



Evaluation of Measurable Progress Spokane River Regional Toxics Task Force

Evaluation Period: January 1, 2015 – December 31, 2021



By: Karl Matthew Rains

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- Data collected by the Spokane River Regional Toxics Task Force is available in Ecology's [EIM Database](#),¹

Cross-referenced or relevant documents: [Evaluation of Measurable Progress for the SRRTTF](#)

Contact Information

Water Quality Program

Eastern Regional Office
4601 N. Monroe St.
Spokane, WA 99205-1295
Phone: 509-329-3557

Website²: [Washington State Department of Ecology](#)

Cover photo: The Spokane River flows through the heart of Riverfront Park.
Photo taken by Adriane P. Borgias

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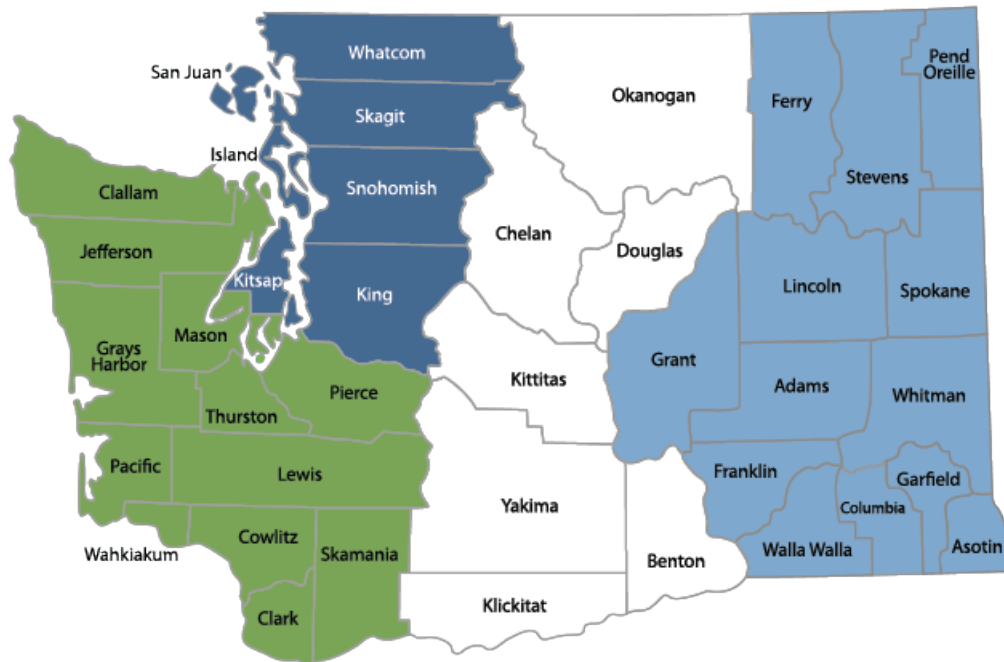
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¹ www.ecology.wa.gov/eim

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Department of Ecology's Regional Offices

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Northwest Region
425-649-7000

Central Region
509-575-2490

Eastern Region
509-329-3400

Region	Counties served	Mailing Address	Phone
Southwest	Clallam, Clark, Cowlitz, Grays Harbor, Jefferson, Mason, Lewis, Pacific, Pierce, Skamania, Thurston, Wahkiakum	PO Box 47775 Olympia, WA 98504	360-407-6300
Northwest	Island, King, Kitsap, San Juan, Skagit, Snohomish, Whatcom	3190 160th Ave SE Bellevue, WA 98008	425-649-7000
Central	Benton, Chelan, Douglas, Kittitas, Klickitat, Okanogan, Yakima	1250 W Alder St Union Gap, WA 98903	509-575-2490
Eastern	Adams, Asotin, Columbia, Ferry, Franklin, Garfield, Grant, Lincoln, Pend Oreille, Spokane, Stevens, Walla Walla, Whitman	4601 N Monroe Spokane, WA 99205	509-329-3400
Headquarters	Across Washington	PO Box 46700 Olympia, WA 98504	360-407-6000

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List of Acronyms and Abbreviations

ACE	Administrative and Contracting Entity	NPDES	National Pollutant Discharge Elimination System
APA	Administrative Procedures Act	NWGC	Northwest Green Chemistry
BCF	Bio-concentration Factor	OECD	Organization for Economic Cooperation & Development
BMP	Best Management Practice	PCB	Polychlorinated Biphenyl
CAP	Chemical Action Plan	pg/L	picograms per litre
CELP	Center for Environmental Law and Policy	PMF	Positive Matrix Factorization
CRBRWG	Columbia River Basin Restoration Working Group	ppm	parts per million
CSO	Combined Sewer Overflow	ppq	parts per quadrillion
CWA	Clean Water Act	QAPP	Quality Assurance Project Plan
DES	Washington State Department of Enterprise Services	SAP	Sampling and Analysis Plan
Ecology	Washington State Department of Ecology	SRRTTF	Spokane River Regional Toxics Task Force
EPA	U.S. Environmental Protection Agency	SRF	Spokane River Forum
FTEC	Fish Tissue Equivalent Concentration	SRSP	Spokane River Stewardship Partners
HARSB	Hayden Area Regional Sewer Board	TMDL	Total Maximum Daily Load
HHC	Human Health Criteria	TSCA	Toxic Substances Control Act
IEP	Inland Empire Paper Company	USGS	United States Geological Survey
Kaiser	Kaiser Aluminum	WDFW	Washington State Department of Fish and Wildlife
LID	Low Impact Development	WQS	Water Quality Standards
LLSWD	Liberty Lake Sewer & Water District	WRIA	Water Resource Inventory Area
µg/kg	micrograms per kilogram	WSDOT	Washington State Department of Transportation
MOA	Memorandum of Agreement	WWTS	Wastewater Treatment System

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Executive Summary

In 2011, the Washington State Department of Ecology (Ecology) issued five individual National Pollution Discharge Elimination System (NPDES) permits to Spokane River wastewater dischargers.³ Given the ubiquitous nature of Polychlorinated Biphenyl (PCB) contamination, it became evident during the permitting process at that time that relying solely on available treatment technology was unlikely to bring the Spokane River into compliance with either the state or Spokane Tribal water quality standards for PCBs. A more comprehensive approach that addressed both point and nonpoint sources of PCBs was necessary.

Spokane County and the Spokane RiverKeeper brought forth the concept of the Spokane River Regional Toxics Task Force (SRRTTF or Task Force) as a more comprehensive approach that included an aggressive toxic source identification, control, reduction, and elimination strategy. Ecology believes cooperative action is in the best interest of all stakeholders. Therefore, the 2011 permits required NPDES dischargers to develop and participate in a Task Force. The permits provided the rudimentary structure of the SRRTTF, leaving the development of its operational details to the NPDES permittees and other stakeholders.

The Task Force concept was intended to avoid the immediate need for a PCB Total Maximum Daily Load (TMDL) by initiating source reduction and clean up actions sooner than if a TMDL were to be developed first. Ecology has maintained its ability to use its regulatory authority to bring the river's water quality into compliance with applicable Water Quality Standards (WQS). If the Task Force approach demonstrated a failure to make "measurable progress" toward achieving the PCB water quality criteria in the Spokane River, Ecology was obligated to pursue and advance other means and methods to meet WQS, which included completing a PCB TMDL⁴.

Subsequently, in response to a lawsuit filed by Sierra Club and Center for Environmental Law and Policy (CELP), the U.S. Environmental Protection Agency (EPA) entered into a consent decree to prepare a PCB TMDL by September 30, 2024. As a result, the SRRTTF recently (spring 2022) initiated conversations to sunset Task Force activities by the end of the current biennium (June 30, 2023), which would negate the need for future evaluations of measurable progress.

Ecology published its [definition of measurable progress](#) on July 17, 2014. The definition consists of an ongoing series of actions, work products, and environmental outcomes. Ecology recognized the long-term nature of toxics reductions; therefore, a formal evaluation of measurable progress was scheduled during each permit renewal cycle; recognizing that achieving water quality goals may require multiple permit cycles.

³ Spokane Advanced Wastewater Treatment Plan, WA 0024473; Spokane County Regional Water Reclamation Facility, WA 0093317; Liberty Lake Sewer and Water District, W 0045144; Kaiser Aluminum Washington, LLC, WA0000892; Inland Empire Paper Company, WA0000825.

⁴ Spokane County Fact Sheet <https://apps.ecology.wa.gov/paris/DownloadDocument.aspx?id=20868>

Ecology finalized the first [Evaluation of Measurable Progress for the SRRTTF](#) in March 2016. The first evaluation covered the period from January 1, 2012 to December 31, 2014 and used the measurable progress definition as the basis for its assessment. Ecology compared criteria in the definition with documented Task Force activities, activities of Task Force organizations, and measured environmental outcomes. Ecology concluded that, during the assessment period of January 1, 2012 through December 31, 2014 the SRRTTF made measurable progress towards meeting applicable water quality standards. The evaluation also included an adaptive management component and emphasized activities that positioned the Task Force to achieve on-the-ground reductions and environmental outcomes over the course of future permit cycles.

The timing for the first evaluation was informed by Ecology's intent to reissue NPDES permits to the five wastewater dischargers in 2016. However, uncertainty associated with changes to the water quality criteria for PCBs led to Ecology pausing permit reissuance and administratively extending the 2011 permits. Ecology will reissue permits in 2022. To coincide with the new permits, Ecology has prepared this second Evaluation of Measurable Progress for the SRRTTF, covering the period from January 1, 2015 through December 31, 2021. The current evaluation places more emphasis on outcomes that demonstrate toxics reductions, as well as achievement of environmental and public health goals.

For this evaluation, Ecology concluded that, during the assessment period of January 1, 2015 through December 31, 2021, the SRRTTF made measurable progress towards meeting applicable water quality standards. Specifically, the SRRTTF has consistently worked collaboratively as an entity and with outside partners, garnering sufficient resources to achieve its stated goals in a timely manner.

The cumulative actions, decisions, and work products of the Task Force, member organizations, and others resulted in measured reductions and a decreased risk of PCBs reaching the Spokane River. The types of PCB source reductions cover a wide range of prevention, removal and treatment activities.

Ecology has not collected data about PCB levels in fish since the last evaluation of measurable progress. The 2016 evaluation indicated that while PCBs in Spokane River fish in 2012 were elevated compared to other areas in Washington (at levels more than 10 times Washington's Fish Tissue Equivalent Concentration⁵ of 5.3 micrograms per kilogram ($\mu\text{g}/\text{kg}$), fish contaminant levels had not significantly changed since 2005. Furthermore, in some locations it was possible that PCB concentrations in fish were trending downward⁶. Fish sampling efforts are scheduled to occur again by 2023 as part of Ecology's toxics monitoring program, which may provide more certainty regarding PCB trends in fish.

⁵ The Fish Tissue Equivalent Concentration (FTEC) is the concentration of a contaminant in fish tissue that equates to Washington's water quality standard for toxic substances for the protection of human health. Washington uses the National Toxics Rule Water Quality Criteria for the protection of human health. The FTEC is calculated by multiplying the contaminant-specific Bio-concentration Factor (BCF) times the contaminant-specific National Toxics Rule Water Quality Criterion for water.

⁶ [FFCMP 2012 SRRTTF mtg 042314](#)

While additional sampling is needed to verify trends in PCB concentrations in fish tissue, surface water data collected from 2014 to 2018 indicated that total PCB concentrations were largely decreasing in the Spokane River⁷. Moreover, according to Ecology's 2021 [Central Tendency technical memo](#), the central tendency of total PCBs in the Spokane River falls below the Washington WQS of 170 parts per quadrillion (ppq).

