COLUMBIA RIVER BASIN
RESTORATION PROGRAM

EPA

Toxics Monitoring Subgroup Update

MAY 31, 2023

Columbia River Basin Toxics Reduction Action Plan

September 2010
Prepared by:
U.S. Environmental Protection Agency, Region 10
& The Columbia River Toxics Reduction Working Group

Initiative #3:
Conduct monitoring to identify sources and then reduce toxics

Current Resources

38. Identify the contaminants of concern to focus on in the Basin
39. Use the prioritization tool in one area of the River to assist in developing a monitoring plan and modify the tool based on the results of the pilot project
40. Assist other partners throughout Basin on using the prioritization tool to develop monitoring plans
41. Continue to seek and leverage resources to supplement existing monitoring by agencies, organizations, and Tribes in the Basin

Additional Resources Needed

42. Expand monitoring to the highest priority areas in the Basin as identified by the prioritization tool
43. Support watershed-based targeted monitoring efforts that link directly to reduction efforts, such as TMDLs, source assessments and Pesticide Stewardship Partnerships
44. Support localized monitoring efforts that will provide baseline data where habitat restoration is planned and/or ongoing; and targeted monitoring on species of concern, either ESA listed or for commercial or subsistence use
45. Assess sources of contamination and loadings for priority tracking and control
46. Establish toxic reduction efforts which include status and trends effectiveness monitoring
47. Identify opportunities to integrate water, land, air, sediment and biota monitoring
48. Develop public friendly reports to share monitoring information with the public

Initiative #4:
Develop a regional, multi-agency research and monitoring program

Current Resources

49. Identify and inventory in a database existing toxics research being conducted in the Basin
50. Using this research, convene scientists to assist in developing a Regional research plan for the Basin
51. Establish connections with researchers from other large aquatic ecosystems to better understand their research and its application to the Basin

Additional Resources Needed

52. Conduct research based on priorities identified in research plan
53. Develop indicators of ecosystem health
54. Develop new standards and criteria to protect fish, wildlife, and humans from toxics
55. Visit other regional centers to learn more about research programs
56. Conduct “Control Studies” to evaluate effectiveness of Best Management Practices, toxics reduction efforts, and emerging reduction strategies.

Initiative #5:
Develop a data management system that will allow us to share information on toxics in the Basin

Current Resources

57. Convene a group to discuss different options for managing toxics data in the Region
58. Evaluate how other large aquatic ecosystems manage data

Additional Resources Needed

59. Create a data stewardship program, hosted and managed by a single entity
60. Survey all relevant existing data management systems in the Region
61. Verify that all data has a spatial component (latitude, longitude). Include a spatial component to the data available in order to view and create maps, and conduct spatial analysis

MONITORING COORDINATION PROGRESS

- June 2021: Columbia River Monitoring Strategy Development Webinar hosted by CRBRP recommended committee
- March – June 2022: 3 meetings to begin to develop a Columbia River basin-wide (mainstem & tribs) monitoring strategy
- December 2022: meeting to support CRBRP grantees, refine feedback from earlier 2022 to launch TMS
- March 2023: first “regular TMS meeting”, lightning talks, QAPP Q&A

MONITORING COORDINATION – March 2, 2022 Meeting

- Topic #1: Should there be a document describing agreed upon sampling and analytical methods and concerns for Columbia River toxics monitoring? Who would prepare it?
- Topic #2: What are the monitoring gaps of greatest concern?
- Topic #3: We propose to publish data to the EPA Exchange Network's WQX data system and that we create a new dashboard to access CRB data from the WQX.

MONITORING COORDINATION – April 28, 2022 Meeting

- Topic #1: Continue discussion of the data sharing proposal (i.e., that toxics monitoring data be published to the EPA Exchange Network's WQX data system and that we create a new dashboard to access CRB data from the WQX).
- Topic #2: Discuss holding an annual research and emerging concerns workshop.
- Topic #3: Review CRB Contaminants of Concern Framework (finalized August 2020) and discuss plan to revisit as needed.

