

# Citizens for a Clean Columbia

Our mission: to advocate for a clean Columbia River ecosystem  
NEWSLETTER JULY 2020

## Who are we?

Citizens for a Clean Columbia (CCC) is a volunteer organization focused on advocating for the health of the Upper Columbia River (UCR) and Lake Roosevelt. Visit us on our website <https://citizensforacleancolumbia.org> or on Facebook <https://www.facebook.com/groups/315230442457913/> or contact us at [citizensforacleancolumbia@gmail.com](mailto:citizensforacleancolumbia@gmail.com).

## News in Brief

### Baseline Ecological Risk Assessment Update

- Current activity includes evaluation of results of the laboratory split sample data comparisons (sediment and porewater), the backscattered scanning electron microscopy determination of percent slag in sediment samples, and continued work on the Toxicity Identification Evaluation (TIE).

### Human Health Risk Assessment (HHRA)

- The draft HHRA report is now available for public comment. To assist in understanding the findings, EPA held an initial webinar in June and will hold one more webinar on July 15<sup>th</sup> at 5:30 pm PST. Comments are due July 24<sup>th</sup>.

### Soil Amendment Technology Evaluation Study (SATES): Phase III testing underway

- This study is moving to field testing using 4 plots that are high in soil lead and testing soluble phosphate liquid, compost, and soluble phosphate and biochar.
- Sample collection should be completed in 2022 and results available in 2023.

### Discussions About Water and the River

- A summary of the updated Upper Columbia Basin Environmental Collaborative (UCBEC) report is provided which calls for inclusion of ecosystem function as a third primary purpose of the Columbia River Treaty.
- EPA has issued a report entitled "Total Maximum Daily Load (TMDL) for Temperature in the

Columbia and Lower Snake Rivers" for comment. They concluded that the dam impoundments have a greater temperature impact than point sources and tributaries, but removal of dams may not meet Washington's 20°C daily maximum water quality criteria at the Bonneville Dam tailrace.

### Soil Removal Action in Northport Planned

- Monica Tonel from EPA has secured funding to conduct removal action on 16 properties in Northport due to a change in the removal action level for lead in soil from 1000 mg/kg to 700 mg/kg.

### Technical Advisor Update

- Joe focused on the HHRA, the TIE pilot study and the SATES over these past 6 months.

### Baseline Ecological Risk Assessment

For the U.S. Environmental Protection Agency (EPA) Remedial Investigation and Feasibility Study, both a Baseline Ecological Risk Assessment (BERA) and Human Health Risk Assessment (HHRA) are conducted. The BERA is an appraisal of the actual or potential effects of a hazardous waste site on plants and animals other than people or domesticated species. For general information see EPA website: <https://www.epa.gov/sites/production/files/2015-09/documents/v1no2.pdf>. A review of the BERA Phase III activities can be found in our January 2019 newsletter located on the CCC website.

Phase III activities began in Spring 2019 to further evaluate UCR sediment and porewater from Deadman's Eddy, China Bend, and Evans to look primarily at metals concentrations and toxicity to benthic organisms. CCC is currently reviewing the memo presenting results of the inter-laboratory split sample data comparison for the Phase 3 sediment

and porewater samples collected from Upper Columbia River (UCR) Site in 2019 and the backscattered scanning electron microscopy determination of percent slag Data Summary Report.

In addition, work continues on the Toxicity Identification Evaluation (TIE) Pilot Study. Ideally, the TIE could be used to determine the cause(s) of biological effects (sediment/porewater or overlying water or both) in the Phase 3 sediment study sediments collected from the Upper Columbia River. The pilot study began in the Fall of 2018 and attempts to determine the cause of toxicity by applying treatments that are intended to reduce exposure to specific toxicants. For example, if metals are a cause of sediment toxicity, then treatments to reduce metals bioavailability should reduce sample toxicity. To do this, an ion exchange resin is used.

Unfortunately, as reported in draft study results in Sept 2019, the treatments used in the TIE pilot study did not perform as expected. Work has continued to refine methods and test additional treatments. In CCC's comments to the EPA on the TIE Pilot Study Resin Progress Report from April 2020, we noted that it appeared that the TIE project results so far provided limited insight into the mechanism of sediment toxicity to benthic organisms. Further, the results may confound organism survival data interpretation. We remain concerned about the ability of Nautilus to conduct this work. Comments from the Washington State Dept. of Ecology also offer concerns about continued work on this project.

Mindy Smith, CCC secretary

## **Human Health Risk Assessment (HHRA)**

The draft report of the HHRA is now available for public comment and we urge all of you to read the report and consider how the document might be improved. This document, along with the BERA, will set the stage for any remedial work that might be required to protect human health and the environment going forward.

The purpose of the HHRA is to calculate risk for hypothetical groups including resident, worker, recreational visitor, and tribal populations; evaluate exposure to chemicals from various sources (food; air; touching or accidental ingestion of soil, sediment and river water); estimate risks using measured concentrations of chemicals in soil, public beaches, and the river; and compare estimated risks to benchmarks to see if they are of concern.