Ecology's recommended actions for the next permit cycle to further environmental progress are summarized below:

Note: As a result of EPA's decision to prepare a Spokane River PCB TMDL, the Task Force has engaged in discussions that could result in curtailing activities by the end of the current biennium (June 30, 2023). If this were to occur and the SRRTTF dissolved, Ecology's role would shift to a more traditional role of facilitator for a PCB TMDL citizen advisory committee focused on implementation activities across the watershed. The recommendations presented below will help inform future PCB reduction strategies.

Strengthen and Expand Partnerships

- The SRRTTF has demonstrated the ability to build partnerships that further its mission. Partnerships result in creative solutions and a more efficient use of financial resources. Moving forward, the Task Force should actively seek to increase and diversify membership.
- The Task Force should prioritize reaching consensus on an updated Memorandum of Agreement (MOA) that ratifies new members, clarifies roles and responsibilities, addresses evolving needs and outdated language, and focuses on implementation activities.
- The SRRTTF members should focus on meaningful participation and equitable distribution of Task Force workload.

Reduce or eliminate toxics from the point of manufacture

- Task Force members should continue to campaign for the elimination or reduction of inadvertently produced PCBs, currently allowable under the Toxic Substances Control Act (TSCA), to levels significantly below the current use limit of 50 parts per million (ppm).

Eliminate use of PCB-containing products when feasible

- SRRTTF members should continue to identify products containing PCBs and develop, update, and implement action plans to reduce the purchase and use of those products.

⁷ LimnoTech, "[Water Column Status and Trend Analysis](#)", presentation to the SRRTTF on May 30, 2019.

Continue to update and implement Toxics Management Plans and associated recommendations

- Task Force members should continue to develop and update recommendations and best management practices (BMPs) for specific actions that will reduce toxics and/or prevent or control the release of PCBs to the environment.
- SRRTTF members should promote BMPs designed to contain PCBs in building materials currently in use and in those slated for remodel or demolition.
- Task Force members should continue public education campaigns to inform residents about ways they can minimize exposure and raise awareness of the past and current issues associated with PCBs.
- Spokane River dischargers should continue to improve and optimize wastewater treatment facilities in accordance with permit requirements to reduce PCB loading to the Spokane River.
- Indicate the effectiveness of actions that have been taken and quantify the amount of PCBs known to have been removed from the Spokane River and Spokane River watershed.
- SRRTTF members should pursue and support the collection of PCB data in the Spokane River under ambient concentrations that demonstrate progress towards achieving water quality standards and meeting public health goals, such as decreased PCB concentrations in fish and fish tissue.

Measurable Progress Definition

In 2004, the State of Washington listed the Spokane River as impaired for toxics, in particular PCBs and dioxins. In 2011, Ecology required the Spokane River NPDES permittees to create and participate in a Task Force. The SRRTTF Memorandum of Agreement (MOA) outlines a strategy to reduce toxics and bring the Spokane River into compliance with applicable PCB water quality standards. The strategy consists of a series of actions, including source identification, toxics reductions, and BMPs, as well as the development and implementation of a comprehensive plan and strategy by December 31, 2016.

The concept of “measurable progress” is a key component of the overall toxics reduction strategy for the Spokane River. Measurable progress reflects the success of the Task Force towards reducing PCBs in the River and achieving the applicable water quality criteria for PCBs. The 2011 permits obligated Ecology to develop a PCB TMDL for the Spokane River if the agency determined that the SRRTTF failed to make measurable progress towards meeting applicable water quality criteria for PCBs. Permittees and stakeholders contribute towards Task Force progress through their participation.

Ecology published the definition of “measurable progress” on July 17, 2014. The definition consists of an ongoing series of actions, results, and environmental outcomes. Ecology recognized the long-term nature of toxics reductions. Therefore, a formal evaluation of measurable progress was scheduled to occur during each permit renewal cycle, recognizing that achieving water quality goals may take longer than a single permit cycle.

Metrics

Ecology uses three categories of data to measure progress:

- *Inputs*: organizing activities and resources devoted to the effort
- *Outputs*: activities and work products completed during the evaluation period
- *Outcomes*: Environmental indicators of progress towards achieving the applicable PCB water quality criteria in the Spokane River. Environmental indicators include trends and/or measured reductions of toxics in the river and fish tissue, as well as achievement of the applicable water quality or health standards.

Ecology expected that the relative importance of inputs, outputs, and outcomes would change over time as the Task Force organized, collected data, and reduced sources of PCBs to the river. For example, Ecology expected input metrics to dominate in the first permit cycle while the SRRTTF developed the structures, systems, and plans needed to conduct its business. As the organizational structure and collaborative relationships developed, Ecology anticipated output and outcome metrics to increase in importance. Ecology expected the Task Force to conduct studies that filled data gaps, gathered and interpreted data, and engaged in actions that reduce toxics and directly improve water quality.

Adaptive Management

Ecology encouraged adaptive management by providing the opportunity for course corrections as part of the measurable progress review. In the context of adaptive management, measuring progress can result in adjustments that improve SRRTTF function, efficiency, and accountability for the following tasks:

- Build partnerships
- Characterize the watershed
- Set goals and identify solutions
- Design a Toxics Reduction Program
- Implement a Toxics Reduction Plan
- Measure progress and make adjustments

Key Questions

During each permit cycle, Ecology anticipates making a measurable progress determination by assessing the status of three fundamental criteria:

- 1) Is the Task Force still working together in a collaborative manner?
- 2) Is the Task Force still moving forward on activities that will lead to identification of sources, reduction of PCBs in the river, the development of BMPs, and a comprehensive plan for progress toward achieving applicable water quality criteria for PCBs?
- 3) Is there environmental evidence that the Task Force is making progress towards achieving applicable water quality criteria for PCBs in the Spokane River?

Assessment Period

Ecology selected the initial assessment period of January 1, 2012 through December 31, 2014 as relevant and applicable to the first permit cycle. This three-year baseline period extended from the formation of the SRRTTF to the end of the year immediately preceding anticipated permit renewals in 2015. Ecology was in the process of preparing draft NPDES permits for the five Washington dischargers when the EPA changed the Human Health Criteria (HHC) for PCBs from 170 ppq to 7 ppq. As a result, Ecology paused work on the permits in 2016 and administratively extended the expired 2011 permits.

From 2017 through 2019, Ecology explored various permitting tools, including variances, which would help dischargers achieve compliance with the new EPA limits. In April 2019, Ecology received applications for variances from the five dischargers and in June 2019 initiated a single rule-making process to consider variances for all five permittees. In May 2020, EPA withdrew the 2016 changes to the HHC, including PCBs, thereby changing the water quality standard for PCBs back to 170 ppq. In June, Ecology completed and released preliminary draft documents for the variances, but paused the rulemaking as a result of the change to the HHC.

Following the change back to 170 ppq, Ecology started the process to reissue permits to the dischargers based on the current criteria; final permits will be issued in 2022. The SRRTTF has continued meetings and activities the entire time that the permits have been administratively extended.

Separate from the permitting process, but relevant to the activities of the SRRTTF, the Sierra Club and CELP brought a Clean Water Act (CWA) citizen suit against EPA in October 2011 over a lack of the development and issuance of a Total TMDL for PCBs for various segments of the Spokane River. In March 2015, Washington District Court found that EPA was in violation of the Administrative Procedures Act (APA) “in finding the Task Force ... a suitable ‘alternative’ to the TMDL” and remanded the matter to EPA for additional consideration.

In July 2015, in accordance with the Court’s remand order, EPA submitted a “Plan for Addressing PCBs in the Spokane River”, which included a schedule for the completion of a Comprehensive Plan to bring the Spokane River into compliance with applicable water quality standards for PCBs, as well as a series of benchmark instream concentrations of PCBs. If identified timelines were not met or if Ecology’s evaluation of measurable progress determined that progress was not being achieved by the Task Force, Ecology was obligated to initiate the development of a TMDL. The SRRTTF finalized the [2016 Comprehensive Plan to Reduce Polychlorinated Biphenyls \(PCBs\) in the Spokane River](#) on November 16, 2016 (prior to the December 31, 2016 deadline), and Ecology’s 2021 [Central Tendency technical memo](#) indicated that instream concentrations of total PCBs in the Spokane River were below the first benchmark of 200 ppq prior to December 15, 2020.

However, EPA settled the case with the environmental groups and other plaintiffs, ending the lawsuit filed in 2011, and on January 25, 2022, a consent decree was finalized that requires EPA to complete a PCB TMDL for segments of the Spokane River by September 30, 2024. The TMDL will identify how much of the pollutant (PCBs) can enter the Spokane River from **all** sources, including permitted sources, while still maintaining acceptable water quality. EPA will gather and analyze technical data, work with stakeholders, and draft and finalize a TMDL. The TMDL will allocate PCB loads to permittees and other sources to the Spokane River. Once the TMDL is final, Ecology will develop a companion Water Quality Implementation Plan that describes the actions needed to implement the TMDL to achieve water quality standards.

This assessment covers the period from January 1, 2015 through December 31, 2021.

This document provides a summary of the data that Ecology reviewed to make a determination of measurable progress. Ecology used data from published reports and the Task Force website (srrttf.org), as well as data submitted by individual Task Force members. This set of data is not a complete catalog of all of the SRRTTF and SRRTTF member activities. It is, however, sufficiently representative of Task Force activities, accomplishments, and environmental conditions existing at the time of the assessment. Ecology notes that additional data exists, beyond what Ecology presents here, that supports the findings of this assessment.

Evaluation of Inputs

Criteria

Inputs focus on the activities needed for the Task Force to organize, function, and achieve results. Examples include signing the MOA, convening regular meetings, establishing work groups, seeking financial assistance, and budgeting.

Inputs achieve results by fostering trust, collaboration, and agreement on actions needed to achieve goals. Measures include numbers of key decisions, meetings, and actions directed towards funding SRRITF activities.

Inputs are important during the entire process, but are of higher priority during the first permit cycle.

Results Summary

Ecology concludes that the SRRITF has made measurable progress with respect to the input criteria.

Ecology's review of the organization and functions of the SRRITF during the assessment period shows that the Task Force made measurable progress on this criterion. During the assessment period the SRRITF held regular meetings, including numerous and varied working group meetings, made decisions with the objective of identifying and reducing PCBs in the watershed, and secured funding to complete scheduled activities.

The Ruckleshaus Center managed the Task Force's public participation, including meeting facilitation, a website clearinghouse for reports, minutes, and other information, until July 2018, at which time White Bluffs Consulting assumed those responsibilities. LimnoTech continued to provide technical expertise needed to evaluate existing data, identify data gaps, develop work plans, and conduct in-river studies. Advisors provided support for four technical workshops featuring national PCB experts.

Documentation on the Task Force website of its regular meetings, action items, and decisions demonstrate that it was largely functional during the assessment period. The Administrative and Contracting Entity (ACE) continues to support the Task Force by providing fiscal accountability and transparency for funding and expenditures, including ongoing support from the SRRITF independent advisors (LimnoTech, the Ruckleshaus Center, and White Bluffs Consulting).

Task Force Input Data

- 1) **The SRRITF was largely functional during the assessment period.** Task Force members participated in approximately 80 regular meetings and nearly 200 working group or focus group meetings. Meeting notes document that the SRRITF generally worked

collaboratively and cooperatively, as demonstrated by the consensus approval of hundreds of decisions and actions. The exact number of decisions and actions were only tallied for two of the six evaluation years (2016-2017). During those two years, 65 cooperative decisions and engagement in 270 actions were documented.

