, and identify how PAHs get into the environment through the burning of coal, oil, gas, wood, and other carbon-based materials.

### Passage of the Columbia River Basin Restoration Act, Clean Water Act Section 123

The passage of the Act was a major accomplishment as a demonstration of political commitment to address water quality concerns, particularly toxic contamination, in the Basin. The Legislation provides a framework for future funding of toxic reduction, monitoring, and outreach actions.

### Safer Chemical Alternatives

Green chemistry seeks to design chemicals and processes that are safer, healthier, and more sustainable. Certification programs such as EPA's [Safer Choice](#), Washington Department of Ecology's (Ecology) [Quick Chemical Assessment Tool](#), and similar chemical hazard tools developed by Northwest Green Chemistry and other organizations help consumers and businesses select less toxic alternatives to traditional products. State agencies in Oregon and Washington have leveraged their buying power by establishing institutional procurement policies that require the purchase of environmentally preferable products. In Idaho and Washington, green chemistry programs are reducing toxics in high school classrooms.

### Pollution Prevention Programs

Partners throughout the Basin are working with residents and local businesses to identify sources of toxics, reduce toxic runoff or discharges and prevent the use of toxic materials through voluntary technical



assistance programs, such as [Idaho's pollution prevention programs](#), Ecology's Local Source Control Program, and Missoula County's HazWaste Days.

Idaho Department of Environmental Quality coordinates collection and diversion events for household hazardous waste, safely disposing of motor oil, mercury, pharmaceuticals and other materials that would otherwise be dumped into landfills or down storm or sewer drains. The Missoula Valley Water Quality District runs similar hazardous household waste collection events as a critical pollution prevention measure to protect the region's shallow, sole source drinking water aquifer. Through partnerships with local governments, [Ecology's Local Source Control Program](#) provides free, on-site assistance to help businesses in Spokane and Clark Counties resolve pollution issues by reviewing spill prevention practices, providing stormwater best management practices, and locating recycling or disposal resources.

### Oregon's Pesticide Stewardship Partnerships

Through the [Oregon Pesticide Stewardship Partnership Program](#), state agencies partner with landowners and growers, watershed councils and other natural resource organizations, tribal governments, and soil and water conservation districts to reduce pesticide levels while measuring improvements in water quality. The Program works on a voluntary basis with farmers to implement proper storage, handling procedures and application methods for pesticides, and safely dispose of unused agricultural chemicals.







### Performance-Based Agricultural Certification Programs

Voluntary performance-based certification programs, such as [Salmon Safe](#), have proven effective in improving water quality by promoting soil and water conservation and reducing the discharge of toxics, such as actively used and legacy pesticides, from agricultural lands.

### Regulatory Actions

In 2018, the Oregon Department of Environmental Quality updated its [1200-Z general industrial stormwater permits](#) in accordance with a settlement agreement with Columbia Riverkeeper and Northwest Environmental Defense Center. The revised permits provide special protections for impaired waterbodies, increase the required reporting frequency, and establish procedures to investigate if more stringent numeric permit limits for certain toxic stormwater pollutants are feasible.

TMDLs can guide toxics reduction efforts and permitting limits to attain water quality standards that protect people, fish and wildlife. In Washington, six watersheds have Total Maximum Daily Loads

(TMDLs) for toxics: Mission Creek (a tributary to the Wenatchee River), Lake Chelan, and the Yakima, Okanagan, Walla Walla, and Palouse Rivers. The [Spokane River Regional Toxics Task Force](#), collaboratively finds and reduces sources of PCBs as a TMDL alternative.

### Site-Specific Clean-up Actions

Ecology's [Toxics Cleanup Program](#) remediates soils at contaminated sites to prevent the release of toxics. Additional investigation and site characterization activities were required by Ecology at two sites adjacent to the mainstem Columbia River in Klickitat County— the Goldendale Aluminum Plant and the Burlington Northern Santa Fe site near Wishram, Washington.

Progress was made at three sites in Montana under [EPA's Superfund Program's National Priorities List](#) for cleanup and remediation actions. Following the removal of the Milltown Dam at the confluence of the Blackfoot and Clark Fork Rivers in 2008, more than 2 million cubic yards of toxic reservoir sediments contaminated by historic mining activities were removed. The Smurfit-Stone Mill near Missoula was proposed for listing; and the Columbia Falls Aluminum Company site near Glacier National Park was added to the National Priorities List. Both these sites have undergone initial site characterization and risk assessment.