MONITORING COORDINATION – June 2, 2022 Meeting

- Topic #1: Revisit the idea generated from the March 2022 meeting of a Columbia River Basin-wide “generalized or programmatic QAPP”.

- Topic #2: Is there interest in a standardized monitoring design for the CRB to enable comparisons between geographical areas (e.g., at different spatial scales) and show changes over time (i.e., trend analyses)?

- Topic #3: What else do you need to be successful in coordinating towards a coordinated Columbia River Basin-wide Toxics Monitoring Strategy?

TOP 10 IDEAS

1. Identify data gaps and areas of synergy for sampling and data management.
2. Develop recommendations for common collection and analytical methods to enable cross-project data comparisons.
3. Develop a plan to continue to document and track “who’s doing what, where, and how.”
4. Discuss and agree on screening values/thresholds for specific constituents to be monitored.
5. Technical updates/presentations related to “who’s doing what, where, and how.”
6. Investigate needs and requirements of a user interface to be built upon EPA’s WQX web services to yield a dashboard to access and display these data (“CRB Toxics Monitoring Data Dashboard”).
7. Investigate the development of a Programmatic QAPP.
8. Investigate partners’ needs for tools and resources to publish data and metadata.
9. Convene webinars to hear lessons learned from successful, large scale, long-term, toxics monitoring programs to help inform potential funding and legislative changes.
10. Further outreach and education of the Toxics Monitoring Subgroup for the entire CRB

TOP 10 IDEAS – CURRENT TASKS

1. Identify data gaps and areas of synergy for sampling and data management.
2. Develop recommendations for common collection and analytical methods to enable cross-project data comparisons.
3. Develop a plan to continue to document and track “who’s doing what, where, and how.”
4. Discuss and agree on screening values/thresholds for specific constituents to be monitored.
5. Technical updates/presentations related to “who’s doing what, where, and how.”

10. Further outreach and education of the Toxics Monitoring Subgroup for the entire CRB

CORE TEAM

Our role

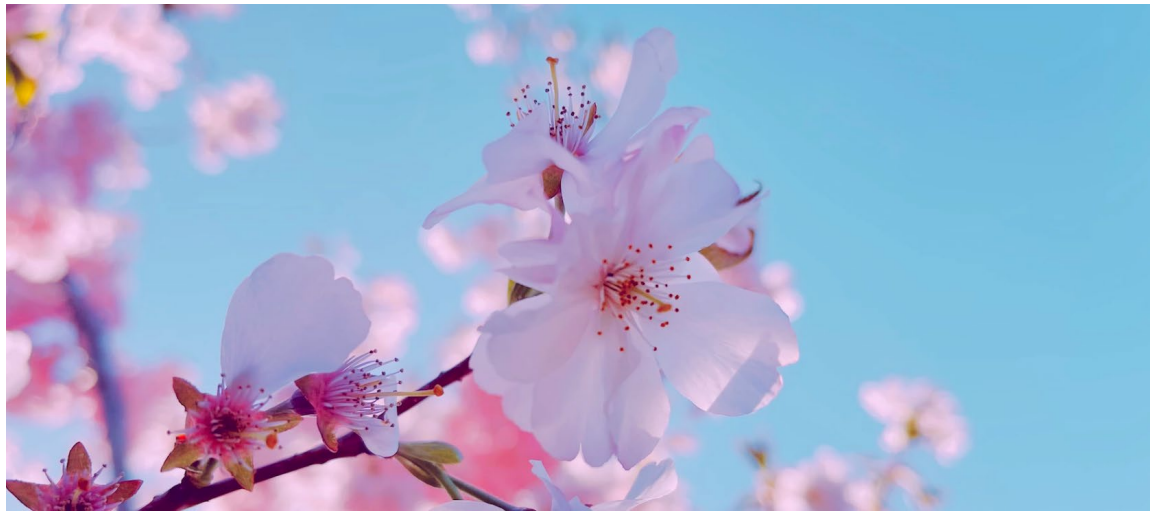
- Support towards the coordination of a basin-wide network of toxics monitoring projects
- Support for participants in collecting, publishing, and synthesizing data