- 2) **The SRRTTF continued to provide Ecology with details of its goals, activities, funding, organizational structure, and governing documents**, including consideration of updated documents. The Task Force MOA⁸, its governance document, outlines the goals and organizational structure for the SRRTTF. The goal of the Task Force is to “develop a comprehensive plan to bring the Spokane River into compliance with applicable water quality standards for PCBs”. **The 2016 Comprehensive Plan to Reduce Polychlorinated Biphenyls (PCBs) in the Spokane River was finalized on November 16, 2016.**

During the assessment period, several attempts were made to update the MOA in order to address evolving needs and outdated language, document new signatories, clarify roles and responsibilities, include a focus on implementation activities, and better explain some operational processes. Despite extensive discussions and compromise, numerous opportunities for review and input, and considerable support from the majority of members, a revised MOA has yet to be executed by all parties. **In order for the SRRTTF to build upon its successes and reach its greatest potential, consensus on an updated MOA must be achieved.** Future evaluations should strongly consider this activity in determining whether measurable progress has been made with respect to the input criteria.

Funding is determined on a year-to-year basis. Over the course of the evaluation period the Task Force relied on a combination of private and public funding sources (including the Washington State Legislature, Ecology and NPDES permittees in Washington and Idaho) that provided direct and/or in-kind funding during the assessment period. Washington legislative proviso funding was provided on a biennium basis through contracts between ACE and Ecology. ACE received additional revenue from the Spokane River Stewardship Partners (SRSP) which consists of: Spokane County, Avista, Liberty Lake Sewer & Water District (LLSWD), Hayden Area Regional Sewer Board, Kaiser Aluminum, Inland Empire Paper (IEP), and the Cities of Spokane, Coeur d’Alene and Post Falls.

Revenue for SRRTTF activities administered by ACE during the evaluation period included:

- 2013-2015 Biennium funding – \$350,000 (WA Legislature; 7/1/13 – 6/30/15)
- 2015 – \$201,800 (SRSP)
- 2015 – \$25,000 (Ecology end of biennium funds added to contract)
- 2015-2017 Biennium funding – \$310,000 (WA Legislature; 7/1/15 – 6/30/17)
- 2016 – \$176,700 (SRSP)
- 2017 – \$122,000 (SRSP)

⁸ Final 2012 executed MOA: srrttf.org/wp-content/uploads/2012/10/OB5A38-compressed.pdf

- 2017-2019 Biennium funding – \$310,000 (WA Legislature; 7/1/17 – 6/30/19)
- 2019 – \$205,200 (SRSP)
- 2019 – \$27,500 (Ecology end of biennium funds added to contract)
- 2019-2021 Biennium funding – \$500,000 (WA Legislature; 7/1/19 – 6/30/21)
- 2020 – \$41,700 (SRSP)
- 2021-2023 Biennium funding – \$2,000,000 (WA Legislature; 7/1/21 – 6/30/23)

Expenditures for SRRTTF activities through ACE were approximately:

- 2015 – \$246,800
- 2016 – \$518,400
- 2017 – \$172,400
- 2018 – \$333,700
- 2019 – \$318,200
- 2020 – \$223,000
- 2021 – \$371,500

Ecology’s Water Quality Program, Environmental Assessment Program, and Toxics Cleanup Program provided in-kind technical support (see “Department of Ecology Publications and Presentations” in the “Task Force Member Output Data” section of this evaluation).

- 3) The SRRTTF was established on January 23, 2012, with 11 organizations⁹ participating as original signatories to the MOA¹⁰. The Task Force received additional letters of support from EPA and Avista¹¹, who both regularly participated in SRRTTF activities.

During the assessment period **three additional organizations signed the MOA** (City of Coeur D’Alene, Kootenai Environmental Alliance and Washington Department of Fish & Wildlife) and regularly participated in meetings, although **two organizations have officially withdrawn from the Task Force** (Spokane RiverKeeper and Kootenai Environmental Alliance)¹². While the MOA encourages participation from a diverse set of

⁹ LLSWD, Spokane County, City of Spokane, Ecology, Kaiser, Spokane RiverKeeper, Lake Spokane Association, The Lands Council, Spokane Regional Health District (SRHD), Washington Department of Health (DOH), and IEP signed the MOA between December 12, 2011 and March 22, 2012.

¹⁰ [Signatories to the Memorandum of Agreement | Spokane River Regional Toxics Task Force \(srtrtf.org\)](https://www.srtrtf.org/signatories-to-the-memorandum-of-agreement)

¹¹ Letters to Jim Bellatty, Department of Ecology from Michael Bussell, EPA Director of the Office of Water and Watersheds dated January 27, 2012: [Letter of Support for Spokane River Regional Toxics Task Force \(srtrtf.org\)](https://www.srtrtf.org/letter-of-support-for-spokane-river-regional-toxics-task-force) and from Bruce Howard, Director of Environmental Affairs for Avista, dated February 16, 2012: [Avista-Letter-of-Support.pdf \(srtrtf.org\)](https://www.srtrtf.org/avista-letter-of-support.pdf)

¹² Letters from Jerry White, Jr., Spokane RiverKeeper, to Adriane Borgias with Ecology dated June 4, 2019: [20190604 Riverkeeper SRRTTF Letter.pdf](https://www.srtrtf.org/20190604-Riverkeeper-SRRTTF-Letter.pdf) and from Shelley Austin, Executive Director of Kootenai Environmental Alliance to Chris Hadick with EPA Region 10: [KEA-SRRTTF-Resignation-Letter.pdf \(srtrtf.org\)](https://www.srtrtf.org/KEA-SRRTTF-Resignation-Letter.pdf)

organizational groups (dischargers, regulators, sovereigns, non-governmental organizations, members of the public, etc.) and prompts the discussion of issues in a congenial way, the withdrawal of two of the three environmental non-governmental organizations that participated in the SRRTTF is concerning. **The SRRTTF can reinforce its commitment to the importance of collaboration by focusing on increasing the diversity of member organizations during the next permit cycle and evaluation period.**

- 4) **During the assessment period, the SRRTTF provided a forum for the review and discussion of Spokane River toxics issues** through the following actions:
- Held **regularly scheduled SRRTTF and Work Group meetings** where local, regional and national experts participated, shared information and discussed Spokane River toxics issues with Task Force members and the public. All meetings and workshops were open to and accessible by the public, either in person or via conference call or virtual meeting platforms. Over the course of the evaluation period, the bulk of project planning efforts has steadily shifted to the various work groups. This has streamlined decision-making, but has also resulted in occasions where work group meeting announcements and/or content has not been properly noticed. An effort was made in 2018 to establish work group protocols; however, agreement was never reached.
 - In 2018, transitioned from Ruckleshaus Center to White Bluffs Consulting for independent third party facilitation and organization of task force activities.

Task Force Member Input Data

Spokane County provides reclamation facility tours and in-person lessons at the Water Resource Center, which includes discussions of PCBs and toxics with adults and older students (e.g. high school or college). Tours were limited during the COVID-19 pandemic.

Trends Relating to Inputs

The SRRTTF complied with the MOA participation requirements achieving a quorum at all regularly scheduled meetings. Attendance of members was maintained despite several challenges over the course of the evaluation period, including:

- The transition to a new facilitator
- Moving to virtual meetings due to limitations on in-person meetings resulting from the COVID-19 pandemic
- Increased interest and participation from non-member industry groups that required additional explanation of technical content and who may not have the same objectives as local members/stakeholders

For the most part, Task Force attendance remained consistent for the 2015-2021 evaluation period, although the withdrawal of the Spokane RiverKeeper (June 2019) and Kootenai

Environmental Alliance (June 2021) has created a perception by some that Task Force activities are largely determined by dischargers. In addition, membership changes due to retirements and staff departures have resulted in decreased engagement by some organizations and it appears that a smaller number of members are shouldering the workload. While member attendance at meetings qualifies as an input, the lack of meaningful participation does not contribute to outputs.

Over the six-year assessment period the Task Force held an average of 11 general membership meetings and 28 Work Group/Focus Group meetings per year. The meeting notes show that the SRRTTF generally worked collaboratively; however, some dysfunction was evident. Most notable was that several attempts were made to update the MOA in order to ratify new members, clarify roles and responsibilities, and focus on implementation activities. Despite numerous opportunities for input and collaboration, a revised MOA has yet to be executed by all parties.

The approximate number of average annual actions (135) was consistent with the previous evaluation, while the number of decisions appears to have decreased slightly, from 47 to approximately 38.

Financial measures significantly trended upward from 2015 through 2021, with 2021-2023 biennium funding from the state legislature reaching two million dollars (\$2,000,000); nearly a six-fold increase from 2015 income. Although the SRRTTF has continued to receive increased budgets from the state legislature, the Task Force has struggled to identify implementation projects to direct that money towards and contributions from dischargers has decreased to zero in 2021. Expenses have risen along with state funding.

Recommendations Relating to Inputs

During the next permit cycle, Ecology expects the SRRTTF inputs to lead to successful implementation of the Comprehensive Plan and principles of adaptive management. An updated Comprehensive Plan or development of a Work Plan should be completed. A reliable estimate of the financial and technical assistance needed to implement the entire plan will require cost estimates for:

- Information/education activities, monitoring, and evaluation
- Long-term operation and maintenance of management measures

Federal, state, local, and private funds or resources should continue to be available to assist in implementing existing or newly developed plans. The SRRTTF should review and update its Funding Strategies Document to identify funding needs, available resources, shortfalls between needs and available resources, and provide a strategy to address the shortfalls. The SRRTTF should also reach consensus on an updated MOA and should actively seek to diversify membership. An updated MOA and/or stand-alone document should also include work group protocols. Finally, future evaluations of inputs should be focused on meaningful participation and equitable distribution of workload, not just attendance, when determining whether measurable progress has been made with respect to the input criteria.

Evaluation of Outputs

Criteria

Outputs are the activities and work products of the Task Force or individual members, as well as activities that reduce the potential for PCBs to reach the Spokane River watershed conducted by others that may be attributed to or influenced by the SRRTTF. Examples include reports, plans, studies, contracts, workshops, and permits.

Outputs lead to results by providing data and processes needed to identify and implement source reductions. Measures include numbers of reports, plans, studies, contracts, workshops, and permits that contribute towards achieving source reductions.

Outputs are important to the entire process, but are of higher priority during the early permit cycles.

Ecology is obligated to proceed with the development of a TMDL for the Spokane River for PCBs or to determine an alternative to ensure water quality standards are met if, in the evaluation of measurable progress, outputs are absent or not productive.

Results Summary

Ecology concludes that the SRRTTF has made measurable progress with respect to the output criteria.

Ecology's review of activities and work products of the SRRTTF during the assessment period shows that the Task Force made measurable progress on this criterion. The assessment identified a minimum of 41 reports and/or studies, 21 plans, 4 workshops, and 69 annual contracts as outputs of the SRRTTF or outputs influenced by Task Force efforts.

Per requirements included in the NPDES permits for the Washington dischargers, the Task Force completed the [2016 Comprehensive Plan to Reduce Polychlorinated Biphenyls \(PCBs\) in the Spokane River](#), which includes BMPs to address PCBs in stormwater, wastewater, and from other sources. Although SRRTTF members have implemented numerous and effective BMPs within their individual operations and service areas, the Task Force has de-emphasized implementation of Control Actions that would involve engagement with organizations outside of the SRRTTF, including stormwater source tracing.

The strength of the Task Force during the evaluation period has been its advancement of studies to address data gaps in the Spokane mainstem from the Idaho border to Nine Mile Dam; with a recent emphasis on a segment of the River identified as the Mission Reach. During the evaluation period, the SRRTTF continued to increase the scientific body of knowledge associated with extremely low levels of PCBs in surface water, groundwater, sediment, and biofilm.