## Summary of Significant Needs Looking Forward

As the Columbia River Basin Restoration Program is implemented, the following significant needs to address toxics were identified. These needs reflect the geographic, political, and land use diversity of the Basin and the multiple strategies required to address the sources of toxic contaminants found throughout the Basin:

- Systematic, Coordinated Monitoring
- Agricultural Best Management Practices
- Green Infrastructure
- Pollution Prevention Programs
- Public Education and Outreach
- Leadership and Resources

### Systematic, Coordinated Monitoring

Monitoring of water, sediment, and biota is critical to identify sources of toxic contamination, detect trends through time and space, and evaluate the



*(Photo by Jason Faucera)*





effectiveness of management actions on a short- and long-term basis. There is a need to work toward a continuous, system-wide program for priority toxic contaminants and to monitor for contaminants of emerging concern (e.g. nanoparticles, glyphosate, pharmaceuticals, and per- and polyfluoroalkyl acids (PFAS), among others). In portions of the upper basin affected by historic and active mining operations, there is a need to monitor for heavy metals and other toxics to identify sources and prioritize site-specific cleanup activities.

### Agricultural Best Management Practices

Irrigated and non-irrigated agriculture can degrade water quality by contributing soil contaminated with pesticides and toxic organic compounds to nearby waters in irrigation return flows and runoff from fields. Agricultural best management practices can be used to improve water quality, often with the added benefits of conserving water and soil and improving soil fertility. Successful programs, such as Oregon's Pesticide Stewardship Partnership Program and performance-based farm certifications, should be increased throughout the Basin to include new partner organizations, crop types, and agricultural practices.

## Yakima Basin Agricultural BMP Success Story

The implementation of best management practices in Washington's Yakima River Basin to control soil erosion and reduce pesticide runoff was a major success. The work was the result of a collaborative partnership between Washington Department of Ecology, Yakima Valley growers, water purveyors, local conservation districts, and the Confederated Tribes and Bands of the Yakama Nation. The goal of the project was to lift the fish advisory for DDT on the Yakima River within 20 years.

To prevent the discharge of contaminant-laden sediment in irrigation return flows — a major source of DDT — local growers upgraded to drip irrigation on 8,000 acres of hops and installed vegetated buffer strips to keep soil on the fields. Following implementation of the BMPs, suspended sediment loading to the Lower Yakima River decreased 67 to 80 percent during the irrigation season and total DDT concentrations in fish were reduced 30 to 85 percent. Fish advisories for DDT on the Yakima River were lifted 5 years after the project started — 15 years earlier than their initial goal!





### Green Infrastructure

In urban landscapes, the installation of green infrastructure has proven to be effective in reducing the discharge of contaminated runoff from impervious surfaces such as roads and roofs. Local governments and industries should expand the use of bioswales, constructed wetlands, planter boxes, downspout disconnection and other methods to infiltrate toxic-containing runoff before it reaches local waterways.

### Pollution Prevention Programs

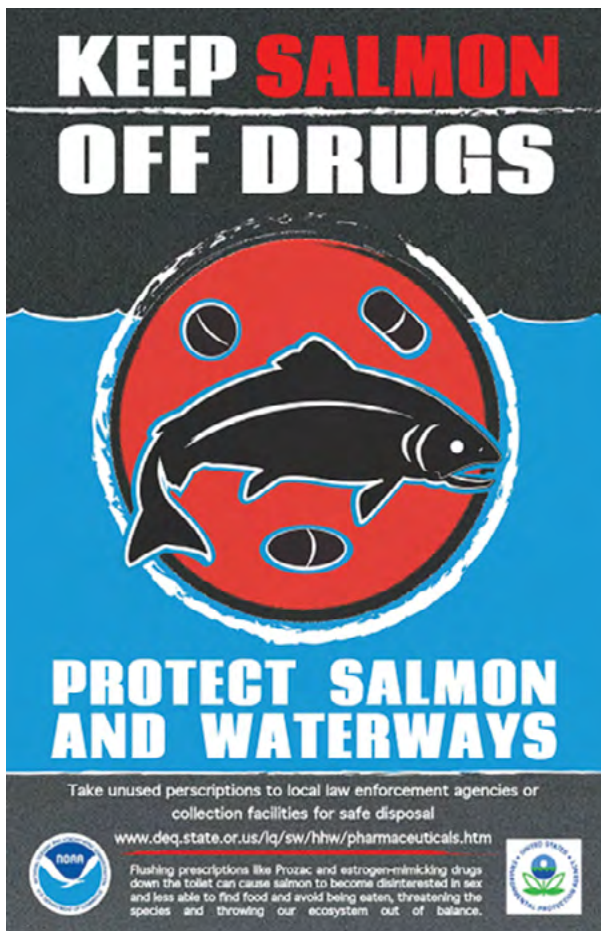
Preventing pollution is essential to reducing actively used toxics. Local source control and pollution prevention programs should be expanded to identify and address toxics before they reach waterways. Examples of successful programs include pesticide collection events, pharmaceutical take-back programs, and no-cost technical assistance.