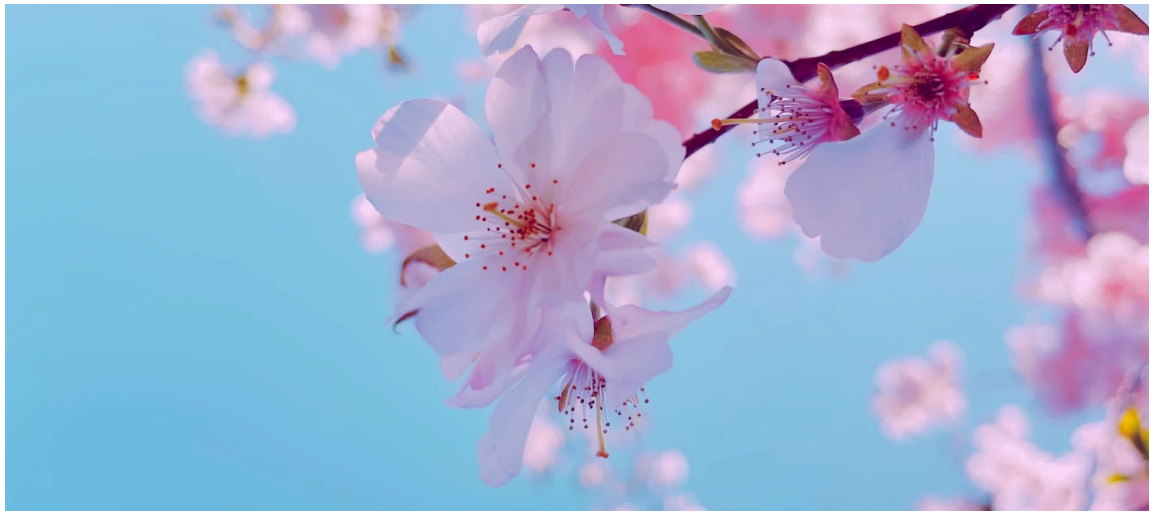
Core Team Members

- Jen Bayer, USGS/PNAMP (jbayer@usgs.gov)
- Mark Jankowski, EPA (jankowski.mark@epa.gov)
- Lisa Kusnierz, EPA (kusnierz.lisa@epa.gov)
- Patrick Moran, USGS (pwmoran@usgs.gov)
- Amy Puls, USGS/PNAMP (apuls@usgs.gov)
- Ashley Zanolli, EPA (zanolli.ashley@epa.gov)

TOXICS MONITORING SUBGROUP

Develop a community of practice to share information on monitoring, and leverage activities within and outside of EPA funded grants.





3 virtual meetings in 2023

- March 23, 1:30-3 pm Pacific
- July 11, 12:30-2:30 pm Pacific
- September – date TDB

Workshop in January 2024

LIGHTNING TALKS – March 2023

1. The Crayfish Mercury Project, Alan Kolok (University of Idaho)

2. Soil Matters: Testing Biochar Composition in a Green Stormwater Installation, Sarah Whitney (Long Tom Watershed Council)

3. Quantifying Toxins in Fish Consumption and Identifying Sources of Pollutants in the Upper Columbia, David Brooks (Montana Trout Unlimited)

4. Columbia River Mainstem Fish Tissue and Water Quality Monitoring Program, Sherrie Duncan (Sky Environmental)

5. Evaluating and Prioritizing Contaminants of Emerging Concern in the Lower Columbia River, Andy James (University of Washington, Tacoma)

‘MONITORING MATRIX’

- Why do this?
- Who may contribute?
- How can you access it?
- How will it be updated in the future?

‘MONITORING MATRIX’

Project Basics

- Title & Purpose
- Lead entity & contact info
- Geographic Scope & mainstem or tributary
- Monitoring start/end dates
- Monitoring type

Parameters and Methods

- Parameters monitored (POP?)
- Sampling site # & frequency
- Media
- QAPP
- Analytical method – CWA/other or novel?

Looking Forward

- Comparison thresholds?
- Primary pathway
- Mitigation solution proposed?