Studies planned and executed by the Task Force during the evaluation period included:

- Hydro-seed analysis and reformulation
- Catch-basin waste facility analysis and mitigation
- Fish hatchery assessment and hatchery fish meal analysis
- Monitoring of water column and fish tissue to establish a baseline for future trend analysis
- Positive Matrix Factorization (PMF) of collected data across the study area to help with source identification
- Better characterized the amounts, sources, and locations of PCBs in the Spokane River under low flow conditions during dry weather periods

Continued synoptic sampling and mass balance assessments of PCB loading, with an increased focus on the section of the Spokane River between Barker Road and the Spokane United States Geological Survey (USGS) Gage and ultimately the Mission Reach. Sampling was also completed in an effort to determine the seasonal variability in PCB concentrations. Results from the sampling events point to unidentified source(s) of PCBs upgradient of Kaiser and within or immediately upstream of the Mission Reach.

Toxics Management Plans prepared by the NPDES permittees continue to identify and characterize sources of PCBs in the municipal wastewater and stormwater systems.

Of note is the City of Spokane's ongoing Integrated Planning efforts to eliminate Combined Sewer Overflow (CSO) discharges to the Spokane River and innovative Low Impact Development approaches to improve stormwater management.

The SRRTTF continues efforts to eliminate PCBs at the point of production through:

- Actions to encourage Toxic Substances Control Act and other regulatory reform
- Support and advancement of Green Chemistry as a means of identifying safer alternatives to PCB-containing pigments
- Creation of market incentives for PCB-free products through state law and local ordinances

Task Force Output Data

- 1) **Activities characterizing amounts, locations, and sources of PCB in the Spokane River.**
During the assessment period, the Task Force prepared the following:

Plans

- [Hydroseed Pilot Project Draft Work Plan](#) (May 2015)
- [Quality Assurance Project Plan \(QAPP\) and Sampling and Analysis Plan \(SAP\)](#) for PCB Characterization of Spokane Regional Vector Waste Decant Facilities (April 2015)

- [Quality Assurance Project Plan Addendum 1: Spokane River Toxics Reduction Strategy Study](#) (August 2015)
- Draft [Quality Assurance Project Plan Addendum 2: Spokane River Toxics Reduction Strategy Study](#) (February 2016)
- [2016 Comprehensive Plan to Reduce Polychlorinated Biphenyls \(PCBs\) in the Spokane River](#) (November 2016)
- Draft [Quality Assurance Project Plan Addendum 4: Spokane River Toxics Reduction Strategy Study](#) (May 2017)
- [Quality Assurance Project Plan Addendum 5: Spokane River Toxics Reduction Strategy Study](#) (July 2018)
- [Quality Assurance Project Plan: 2020-2021 Water Column PCB Monitoring](#) (August 2020)
- Draft [Addendum 2 to Quality Assurance Project Plan: Measuring PCBs in Biofilm, Sediment, and Invertebrates in the Spokane River: Screening Study](#), January 2021

Reports/Studies

- [Phase 2 Technical Activities Report: Identification of Potential Unmonitored Dry Weather Sources of PCBs to the Spokane River](#) (August 2015)
- [PCB Characterization of Spokane Regional Vector Waste Decant Facilities](#) (September 2015)
- Draft [Hydroseed Pilot Project Summary Report](#) (July 2015)
- Quality Assurance documentation (memorandums) following 2014 Spokane River synoptic sampling: [Phase 2 Data Review/Validation](#) (August 2015), [Data Usability Assessment](#) (September 2015), and [Survey Field Audit](#) (September 2015)
- Draft Memorandums: [Magnitude of Source Areas and Pathways of PCBs in the Spokane River Watershed](#) (June 2016) and [Inventory of Control Actions to Be Evaluated for the Spokane River](#) (May 2016)
- Pre-Final Draft [2015 Technical Activities Report: Continued Identification of Potential Unmonitored Dry Weather Sources of PCBs to the Spokane River](#) (November 2016)
- Draft [2016 Monthly Monitoring Report](#) (May 2017)
- Draft Memorandum: [PCB Data Compatibility/Database Functionality Review – Findings and Recommendations](#) (May 2017)
- Draft Memorandum: [Homolog-Specific PCB Mass Balance for the Spokane River](#) (July 2017)
- Memorandum: [Comparison of Homolog-Patterns for Groundwater Well Data and Suspected Loads](#) (January 2018)

- [*Inadvertent PCBs in Pigments: Market Innovation for a Circular Economy*](#) (NWGC, October 2018)
- [*PCB Database Pilot Project*](#) and [*User's Guide*](#) (February 2019)
- White Paper: [*The Potential for Generating Inadvertent PCBs through TiO2 Manufacturing Using the Chloride Process*](#) (NWGC, February 2019)
- [*2018 Technical Activities Report: Continued Identification of Potential Unmonitored Dry Weather Sources of PCBs to the Spokane River*](#) (March 2019)
- [*Spokane River Regional PMF Analysis – Blank Influence Analysis*](#) (Rodenburg, June 2019)
- [*Pigments and inadvertent polychlorinated biphenyls \(iPCBs\): Advancing no and low iPCB pigments for newsprint, and paper and paperboard packaging*](#) (NWGC, June 2019)
- White Paper: Reducing iPCBs in the environment case study: Washington's road paint procurement ([Draft](#), June 2020)
- Draft Memorandum: [*Follow-up Investigations from Spokane River Multi-media Data Collection*](#) (August 2020)
- Evaluation of PCBs in Spokane River Redband Trout ([Final Approval Draft](#), July 2021)
- Evaluation of PCBs in Spokane River Artificial Bottom Fill Material ([Final Approval Draft](#), July 2021)
- Effect of Membrane Filtration on the Fate of PCBs in Wastewater Treatment (Rodenburg, [Draft](#), April 2021)

Contracts – ACE managed all or portions of the following contracts:

- Third party facilitator (Ruckleshaus Center and White Bluffs Consulting)
- Independent Technical Consultant (LimnoTech)
- PCB Analysis Laboratory (SGS Axys)
- Conventional Chemical Analysis Laboratory (SVL Analytical, FieldLab LLC)
- Sampling Contractors (Gravity Consulting, WDFW)
- Education and Outreach (Anne Francis Web Design, Center for Justice, Spokane River Forum, The Lands Council)
- Data Management and Evaluation (CDM Smith, Dr. Lisa Rodenburg/Rutgers University)
- Special Projects and Workshop coordination (Northwest Green Chemistry, Dally Environmental, Gonzaga University)

Workshops (see Item #4 below)

- January 13-14, 2015
- February 9-11, 2016; included development of an [infographic poster](#) for display during the workshop (also used at Spokane River Forum Conferences)
- May 30-31, 2019
- October 8-9, 2019

Permits

- Ecology issued the Final Upland Fin-Fish Hatching and Rearing General NPDES Permit¹³, effective April 1, 2016
- 2) The Task Force maintained communications systems, such as a **website at srrttf.org**, that serves as a **clearinghouse for data, reports, minutes, and other information** gathered, collected, or developed by the SRRTTF.
- 3) The Task Force developed, organized, and sponsored **four public Technical Workshops** (January 13-14, 2015; February 9-11, 2016; May 30-31, 2019; and October 8-9, 2019). The workshops **incorporated findings from the technical studies, and advanced and increased the region-wide understanding of toxics in the Spokane River**. Local, regional and national experts gave presentations on the “state of knowledge” with respect to PCBs in the environment and advanced the understanding of Spokane River issues, including:

January 2015 Workshop Key Points¹⁴

- Reviewed and discussed the results of the 2014 confidence and synoptic sampling efforts
- Gathered input from water quality practitioners from other geographic areas pertaining to PCB sampling and source identification and quantification efforts applicable to Spokane River issues
- Held “brainstorming” session evaluating how the findings from the 2014 sampling events and input from other watersheds could inform near- and long-term actions
- Identified priorities for data collection related to source identification and quantification efforts

¹³ Ecology webpage for [Upland Finfish Hatching & Rearing General Permit](#)

¹⁴ 2015 Workshop: [2015 Spokane River Toxics Workshop | Spokane River Regional Toxics Task Force \(srrttf.org\)](#)

February 2016 Workshop Key Points¹⁵

- Reviewed and discussed the results of the 2014 and 2015 PCB sampling events
- Identified appropriate BMPs for near- and long-term source reduction efforts
- Developed a common understanding for the management, access and use of PCB data
- Initiated the process for the development of the SRRTTF Comprehensive Plan for achieving water quality standards

May 2019 Workshop Key Points¹⁶

- Synthesis of PCB data collected by the Task Force and Ecology to inform next steps, including recommendations for monitoring and other activities to find and reduce PCBs in the Spokane River watershed
- Provided a better understanding of what can and cannot be concluded from available data to support Task Force objectives
- Developed recommendations for monitoring and other activities specifically targeted at finding and reducing PCBs in the Spokane River watershed

October 2019 Workshop Key Points¹⁷

- Informational workshop to explore innovative strategies to address inadvertent PCBs in inks and pigments, as well as the downstream products that are manufactured using those inks and pigments
- Educated participants on the pigment and ink supply chain and how PCBs move from manufacture of pigment and inks to the environment
- Addressed technology innovation and alternatives to known inks and pigments that contain PCBs, including possibilities and obstacles
- Explored technical and regulatory options, pilot or demonstration projects, and other solutions for promoting innovation

4) During the assessment period, the Task Force engaged in actions to **encourage regulatory reform aimed at preventing new PCBs from entering the environment.**

- The SRRTTF submitted [a letter to EPA](#) and Washington state legislators on December 9, 2016 concerning the regulation of PCBs under TSCA. This followed a

¹⁵ 2016 Workshop: [2016 SRRTTF Technical Workshop | Spokane River Regional Toxics Task Force](#)

¹⁶ May 2019 Workshop: [2019 SRRTTF Data Synthesis Workshop | Spokane River Regional Toxics Task Force](#)

¹⁷ October 2019 Workshop: [2019 Inadvertently Produced PCBs in Inks and Pigments Workshop – October 8 & 9 | Spokane River Regional Toxics Task Force \(srtrtf.org\)](#)

[letter sent by the Task Force in October 2013](#) and [EPA's response](#) to that letter dated February 24, 2015.