### Public Outreach and Education

There is a need to raise awareness about toxics contamination in the Basin, both to encourage behavior change and to educate people about the impacts of toxics on their health. Due to higher exposure rates to toxics and the associated increased health risks, there is a need for increased outreach to high fish consuming populations, including many tribal members, about the presence of toxics in the river and fish tissue. Additionally, public workshops to







engage farmers about the contribution of toxics from agricultural fields and how to implement BMPs could be expanded in the Basin.

## Leadership and Resources

Reducing toxics contamination in the Columbia River Basin will require political leadership, effective coordination, and resources. In the past, federal, state, tribal and regional executives convened on a periodic basis to reaffirm their commitment to working together to reduce toxics to protect human health and the Columbia River's ecosystem. This level of leadership is greatly needed to ensure successful implementation of the CRBRA as work efforts move forward. Section 123 describes a broad coalition of states, federally recognized tribes, local governments, soil and water conservation districts, electric, water and wastewater utilities, non-governmental organizations, landowners and private citizens, and the Lower Columbia Estuary Partnership. In addition, partnerships must also be strengthened among federal agencies and regional entities such as the Northwest Power and Conservation Council and tribal consortia who represent tribal governments across the Basin.

## Conclusion

This report provides a summary of input from the Working Group partners on the most successful actions in reducing and assessing toxics since 2010 and priority efforts still needed to reduce toxics in the Basin. Working Group partners identified current resources as insufficient for the efforts needed to reduce toxics in the Basin to protect people, fish and wildlife.

The passage of the Columbia River Basin Restoration Program, Clean Water Act Section 123, anchors the strong commitment by many partners to a geographic and holistic approach to improving water quality and ecosystem health in the Basin. EPA is committed to work with a collaboration of state, tribal, local, and federal government agencies; business and industry; non-governmental organizations; private citizens and others; in the years ahead to reduce toxic contamination in the Columbia River Basin.

## Appendix A. Status Report Methodology

Between April and June 2019, EPA had conversations with Working Group participants and other interested entities to understand their knowledge regarding toxics reduction progress and ongoing needs.

### Organizations and Individuals

Organization	Name(s)
Clark County, Washington	Bryan DeDoncker
Columbia Riverkeeper	Lauren Goldberg
Columbia River Inter-Tribal Fish Commission	Dianne Barton
Confederated Tribes of the Colville Reservation	Whitney Fraser, Amelia Marchand, Cindy Marchand, Doug Marconi, Sheri Sears, Todd Thorn, and Elizabeth Wright
Idaho Department of Environmental Quality	Ben Jarvis
Lower Columbia Estuary Partnership	Catherine Corbett and Deb Marriott
Oregon Department of Environmental Quality	Kevin Masterson
Missoula Valley Water Quality District	Elena Evans, Travis Ross, Todd Seib
Montana Department of Environmental Quality	Darrin Kron
Montana Trout Unlimited	Casey Hackathorn and Rob Roberts
Salmon Safe	Kevin Scribner
U.S. Bureau of Reclamation	Gina Hoff
U.S. Department of Agriculture	Karma Anderson, Giulio Ferruzzi, and Denise Troxell
U.S. Environmental Protection Agency, Region 8	Peter Brumm
U.S. Geological Survey	Tim Counihan, Jennifer Morace, and Elena Nilsen
Upper Snake River Tribes Foundation	Bob Austin
Washington Department of Ecology	Jim Medlen and Keith Seiders
Yakama Nation Fisheries Program	Rose Longoria and Laura Shira



## Contact Information

For more information on toxics reduction in the Columbia River Basin, visit:  
[EPA Columbia River Website](#).

Or contact:

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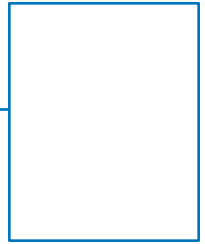






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