MATRIX Snapshot

Unique identifier	Project title	Project purpose	Lead entity	Entity conducting monitoring	Monitoring type	Geographic scope of monitoring	Mainstem Columbia River or tributary	Monitoring location description
44-02J20001	Upper Columbia Basin Contaminant Status, Movement and Remedial Pilot Study	The primary goals of the study are to: 1) identify areas where contaminant concentrations are elevated or exceed water quality and sediment quality standards set by the Spokane Tribe and EPA, EPA Aquatic Water Quality Criteria (AWQC), 2) evaluate movement of contaminants transported through the river across media, 3) identify which contaminants are entering the food web via biofilm that are available to bioaccumulate up the food chain, and 4) test the feasibility of a sediment particle trap methodology that could be scaled up for large-scale restoration actions in the future.	Spokane Tribe of the Spokane Reservation	Spokane Tribe's Limnology Program, contractor	targeted	broad scale	mainstem and tributary (Columbia River and Spokane River)	upper Columbia River basin
44-02J22301	Eliminating Erosion of Legacy Mine Tailings from the Bodie Mine into Toroda Creek, Kettle Creek Watershed, WA	By halting the active erosion of Toroda Creek into the mine tailings along the proposed project reach, this project will eliminate pollution from added siltation as well as toxics including arsenic, cadmium, lead, mercury, selenium, copper, and zinc currently found in the tailings on the site. The project will not only improve water quality in Toroda Creek by reducing toxic sediment inputs to the stream, but it will also benefit the overall ecosystem health of the Kettle River watershed and the Columbia Basin.	Trout Unlimited	Trout Unlimited; Herrera Environmental Consultants, Inc.	targeted	localized	Columbia River tributary	Toroda Creek (NE WA)
44-02J22501	Upper Columbia River Toxics Monitoring; Caring for Sn̓x̌ʷn̓tkʷn̓tkʷ: *Increase monitoring and access to data from monitoring in the UCR Basin with impact to human health and fish and wildlife*	Undertake planning and piloting of an innovative environmental monitoring and risk communication program that centers the needs of Confederated Tribes of the Colville Reservation members while being expansive enough to have relevance for all local residents and users of the Upper Columbia River and Lake Rufus Woods. The ultimate goal is to reduce uncertainty around what activities and resources are safe for Confederated Tribes of the Colville Reservation members and other local residents to do and use, and to initiate a program that will track future trends in contaminant levels.	Confederated Tribes of the Colville Reservation	Confederated Tribes of the Colville Reservation	targeted	broad scale	Columbia River mainstem and tributary	Upper Columbia River, Lake Roosevelt, and Lake Rufus Woods
RB-01J73201	Evaluating and Prioritizing Contaminants of Emerging Concern in the Lower Columbia River	The primary objectives of this work are to: 1) characterize the occurrence of priority chemicals in the Columbia River through a focused monitoring program, 2) evaluate the occurrence based on their potential to cause harm to important species, and 3) communicate the results to stakeholders.	University of Washington Tacoma at the Center for Urban Waters	University of Washington Tacoma	targeted	broad scale	Columbia River mainstem and tributary	lower Columbia River ranging from upstream of the Portland metropolitan area to Wauna, OR; Willamette River
RB-01J73401	City of Vancouver Columbia Slope Water Quality Monitoring	The City of Vancouver will work with a contractor to perform water quality monitoring at six locations along the Columbia Slope to identify and prioritize outfall basins where stormwater treatment retrofits would be effective in removing contaminants that are currently reaching the Columbia River.	City of Vancouver	Herrera Environmental Consultants, Inc.	targeted	localized	Columbia River tributary	Columbia Slope sub-watershed within Vancouver city limits