- The Task Force met with EPA in April 2017 to identify technically and legally defensible solutions that address the regulatory conflicts between TSCA and the CWA¹⁸.
 - The SRRTTF submitted a [letter to EPA's Office of Regulatory Policy and Management](#) requesting that EPA evaluate and correct the discrepancy that exists between TSCA and water quality criteria for PCBs by updating TSCA to eliminate continuing sources of PCBs currently allowed in a broad range of industrial and commercial products (May 2017).
 - Washington Department of Enterprise Services (DES) established a purchasing preference ([Policy No. POL-DES-280-00](#) effective January 1, 2019) to incentivize bidders for state contracts to provide products and products in packaging that do not contain, or contain the lowest possible level, of PCBs. The Task Force worked with DES on the policy and provided comments on the draft policy.
 - The Task Force submitted a [letter to the Regional Administrator for EPA Region 10](#) requesting that EPA address the discrepancy between TSCA and water quality criteria for PCBs (May 2018).
 - The SRRTTF submitted a [letter to regional state and local regulatory authorities](#) requesting the adoption of purchasing policies/ordinances incentivizing the use of alternatives to PCB-containing Road Striping Paints (May 2018).
 - The Task Force submitted a [letter to the Regional Administrator for EPA Region 10](#) requesting a status update on EPA's commitment to develop additional health assessment data for certain PCB congeners and Aroclors (October 2021).
- 5) The Task Force and its members participated in public education and engagement to advance the understanding of Spokane River issues, including:
- Provided presentation material and posters at Washington State University Academic Showcase
 - Developed coordinated [response](#) for inclusion in EPA submittal to US District Court Judge
 - Outreach to Washington Department of Fish & Wildlife (WDFW) expressing concerns over Fish Hatcheries and PCBs
 - Provided feedback and expertise on an [outreach video on PCBs and purchasing](#) prepared by Washington Department of Enterprise Services

¹⁸ Link to meeting summary: http://srtrtf.org/wp-content/uploads/2012/10/Agenda_EPA-SRRTTF_4-26_Notes-final-TF-edits.pdf

- Issued a letter of support for The Lands Council’s *Stormwater and LID Education and Outreach in the Spokane River Watershed* project proposal under the EPA Urban Waters Small Grants
- Attended and developed presentation material, poster displays^{19, 20} and fact sheets²¹ for Spokane River Forum (SRF) events and provided funding to assist with travel costs for a nationally recognized speaker on PCBs
- Presented at Coeur d’Alene Basin Information Forum
- Participated in a webinar presentation by Mark Vincent of The Color Pigment Manufacturers Association on “*PCBs and Their Inadvertent Presence in Pigments*”²²
- Attended Ecology’s Policy 1-11 webinars and provided input
- Held a special meeting with EPA (Region 10 and headquarters staff) to identify solutions to address inconsistencies between TSCA and water quality standards²³
- Presented to Society of Inland Northwest Environmental Scientists
- Developed ‘[PCB Free’ website](#) to inform the public about PCBs, their health risks, and strategies to identify and remove products likely to contain them
- Developed series of presentations on Low Impact Development (LID) highlighting the connection between toxics in stormwater and the health of fish populations; presented to neighborhood council and community/nonprofit meetings in regional communities
- Established annual spring media campaign focused on radio and/or social media public service announcements aimed at increasing public awareness of PCBs and resources to properly dispose of products and materials containing PCBs or other toxics
- Prepared a flyer ([Please Prevent PCB Toxins From Reaching Your River](#)) for distribution in regional home improvement stores (October 2018)
- Developed and distributed utility [billing inserts](#):
 - City of Coeur d’Alene – 19,000
 - LLLSWD – 3,813
 - Spokane County – 47,300, plus 15,000 e-bills

¹⁹ Updated “Panel 3” for 2016 Spokane River Forum Conference: [Slide 1 \(srرتtf.org\)](#), and River Maps of 2014 and 2015 Synoptic Surveys – [Concentration and Flow Results](#) and [Mass Loading](#)

²⁰ Draft Panels for 2017 SRF Conference: [Panel 1](#), [Panel 2](#), [Panel 3](#), [E&O Panel](#)

²¹ Fact Sheet for 2016 Spokane River Forum Conference: [SRRTTF-Fact-Sheet-for-SRF-Conf-March-2016-2.pdf](#)

²² July 2015 presentation material: [PowerPoint Presentation \(srرتtf.org\)](#)

²³ April 26, 2017 meeting notes: [Agenda \(srرتtf.org\)](#)

- Prepared and presented Case Study on policy misalignment at the chemicals/waste interface (TSCA vs CWA) to the international Organization for Economic Cooperation and Development (OECD) Chemical Committee (February 2020)²⁴
- Funded The Lands Council to create a national campaign of iPCBs in products that includes active outreach to community leaders, municipalities, state entities, health departments, fish advisories, etc.; as well as the development of a tool kit that includes a [website](#) and education materials for the public and supply chain
- Created [PCB Data Portal using Tableau](#) to provide the results of data collected by the SRRTTF and others to be publicly searchable and accessible. The Portal has been added to the PCBFree website.
- Provided letter of support for a Stormwater Stewardship grant application by Spokane County and the cities of Spokane and Spokane Valley
- Authorized funding to support the production of an updated Aquifer Atlas

Task Force Member Output Data

Toxics Management Plans and Other Water Management Plans

The NPDES permits require dischargers to prepare Toxics Management Plans. Outputs from individual Task Force members under toxics and water management plan activities **beyond contributions through the SRRTTF** include the following:

City of Spokane (NPDES Permit: WA-002447-3)²⁵

- [PCB Product Sampling QAPP Addendum](#) (March 2015)
- The City conducted additional product testing during 2015 (hydroseed and survey marking paint) and 2016 (various deicers and traction control materials). Based on the results of the 2016 study, the City used magnesium chloride for its deicer needs.
- The City of Spokane received a grant from the Department of Ecology to disconnect the Union Basin MS4 system from its outfall, and treat and infiltrate the stormwater rather than discharging it to the Spokane River. The first phase converted a majority of the basin to infiltration in 2015, while the second phase included the construction of the Erie Stormwater Facility, completed in 2020.
- A [PCB information page](#) was added to the City of Spokane website in 2015.
- In collaboration with the Spokane RiverKeeper and Spokane River Forum, the City of Spokane developed a stormwater educational guide to inform industry and the public about how the stormwater system works, what can be done to prevent pollution from

²⁴ Link to [Recycling of Paper Products Containing PCBs in the Inks and Pigments](#) presentation at OECD Workshop provided by IEP and NWGC

²⁵ City of Spokane, Toxics Management Plan Updates, 2015, 2016, 2017, 2018, 2019, 2020

entering the system, and how to address stormwater requirements in the City's commercial building permit, as well as Ecology's stormwater permit processes²⁶.

- The City continued PCB monitoring and source tracing activities throughout the evaluation period. Trends indicate a slight decrease in influent total PCB concentrations, with a more pronounced decrease in effluent total PCB concentrations²⁷. The City is working through its collection system, flagging areas for additional future investigation and additional sampling once the entire collections system has been sampled. **A sample collected in late 2019/early 2020 from the Trent Avenue and Martin Luther King Jr. (MLK) Boulevard area (proximate to the highest PCB concentrations found in the Mission Reach) were the highest recorded wastewater results for total PCBs (1,290,000 picograms per litre (pg/L)) obtained by the City since the collection system sampling program began in 2010.** The City indicated that additional sampling will be conducted upstream from the Trent and MLK sampling location from November 2020 through July 2021.
- The City continued to promote LID, highlighting ways to use natural features within development projects in order to filter and retain stormwater as close to where it falls as possible. The City constructed an LID demonstration site at the Hazel's Creek regional stormwater facility, where the public can take self-guided tours to learn about the natural hydrology and LID. A brochure and video were created in association with the project²⁸. Implementation of LID will help prevent PCB-contaminated runoff from entering both the CSO and MS4 systems within Spokane.
- The City continued to install storm drain markings throughout the City re-enforcing the "only rain down the drain" message.



- The City funded a research project in 2016 in collaboration with The Lands Council to determine the feasibility and effectiveness of using fungi to break down PCBs in stormwater sediment.
- A PCB information packet was developed in 2017 for distribution to City of Spokane Pretreatment Significant Industrial Users (SIUs) to increase awareness among the City's permitted industrial users of the PCB issue in Spokane and steps taken to address the issue, including how dischargers to the sewer system can reduce PCBs.

²⁶ Link to Stormwater guide: [StormwaterPermitting.pdf \(spokaneriver.net\)](#)

²⁷ City of Spokane Riverside Park Water Reclamation Facility Toxics Management Plan, updated September 10, 2020

²⁸ City of Spokane [Hazel's Creek webpage](#), which includes links to a brochure, interpretive board, planning document and demonstration video

- The City continued to include green infrastructure in its construction projects where applicable and encouraged its use in private development.
- In 2021 the City completed construction of next-level treatment (NLT) consisting of tertiary membrane filtration. While the primary purpose of installing NLT was to address nutrient loading to the Spokane River, significant reductions (>98%) of PCBs are anticipated once the system is optimized.

Spokane County (NPDES Permit: WA-009331-7) ²⁹

- [*PCBs Poster: The PCB Challenge*](#) (July 2015)
- The County continued a systematic track-down sampling program through 2016 to help identify potential PCB sources to their wastewater collection system.
- In addition to evaluating congener and homolog patterns for source identification, the County performed evaluations using Positive Matrix Factorization (PMF) that provides more definitive information on potential PCB sources. PMF analysis, or chemical fingerprinting, was completed annually through 2019 using available influent, effluent, and track-down samples. A separate PMF analysis was included in 2019 and 2020 to determine if separating effluent data would provide insights into effluent composition.
- The County continued PCB monitoring throughout the evaluation period. Findings indicate that total PCB concentrations appear to be decreasing over time in the influent, with no trends in either direction identified for the effluent, which is dominated by dissolved-phase, low-molecular-weight PCB congeners³⁰. This suggests that the treatment process is more effective at removing congeners with higher molecular weights. Findings also indicate the facility is effective in removing greater than 99% of PCBs prior to discharge to the Spokane River.
- The County continued public education efforts on toxics management throughout the evaluation period, although in-person events, lessons, and facility tours were limited in 2020 and 2021 due to restrictions necessary in responding to the COVID-19 pandemic. The education program promotes proper handling and disposal of materials known to contain PCBs, as well as information about health advisories, effects of PCBs on public health, and measures that can be taken to reduce releases of PCBs to the environment.

Liberty Lake Sewer & Water District (NPDES Permit: WA-0045144)³¹

- LLSWD completed its treatment plant upgrade with NLT consisting of tertiary membrane filtration in November 2017.

²⁹ Spokane County Annual Toxics Management Reports: [2016](#), 2021

³⁰ Spokane County Regional Water Reclamation Facility Annual Toxics Management Report, April 15, 2021

³¹ Liberty Lake Sewer & Water District Toxics Management Plan Update, March 2022

- In 2021, LLSWD completed the optimization of the new membrane filtration system. This included adjustments in chemical addition and filter operations to achieve consistent effluent quality that meets permit requirements.
- LLSWD continued PCB monitoring throughout the evaluation period. Findings indicate that influent PCB concentrations continue to decline, highlighted by a 65% reduction in average influent concentrations in 2021-2022 compared with the period from 2012 to 2018. Findings also indicate the facility achieved PCB removal rates between 93% and 94% in 2021.
- LLSWD continued public education efforts throughout the evaluation period, focused on products that contain higher levels of PCBs and proper disposal of products known to contain PCBs.

City of Post Falls (NPDES Permit: ID-0025852)³²

- The City of Post Falls reported PCB monitoring results from October 2016 through September 2017. Results indicated that the facility achieved PCB removal rates between 96% and 99.8% during that period.
- The City of Post Falls conducted public outreach efforts that included maintaining the City's PCB educational webpage and participation in the local high school's Chemistry in the Community field day, where City staff informed students about PCBs.

City of Coeur d'Alene (NPDES Permit: ID-0022853)³³

- The City of Coeur d'Alene reported PCB monitoring results from January 2015 through September 2017. Results indicated that the facility achieved total PCB removal rates greater than 93%, with most PCB congeners reduced by 98% or more.
- In June 2018, the City completed construction of NLT consisting of tertiary membrane filtration. While the primary purpose of installing NLT was to address nutrient loading to the Spokane River, significant reductions (>98%) of PCBs are anticipated once the system is fully optimized.

Hayden Area Regional Sewer Board (NPDES Permit: ID-0026590)³⁴

- Hayden Area Regional Sewer Board (HARSB) reported PCB monitoring results from January 2017 through November 2017. Results indicated that the facility achieved PCB removal rates between 98.8% and 99.1% during that period.
- HARSB incorporated a florescent light and transformer replacement program, which was scheduled to replace all florescent light fixtures by the end of 2018.

³² City of Post Falls Toxics Management Plan [Annual Report](#), 2017

³³ City of Coeur d'Alene PCB and TCDD Toxics Management Plan [Annual Report](#), December 20, 2017

³⁴ Hayden Area Regional Sewer Board PCB and TCDD Toxics Management Plan [Annual Report](#), December 2017

- HARSB established a purchasing standard that equipment and materials that may contain PCBs be certified to have less than 3 parts per billion (ppb) PCB levels.
- HARSB has developed and distributed PCB public education information, including proper disposal of waste products that may contain PCBs and hazards associated with improper disposal.