Monitoring location county and state	Are locations of monitoring sites available now?	Number of sampling sites	Sampling frequency	Parameters monitored	Parameter type(s)	EPA Region 10 prioritization tiers for parameters monitored	Persistent organic pollutant	Media being sampled	Will chemical concentration data be compared to toxicity reference values? If yes, which reference values?	Primary source pathway being investigated	Potential mitigation solution
Ferry, Stevens, Lincoln, Grant - all in WA	No	15-30	2 sampling events, spring & fall, 1 year	Target Analyte List (TAL) metals (Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Chromium, Cobalt, Iron, Lead, Manganese, Mercury (Hg), Nickel, Selenium, Silver, Thallium, Vanadium and Zinc), methylmercury, polychlorinated biphenyls (PCBs) Aroclors, PCB congeners, cations (Calcium, Magnesium, Potassium, Sodium), anions, total organic carbon (TOC), dissolved organic carbon (DOC), and particle size.	metal, other inorganic, organic, other	tier 1, tier 2, tier 3	mixed	surface water, bottom sediments, suspended sediments, and biofilm	Spokane Tribal Water Quality Standards, federal federal water quality standards, federal sediment guidelines	mining, industrial	no
Okanogan, WA	no	TBD	TBD	arsenic, cadmium, lead, mercury, selenium, copper, zinc	metal	tier 1, tier 2, tier 3	no	sediment	NA	mining	removing tailings material from adjacent to the stream, stabilizing the streambank and restoring native riparian vegetation
Stevens, Ferry, Lincoln, Okanogan, Douglas - all in WA	no	TBD	60-75 samples (20-25 per me	mercury, arsenic, copper, and lead; methylmercury (fish tissue only); PCBs (congener analysis); and DDT and its metabolites	metal, organic	tier 1, tier 2	mixed	fish tissue composites, beach sediment composites, and surface water (dissolved and total analyses)	Final toxicity reference values have not yet been selected, but likely will include Tribal, state, and Federal standards	source pathways are not being investigated by this project, exposure pathways are	no
Oregon - multnomah, columbia Washington - clark, cowlitz	Yes	16	4 sampling events, dry & wet periods, 1 year	non-target and suspect screening for contaminents using High Resolution Mass Spectrometry	organic	tier 1, tier 2, tier 3	mixed	water	Predicted No Effects Concentrations (PNEC)	stormwater, waste water treatment plant	no
Clark County, WA	Yes	6	12 sampling events, 1 year	Semivolatile organic compounds (SVOCs) including polycyclic aromatic hydrocarbons; (PAHs), phthalates, chlorinated hydrocarbons, and other organic compounds; Total metals (copper, lead, zinc); Organochlorine pesticides	metal, organic	tier 2, tier 3	mixed	water	Yes, state water quality standards	stormwater	The City intends to identify stormwater retrofit project locations based on the analysis of new monitoring data and subsequently implement best management activities and construct treatment facilities that include green infrastructure wherever feasible.

JULY 11TH DRAFT AGENDA

12:30—12:40 PM	**WELCOME & UPDATES** • Introductions
12:40—1:00 PM	**'MONITORING MATRIX'** • Review purpose, current content • Discuss plans to provide access, maintain and update over time
1:00–1:30 PM	**WINTER WORKSHOP PLANNING** • Dates, location, primary topic(s)
1:30–2:30 PM	**LIGHTNING TALKS** • 5 presentations, Q&A after each

YOUR TURN – LIVE POLLING

Specific to monitoring coordination:

- What does a successful monitoring program look like in 5 years?
- What TMS workshop topic(s) would be most beneficial to you?

More broadly:

- What habitat restoration and temperature projects also reduce toxics?
- Can our toxics sampling be turned into toxics distribution mapping to serve a wider audience? What considerations are important in order to ‘scale up’ individual projects?

slido

What does a successful monitoring program look like in 5 years?

ⓘ Start presenting to display the poll results on this slide.

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What other ideas do you have for your vision of what a successful monitoring program looks like in 5 years?

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What TMS workshop topic(s) would be most beneficial to you?

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What habitat restoration and temperature projects also reduce toxics?

ⓘ Start presenting to display the poll results on this slide.

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What considerations are needed in order to turn project-scale toxics sampling into toxics distribution mapping to serve a wider audience? (i.e. what is important in order to 'scale up' individual projects?)

ⓘ Start presenting to display the poll results on this slide.

JOIN US

CRBRP Toxics Monitoring Subgroup (TMS) Meeting
July 11, 12:30-2:30 pm, virtual

Questions? Want to join the TMS distribution list?
Email us at: gs-crbtoxmon@usgs.gov