Inland Empire Paper Company (NPDES Permit: WA-000082-5)³⁵

- IEP conducted a source identification study in 2015, which identified recycled paper as the primary source of PCBs within the facility and its wastewater treatment system.
- IEP completed wastewater treatment system (WWTS) improvements consisting of a tertiary ultra-filtration membrane system in January 2020. PCBs removed from the WWTS are completely destroyed through thermal destruction in a fluidized bed combustion system; thereby preventing any future opportunities for PCB migration. Results indicated that tertiary treatment achieved PCB removal rates greater than 99%.

Kaiser Aluminum

- During the evaluation period, Kaiser Aluminum (Kaiser) initiated several projects to reduce its discharge flow, enhance the performance of its current treatment technology, and pursue the identification and implementation of additional applicable PCB treatment technologies.
- Kaiser conducted source investigation efforts related to the North Sewer Investigation, including screening for PCB-containing materials.
- In 2019, Kaiser completed a clean-out of a six-million gallon settling basin, with sediment disposed of off-site.

The Lands Council

- The Lands Council continued to support North Central High School (NCHS) research of fungi breakdown of PCBs; [*Use of Fungi to Degrade Polychlorinated biphenyls \(PCBs\) Final Report*](#) (July 2017)³⁶.

Spokane Regional Health District (SRHD)

- Spokane Regional Health District, with support from the SRRRTF, prepared a [*PCB Demolition Remodeling Manual*](#) (June 2018) that provides guidance on BMPs for reducing PCBs in runoff associated with demolition and remodeling projects.

Washington Department of Fish and Wildlife (WDFW)

- Washington Department of Fish and Wildlife [*Spokane Hatchery PCB BMP Plan*](#) (June 2018)

³⁵ Inland Empire Paper Company PCB Best Management Practices Plan Update, November 1, 2020

³⁶ You Tube video highlighting the work of NCHS students: <https://youtu.be/Vg5pr5e5RvE>

Washington State Department of Transportation (WSDOT)

- WSDOT updated their master contract for roadway paint (managed by Washington DES) and their Standard Specifications to prohibit diarylide pigments and pigment 83, which were identified as containing PCBs. Additional purchasing and procurement policies provided a preference for products and products in packaging that do not contain PCBs. These requirements and policies will have a beneficial impact on PCB contamination across the state.

PCB Chemical Action Plan

Ecology issued the final [PCB Chemical Action Plan](#) (CAP) in February 2015. Members of the Task Force participated in the development of the plan, which recommends and prioritizes specific actions that will reduce PCBs.

Columbia River Basin Restoration Working Group (CRBRWG)

Ecology participated in the CRBRWG throughout the assessment period, fostering collaboration, knowledge transfer, and grant opportunities regarding toxics reduction in the Columbia River watershed.

Urban Waters

Ecology's Spokane River Urban Waters team continued to work on PCB source investigation efforts through April 2020.

Source Reduction Activities

- Ecology investigated an unknown source of PCBs from Deadman Creek and ultimately traced the source to the former Kaiser Smelter Site in Mead. Clean-up activities at the Site are summarized in the Evaluation of Outcomes below.
- During the evaluation period, Apple and Hewlett Packard (HP) adopted purchasing standards for printing cartridge ink specifications for PCBs, well below the TSCA regulatory allowance. The actions of Apple and HP were informed by the efforts of the Task Force and illustrate the increasing awareness of the issue nationally and globally as a result of SRRTTF activities.

Department of Ecology Publications and Presentations

- SRRTTF presentations: [Fish Hatchery General Permit Renewal](#) and [Measurable Progress](#) (February 25, 2015)
- Draft [Quality Assurance Project Plan: Spokane River PCBs and other Toxics Long Term Monitoring at the Spokane Tribal Boundary](#), March 2015
- [Washington's Water Quality Management Plan to Control Nonpoint Sources of Pollution](#), Publication No. 15-10-015, July 2015
- Draft [PCBs in Carp from Lake Spokane](#), June 2015

- SRRTTF presentations: *Little Spokane River-PCB in Fish Tissue Verification Study* ([September 2015](#) and [January 2016](#))
- SRRTTF presentations: [Atmospheric Deposition of Toxics](#) and [Urban Waters Sediment and Groundwater Seep Data](#) (October 2015)
- Project Completion Memo: [Assessment of PCBs in Spokane Valley Groundwater](#), September 2015
- SRRTTF presentations: *PCBs in [Consumer] Products Sampling Results* ([November 2015 \[Draft\]](#) and [February 2016 \[Final\]](#))
- [Spokane River Upriver Dam and Donkey Island PCB Sediment Site – Periodic Review](#), December 2015
- SRRTTF presentation: [Measurable Progress Evaluation: January 1, 2012 – December 31, 2014](#) (March 2016)
- [Little Spokane River PCBs: Screening Survey of Water, Sediment, and Fish Tissue](#), Publication No. 16-03-001, March 2016
- [Quality Assurance Project Plan: Spokane and Troutlodge Fish Hatchery PCB Evaluation](#), Publication No. 16-03-104, March 2016
- [Green-Duwamish River Watershed – PCB Congener Study Phase 1](#), April 2016
- SRRTTF presentations: [Urban Waters Initiative: Local Source Control Program](#) and [Spokane River: WA NPDES Permit Schedule](#) (June 2016)
- [Quality Assurance Project Plan: Spokane River Atmospheric Deposition Study for PCBs](#), Publication No. 16-03-112, June 2016
- SRRTTF presentations: [Spokane River: Collaborative Problem Solving at the Community Level](#), [PCB Permit Requirements: Kaiser Aluminum](#), and [PCB Permit Requirements: City of Spokane & LLSWD](#) (August 2016)
- [Quality Assurance Project Plan: Long-Term Monitoring of Persistent, Bioaccumulative, and Toxic Chemicals using Age-Dated Lake Sediment Cores](#), Publication No. 16-03-118, September 2016
- Draft [Addendum 3 to Quality Assurance Project Plan: Spokane River Toxics Reduction Strategy Study](#), September 2016
- SRRTTF presentation: [Highlights from 12th annual CASQA Conference](#) (October 2016)
- [Polychlorinated Biphenyls in Consumer Products](#), Publication No. 16-04-014, November 2016
- Draft [Quality Assurance Project Plan: Spokane River Urban Waters Investigation of PCBs in Soils and Stormwater Associated with Demolition Activities](#), February 2017

- [Spokane River PCBs and other Toxics at the Spokane Tribal Boundary: Recommendations for Development of a Long-Term Monitoring Plan](#), Publication No. 17-03-019, December 2017
- Poster: [Identifying sources of toxics using biofilms](#), Publication No. 17-03-029, December 2017
- [Evaluation of Fish Hatcheries as Sources of PCBs to the Spokane River](#), Publication No. 18-03-014, April 2018
- Draft [Addendum 2 to Quality Assurance Project Plan: Spokane River Source Trace Study](#), February 2018
- Draft [Assessment of Low-Level Sampling Methods for PCBs and PBDEs in Surface Waters](#), May 2018
- Draft [Quality Assurance Project Plan: Measuring PCBs in Biofilm, Sediment, and Invertebrates in the Spokane River: Screening Study](#), August 2018
- SRRTTF presentation: [Biofilm, Sediment and Invertebrate PCB Monitoring in the Spokane River](#) (August 2018)
- [PBT \[Persistent, Bioaccumulative, and Toxic\] Trends in Lake Sediment Cores: 2016 Results](#), Publication No. 18-03-029, September 2018
- SRRTTF presentation: [PCBs in State Purchased Products - Fish Hatchery Products](#) (October 2018)
- [Atmospheric Deposition of PCBs in the Spokane River Watershed](#), Publication No. 19-03-003, March 2019
- SRRTTF presentation: [Measuring PCBs in Biofilm, Sediment, and Invertebrates in the Spokane River: Draft Results](#) (April 2019)
- Draft [Quality Assurance Project Plan: Measuring PCBs in Biofilm, Sediment, and Invertebrates in the Spokane River: Screening Study](#), June 2019
- SRRTTF presentation: [Measurable Progress Evaluation: Process, Analysis and Schedule](#) (October 2019)
- Draft [Quality Assurance Project Plan: Evaluation of PCBs in Spokane River Redband Trout](#), August 2020
- SRRTTF presentation: [Using Biofilms to Identify Sources of PCBs to the Spokane River: 2019 Preliminary Results](#) (April 2020)
- SRRTTF presentation: [Former Kaiser Mead Smelter: EPA Removal Action](#) (October 2020)
- [Technical Memo: Spokane River Central Tendency for PCBs](#), Activity Tracker Code: 19-013, March 2021
- SRRTTF presentation: [Safer Products for Washington + Spokane River Regional Toxics Task Force](#) (April 2021)

- SRRTTF presentation: [Washington's 2018 Water Quality Assessment Listing Process & PBDEs](#) (May 2021)
- SRRTTF presentation: [Environmental Justice/HEAL Act](#) (July 2021)
- SRRTTF presentation: [PCBs in Building Materials](#) (October 2021)

Department of Ecology Contracts

- 2015-2017 Contract, including amendments, with the SRRTTF Administrative and Contracting Entity (ACE) for legislative proviso funding
- 2017-2019 Contract, including amendments, with the SRRTTF ACE for legislative proviso funding
- 2019-2021 Contract, including amendments, with the SRRTTF ACE for legislative proviso funding
- 2021-2023 Contract, including amendments, with the SRRTTF ACE for legislative proviso funding

Product Sampling and Analysis

In addition to the PCB Chemical Action Plan issued by Ecology in 2015, a 2019 law ([RCW 70A.350](#)) designates PCBs as a priority chemical in Washington and lays out a path to address PCBs and other priority chemicals in consumer products. Ecology implements the law through the [Safer Products for Washington](#) program.

While the majority of PCB exposure comes from legacy contamination, reducing releases from newly created inadvertent PCBs helps prevent future contamination. Ecology's analyses of PCBs included evaluation of PCB concentrations in inks and paints to determine whether products with lower concentrations of PCBs are safe, feasible, and available. Ecology found that safer alternatives are feasible and available, and a restriction would reduce a significant source of inadvertent PCBs to the environment³⁷. However, Ecology was unable to propose a restriction on PCBs in paints and inks due to federal preemption.

In 1984, EPA established an exemption (under 49 Fed. Reg. 28172) from the statutory ban on PCBs for inadvertently generated PCBs below certain concentrations (40 CFR Section 761.1).

³⁷ [Regulatory Determinations Report to the Legislature, Safer Products for Washington Cycle 1 Implementation Phase 3](#); June 2022, Publication 22-04-018

Trends Relating to Outputs

The table below summarizes the trends in relevant outputs created by the SRRTTF or by Task Force organizations in support of toxics identification and reduction.

Table 1. SRRTTF Annual Outputs

Outputs	2015	2016	2017	2018	2019	2020	2021
Reports/Studies	8	7	5	5	7	4	3
Plans	7	5	3	5	1	1	2
Workshops	1	1	0	0	2	0	0
Contracts Managed	8	8	8	12	11	12	10
New Permits Issued	0	1	0	0	0	0	0

Recommendations Relating to Outputs

The most effective way to control toxics continues to be the reduction or elimination of toxics from the point of manufacture. The SRRTTF should continue efforts such as:

- Continuing to press EPA to eliminate or reduce the production of inadvertently produced PCBs that are currently allowable under TSCA regulatory program; to levels significantly below the currently allowable use limit of 50 ppm.
- Work with Congress on TSCA reform legislation that better aligns PCB limits with limits under the Clean Water Act.

Eliminate use of PCB-containing products when feasible:

- Continue to identify products containing PCBs. Develop, update and implement action plans to reduce the purchase and use of those products.

Improve management of PCB-containing materials to control release of PCBs to the environment:

- Continue to develop and update recommendations and BMPs for specific actions that will reduce toxics and/or prevent or control the release of PCBs to the environment.
- Continue to implement and encourage recommendations from Ecology's PCB Chemical Action Plan:
 - Identify and remove PCB-containing lamp ballasts in schools and other publicly-owned buildings. Encourage replacement with more energy efficient PCB-free fixtures.
 - Reduce exposure to people from PCBs in historic building materials and prevent PCBs in building materials from getting into stormwater. Work with Ecology to promote BMPs designed to contain PCBs in building materials currently in use and in those slated for remodel or demolition.
 - Assess schools and other public buildings for the presence of PCB-containing building materials.

- Reduce newly generated PCBs in manufacturing processes. Continue to advance public knowledge and awareness about what products contain PCBs and promote the use of processes that do not inadvertently generate PCBs.
 - Expand environmental monitoring to aid in the identification of legacy sources of PCBs that require clean-up and regulatory oversight.
 - Continue public education campaigns to inform residents about ways they can minimize exposure and raise awareness of the past and current issues associated with PCBs. Continue to educate residents so they can identify and address potential household sources containing PCBs.
- Continue to update and implement Toxics Management Plans and associated recommendations.
- Continue to improve wastewater treatment facilities in accordance with permit requirements in order to reduce PCB loading to the Spokane River and bring the River into compliance with state Water Quality Criteria for PCBs.

Evaluation of Outcomes

Criteria

Outcomes include the environmental results and measurable source reductions in the Spokane River, as well as quantifiable source reduction actions. Outcomes indicate the effectiveness of actions that have been taken and quantify the amount of PCBs known to have been removed from the Spokane River and Spokane River watershed.

Outcomes are important throughout the entire process, but are of higher priority after the first permit cycle. Examples of output measures include trending levels of PCB concentrations in fish tissue and the water column, achievement of the applicable water quality standards for PCBs, permit compliance status, and environmental trends relating to PCBs.

Ecology will evaluate if specific sources reduction activities have been taken and the amount of PCBs that have been removed due to those activities. This includes measured amounts of PCBs eliminated, isolated, or removed from the water or watershed, including PCBs eliminated from river discharges, stormwater, and other sources. If source reduction activities do not result in decreasing toxics in the river, then Ecology and the Task Force will re-evaluate the approach.

Ecology is obligated to proceed with the development of a TMDL for the Spokane River for PCBs or determine an alternative to ensure water quality standards are met if, in the evaluation of measurable progress, source reduction activities are absent or permittees do not comply with permit conditions.

Results Summary

Ecology concludes that the SRRTTF has made measurable progress with respect to the outcome criteria.

The activities of the Task Force and SRRTTF members during the evaluation period have informed and contributed to the elimination of measurable quantities of PCBs from the watershed. Activities including stormwater maintenance, remedial clean up actions, and transformer removal have removed PCBs or prevented them from entering the Spokane River.

Tertiary membrane filtration upgrades at wastewater treatment plants operated by SRRTTF members have resulted in the physical removal of PCBs from their wastewater effluent. These next level treatment systems have demonstrated consistent removal efficiencies ranging from 95 to 99% (once systems are optimized); thereby reducing point source PCB loading to the Spokane River.

The results of the Central Tendency Study and an evaluation of water column status and trend analysis indicate that total PCB concentrations are significantly decreasing in most areas of the Spokane River and total PCBs are below the current water quality standard of 170 ppq.

Task Force Outcome Data

1) Progress towards achieving water quality standards for PCBs (Central Tendency and Trend Analysis)

In March 2021, Ecology completed a [Central Tendency technical memo](#) that was submitted to EPA. The purpose of the technical memo was to determine and identify the central tendency of total PCB concentrations in the surface water of the Spokane River. The following six surface water monitoring locations (moving from upstream to downstream) were chosen to determine the central tendency of total PCBs because: 1. they have been the most consistently sampled by the Task Force over the monitoring period of 2014 through 2018; and 2. they represent the lowest to highest concentrations of total PCBs measured (the exception being the lower total PCB concentrations found at the outlet of Lake Coeur d'Alene at Post Falls Dam in Idaho):

- Barker Bridge
- Mirabeau Park
- Trent Avenue/Plante's Ferry
- Greene Street
- Spokane Gage
- Below Nine Mile Dam

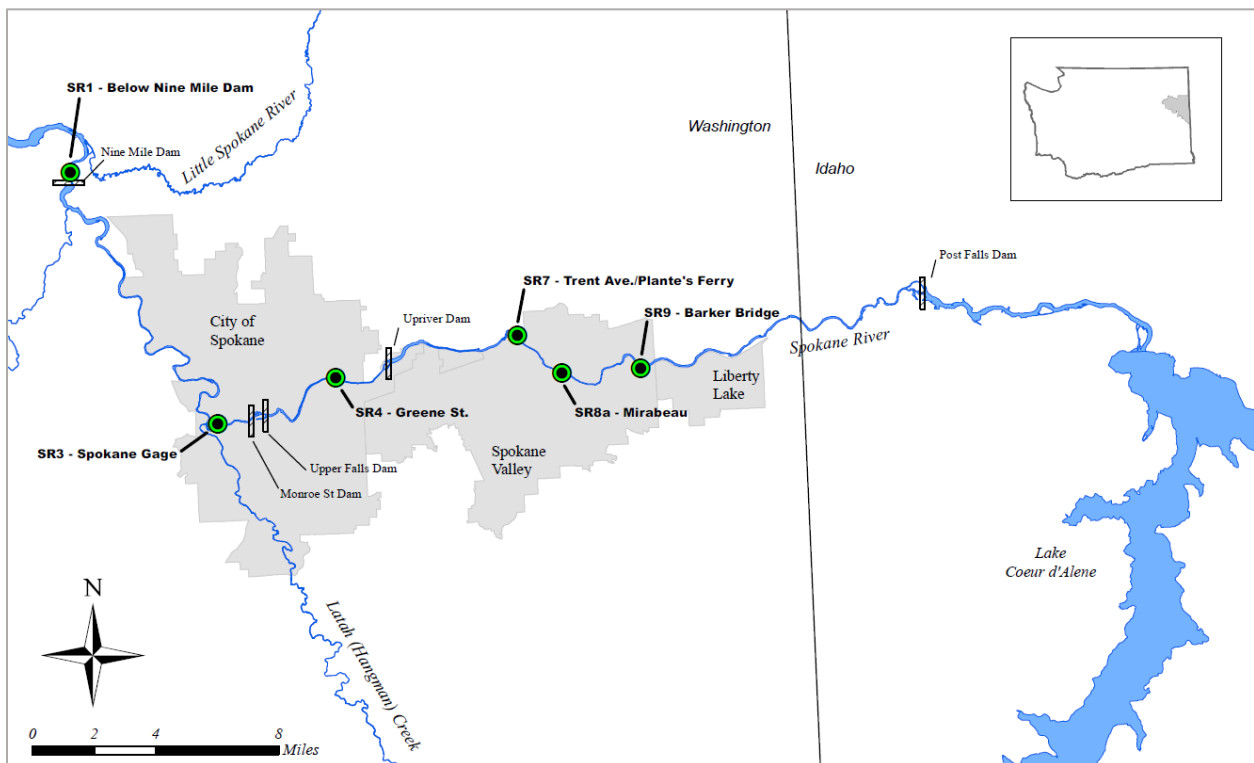


Figure 1. In-stream Monitoring Locations on the Spokane River

Based on surface water data collected at these six sites from 2014 through 2018, the central tendency of total PCBs in the Spokane River falls below the current Washington water quality standard of 170 ppq. The evaluation followed a conservative approach and the highest value for either a mean or median Upper Confidence Interval at any of the six sites was 164 ppq at the Spokane Gage. Remaining values ranged from 8 ppq to 142 ppq.

Additionally, an evaluation of water column status and trend analysis was presented by the Task Force's Technical Consultant (LimnoTech) at the May 2019 SRRTTF Workshop. Based on 2014-2018 data analyzed from four sites (Barker Bridge, Trent Avenue, USGS gage, and Nine Mile Dam), simple statistical analysis indicates that total PCB concentrations appear to be significantly decreasing in most areas of the Spokane River³⁸.

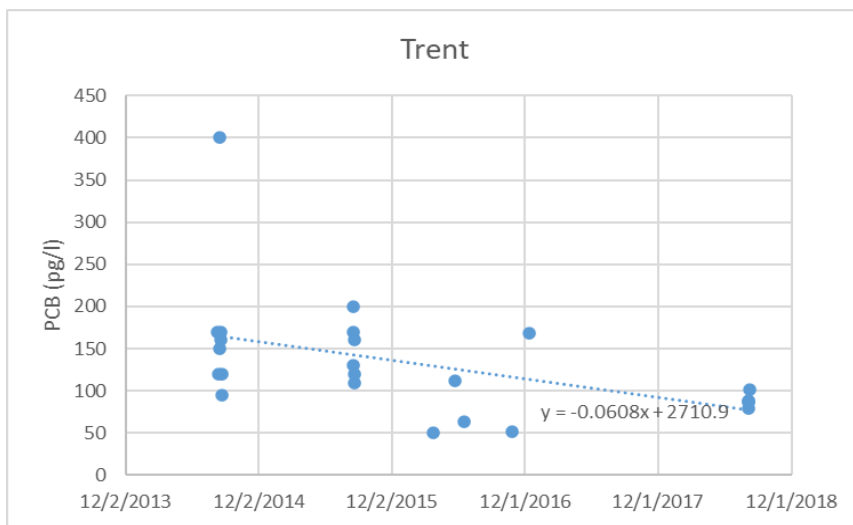


Figure 2. PCB Trend Analysis at Trent Ave / Plante's Ferry

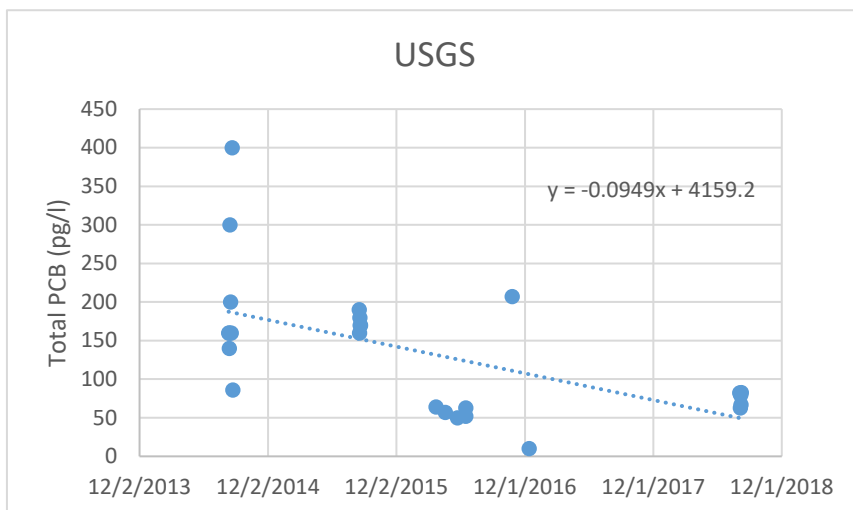


Figure 3. PCB Trend Analysis at USGS Gage

³⁸ LimnoTech, "[Water Column Status and Trend Analysis](#)", presentation to the SRRTTF on May 30, 2019.

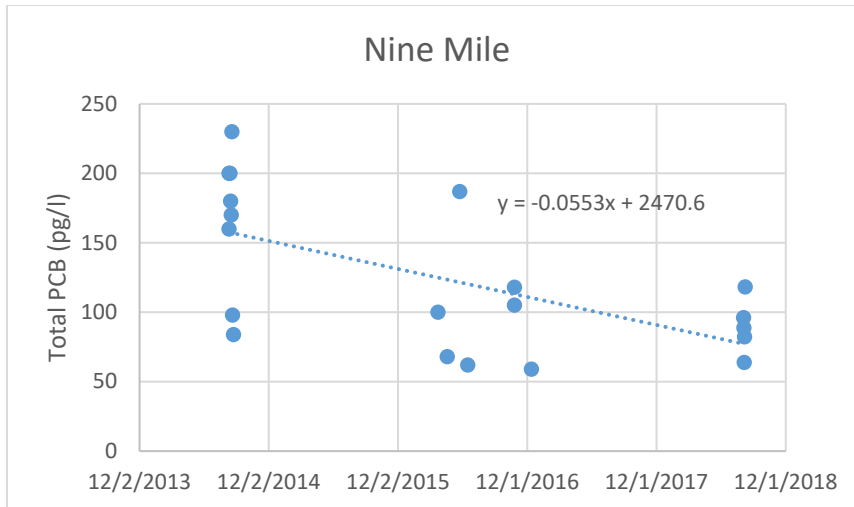


Figure 4. PCB Trend Analysis below Nine Mile Dam

2) Progress towards achieving applicable public and environmental health standards

Ecology last completed fish sampling under its Freshwater Fish Contaminant Monitoring Program in 2012. Fish sampling efforts are scheduled to occur again by 2023, which may provide more certainty regarding PCB trends in fish.

3) Implemented BMPs and Control Actions from the 2016 Comprehensive Plan

Although SRRTTF members have implemented numerous and effective BMPs to address PCBs in stormwater, wastewater and from other sources within their individual operations and service areas, the Task Force has de-emphasized implementation of Control Actions that would involve engagement with organizations outside of the SRRTTF, including stormwater source tracing. Implemented BMPs and Control Actions were completed prior to this evaluation period, were captured in Evaluations of Inputs and Outputs, and/or did not result in quantifiable source reductions.

Task Force Member Outcome Data

Clean Up / Removal Actions (EPA & Kaiser)

In December 2020, the EPA completed the largest Time-Critical Removal Action in EPA Region 10 history at the Former Kaiser Smelter Site (Site) in Mead. The Site is located approximately seven miles north-northeast of downtown Spokane and is within the boundaries of the Little Spokane River watershed. Originally built in 1941 by the U.S. government, Kaiser Aluminum purchased the facility in 1946 and operated it for more than 50 years before shuttering operations in 2000.

Following a 2016 study that identified an unknown source of PCBs from Deadman Creek, Ecology completed a site visit in 2018, which identified numerous and large quantities of contaminants of concern, including piles of baghouse dust and green coke, various

transformers, vandalized coal tar tanks, and buildings constructed with “Robertson siding” (also known as Galbestos that contains a combination of asbestos and PCBs); all of which were in various states of deterioration. Ecology determined that conditions at the Site were far beyond what the state could manage and in March 2019, Ecology and the Spokane Regional Clean Air Agency requested assistance from EPA’s Emergency Removal Team for immediate action concerning the release of contaminants from the Site.

Upon receipt of Ecology’s request, EPA conducted a site evaluation and in May 2020 received authorization to proceed with the removal action at the Site in order to mitigate threats posed to human health and the environment from the ongoing release of hazardous substances identified at the Site. EPA conducted clean-up activities from July through December of 2020³⁹.

Work crews removed over 12,000 tons of highly contaminated material from the 170-acre developed portion of the Site, which included numerous large, deteriorating structures and waste piles. **The clean-up included removal of:**

- Over 318,000 square feet of highly contaminated building siding containing more than **8,000 pounds of PCBs**
- Over 14,000 linear feet of pipe insulation containing friable asbestos
- 6,500 cubic yards (5,500 tons) of hazardous waste material, including green coke and coal tar pitch. This material contained over 26,000 pounds of semi-volatile organic compounds, including Benzo(a)pyrene, a cancer-causing chemical.

Concurrent with EPA’s Time Critical Removal Action, Kaiser managed the removal of contaminated water and sediment from settling ponds at the former Kaiser Smelter Site. Over 3,400 tons of contaminated sediment was removed and more than 755,000 gallons of contaminated water was treated. It is estimated that **over 45 pounds of PCBs were recovered** from the ponds.

Following clean-up of the ponds, Kaiser constructed a new bio-infiltration swale to treat future stormwater from the Site. Upon completion of the bio-infiltration swale in December 2021, the conveyance system to Deadman Creek was severed, **thereby preventing any future release of PCBs or other contaminants from reaching surface waters from the Site.**

Installation of Next Level Treatment

During the evaluation period Liberty Lake Sewer and Water District, the Cities of Spokane and Coeur d’Alene, and Inland Empire Paper completed the installation of membrane treatment technology that removes PCBs from wastewater more effectively than traditional wastewater treatment plants. Optimization of the membrane filtration units requires time and all facilities continue to optimize their systems. When optimization is achieved, PCB removal rates at these facilities should exceed 99%.

³⁹ EPA [Time-Critical Removal Action Report, Former Kaiser Smelter Site](#), November 2021

The Spokane County Wastewater Reclamation Facility was originally constructed with membrane filtration units and it continues to operate with **greater than 99% removal efficiency** for PCBs. The County estimates that the membrane filters removed an average of 330.5 mg/day of PCBs, for a total of 845.1 grams, over the evaluation period.

Hayden Area Regional Sewer Board and the City of Post Falls are in the process of constructing membrane filtration systems, which are scheduled for completion in summer 2022 and early 2023, respectively. Kaiser is in the process of evaluating alternative treatment methods to replace or supplement its walnut filtration system.

Combined Sewer Overflow Facilities and Sediment Removal (City of Spokane)

The City of Spokane's original sewer infrastructure combined the sanitary sewer system with the stormwater collection system. During high flow storm events the combined sewer overflow (CSO) diverts portions of the flows directly to the river, rather than routing the flow through the wastewater treatment facility. In order to curtail the number of CSO overflow events occurring throughout the year (and subsequent discharge of untreated storm and sewage to the river), the City has installed large capacity storage tanks strategically throughout the City, which equalize storm flow so that stormwater and wastewater are fully treated at the City's permitted wastewater facility.

The City's CSO Reduction Plan contained a variety of engineering actions aimed at decreasing the number of CSO overflow events, which would ultimately prevent/decrease the potential for PCBs to enter the river from this pathway.

During the evaluation period the City continued to build and optimize their CSO storage facilities. In August 2020, the City completed construction of the last CSO control facility identified in the 2014 CSO Plan Amendment⁴⁰. Based on the anticipated reductions in direct discharges to the Spokane River and assumed PCB concentrations and removal efficiency, the City estimates that on an annual basis, two to three grams of PCBs will be captured and removed through treatment rather than being directly discharged to the Spokane River.

In addition, in 2020 and 2021 the City of Spokane collected, dewatered, and landfilled approximately 2.2 million pounds of sediment captured in stormwater catch basins annually. Based on calculated PCB concentrations averaged across the urban sediment removed from the City's primary stormwater infrastructure system, the City estimates that **between 5 and 54 grams of PCBs were removed** annually with the sediment.

Trends Relating to Outcomes

Due to the efforts of the SRRTTF and individual members over the six-year assessment period, there has been an increased awareness of PCBs in the region, which has directly contributed to the removal of PCBs from the Spokane River System. Dischargers to the Spokane River on both

⁴⁰ City of Spokane [2020 Annual CSO Report](#)

sides of the Washington/Idaho border have installed or are in the process of installing membrane filtration technology that should remove more than 99% of PCBs entering these treatment systems, once optimized.

In addition, the work of the Task Force directly contributed to the eventual identification of the former Kaiser Smelter Site as a source of PCBs and the subsequent EPA Removal Action and elimination of the pathway for contaminated stormwater to reach Deadman Creek.

The City of Spokane has completed installation of CSO control facilities which will significantly decrease the potential for PCB contaminated stormwater from reaching the Spokane River. And Kaiser is pursuing alternative technologies at scale that have proven effective at destroying PCBs at pilot-scale testing. All of these efforts are demonstrating positive measurable results in PCB concentrations within the Spokane River.

Recommendations Relating to Outcomes

During the next permit cycle, Ecology's measurable progress evaluation will continue to place a higher level of importance on outcomes, specifically:

- Evidence of the effectiveness of toxics reduction activities, such as mass of PCBs removed from the system or prevented from entering the Spokane River through engineering or best management practices. Acceptable evidence includes:
 - Measurements or reasonable estimates of the amount of PCBs eliminated, removed, or isolated, from the river or watershed as a result of maintenance practices
 - Engineered solutions and wastewater treatment plant upgrades and optimization
 - Increased toxics reduction activities and continued implementation of BMPs
 - Continued implementation of developed plans, including the SRRTTF Comprehensive Plan, Toxics Management Plans, Integrated Clean Water Plan, Stormwater Adaptive Management Plan, and CSO Removal Plan
- Measurements of PCB concentrations in the Spokane River under ambient concentrations demonstrating progress towards achieving water quality standards
- Demonstration of progress towards meeting public health goals, such as decreased PCB concentrations in fish and fish tissue

Demonstration of Measurable Progress

Ecology has evaluated a comprehensive set of data for the assessment period of January 1, 2015 through December 31, 2021 and has concluded that, during this assessment period, the Task Force has made measurable progress towards achieving the current water quality standards for PCBs in the Spokane River.

Evidence demonstrates that the SRRTTF generally functioned in a collaborative manner and continued to engage in activities that have led to reductions of PCBs in the River. However, the withdrawal of the Spokane RiverKeeper (June 2019) and Kootenai Environmental Alliance (June 2021) has created a perception by some that Task Force activities are largely determined by dischargers. In addition, membership changes due to retirements and staff departures have resulted in decreased engagement by some organizations and it appears that a smaller number of members are shouldering the workload.

Per requirements included in the NPDES permits for the Washington dischargers, the Task Force completed the [2016 Comprehensive Plan to Reduce Polychlorinated Biphenyls \(PCBs\) in the Spokane River](#), which includes BMPs to address PCBs in stormwater, wastewater and from other sources. Individual SRRTTF members have implemented numerous and effective BMPs within their individual operations and service areas, although the Task Force as a whole has focused efforts on studies to fill in data gaps, rather than source reduction activities.

The strength of the Task Force during the evaluation period has been its advancement of studies to address data gaps in the Spokane River from the Idaho border to Nine Mile Dam, with a recent emphasis on a segment of the River identified as the Mission Reach. During the evaluation period, the SRRTTF continued to increase the scientific body of knowledge associated with extremely low levels of PCBs in surface water, groundwater, sediment, and biofilm.

Tertiary membrane filtration upgrades at wastewater treatment plants operated by SRRTTF members have resulted in the physical removal of PCBs from their wastewater effluent. These next level treatment systems have demonstrated consistent removal efficiencies ranging from 95 to 99% (once systems are optimized), thereby reducing point source PCB loading to the Spokane River.

Although compliance with applicable water quality standards for PCBs, in accordance with Ecology Water Quality Policy 1-11, is not yet achieved, **more than 8,000 pounds of PCBs were removed from the watershed** during the evaluation period and environmental trends indicate that **total PCB concentrations are significantly decreasing in most areas of the Spokane River**. The central tendency for total PCB concentrations are below the current water quality standard of 170 ppq; however, additional sampling is needed to verify trends in PCB concentrations in fish tissue. Fish sampling efforts are scheduled to occur by 2023 as part of Ecology's toxics monitoring program, which may provide more certainty regarding PCB trends in fish.