The findings are summarized in our January newsletter available on our website. To help prepare you for making comments, the EPA will be holding two identical **webinars, on June 10 and July 15**, both starting at 5:30 pm to give as many people as possible a chance to learn more about the HHRA directly from the EPA. If you wish to attend the webinars, please preregister at:

[www.eventbrite.com/e/epa-upper-columbia-river-webinars-tickets-105584696670](http://www.eventbrite.com/e/epa-upper-columbia-river-webinars-tickets-105584696670)

The draft Human Health Risk Assessment is available on EPA's website:

[www.epa.gov/columbiariver/upper-columbia-river-remedial-investigation-feasibility-study](http://www.epa.gov/columbiariver/upper-columbia-river-remedial-investigation-feasibility-study)

The first webinar was attended by 60 people. Based on my experience, the slides were easy to understand and the information was well presented, so I encourage people to attend the next webinar if able. Questions asked during the session were about the safety of eating fish now and in the future, fish advisories, plans for Bossburg beach remediation,

risk pathways and comparisons between different populations, non-lead risks, and whether risk assessment will include probability and impact scoring so the public can see how mitigation plans are rationalized? Responses to these questions are pending and will be published in the next newsletter.

**Comments must be received by July 24<sup>th</sup>.** If you have questions about the assessment and cannot attend a webinar please contact [Robert Tan](#) at: (206) 553-2580. Also, feel free to email me if needed; best address is [smithm69@msu.edu](mailto:smithm69@msu.edu).

Mindy Smith, CCC secretary

### **SATES Phase III testing underway**

The Soil Amendment Technology Evaluation Study (SATES) is moving to Phase III field implementation using 4 test plots identified in Phase I that are high in soil lead, and testing 3 amendments compared to a control test plot. As a review, the primary objectives of SATES are twofold (see January newsletter):

- To identify soil amendments (compounds added to soil) that could reduce human exposure to lead in shallow UCR soils by one or more of the following: reduce lead bioaccessibility by chemical sequestration, reduce lead mobility and leachability in soil by increasing soil pH, increase vegetative cover to reduce direct exposure potential and erosion, increase thickness of the humus barrier over the lead-bearing soil, and improve soil structure to reduce erosion and transport of affected soils.
- To minimize damage to the environment.

Also considered are negative impacts to ecology and land use, effects on collocated arsenic and other metals, scalability to large land tracts, and feasibility of application. The preferred amendment would be surface applied and integrate into the soil naturally

over time. Throughout the process of testing and reporting results of phases I and II, the SATES team has been transparent and inclusive of multiple perspectives of all stakeholders.

The SATES team evaluated two methods for measuring the % IVBA lead (in-vitro bioaccessible extracted lead/total lead) and selected the test-plot specific method. To choose the optimal amendments to move into field trial, the team sought opinions from EPA, the participating parties involved in the Risk Assessment/Feasibility Study and others, including CCC, to assess preferences on desired outcomes based on Phase II test lab bench test results using a decision tool grid shown below.

### **Acceptability and Prioritization Scoring**

<b>Desired Outcomes</b>	<b>Rank</b>	<b>Weight</b>	<b>Sub Total</b>
Acceptability	<i>Acceptability scoring</i> x	<i>Prioritization scoring</i>	=
Decreases lead bioavailability	<i>Bench study results</i> x	<i>Prioritization scoring</i>	=
Enhances soil structure	<i>Bench study results</i> x	<i>Prioritization scoring</i>	=
Feasibility	<i>Cost x feasibility score</i> x	<i>Prioritization scoring</i>	=
Improves soil fertility	<i>Bench study results</i> x	<i>Prioritization scoring</i>	=
No toxic effects	<i>Bench study results</i> x	<i>Prioritization scoring</i>	=

The final results lead to a recommendation for use of soluble phosphate, compost, and either soluble phosphate plus compost or poultry manure compost. However, poultry manure was not tested during Phase II and no locally available source was identified. In addition, soluble phosphate plus compost did not reduce % IVBA lead more than soluble phosphate alone.

Given the above considerations, a final meeting was held on June 4, 2020, including representatives from

Teck American Incorporated, EPA, the Colville Confederated Tribes, Joe Wichmann (technical advisor to CCC), Ohio State University (conducting the study), and Ramboll (analyzing results). At the end of the discussion, the final amendments selected were **soluble phosphate liquid, compost, and soluble phosphate and biochar**. The phosphate amendments will be applied using a high application rate, 2250 lbs/acre, which is not expected to burn any vegetation. Only the high rate has been shown to significantly decrease lead bioavailability.

One of the concerns is that the proposed soil treatments may increase arsenic bioaccessibility and mobilization in soil. To address this, Marc Stifelman (EPA) will convene a small group to examine the available %IVBA arsenic data to see what increase in the bioaccessibility of arsenic can be tolerated. As the field-scale testing will provide an opportunity to obtain data on arsenic as well as lead, there were no objections to proceeding with the field study phase.

Mindy Smith, CCC secretary

## **Discussions About Water and the River**

There are two recent documents that I wanted to bring to the attention of CCC members and friends. The first is a discussion paper updated by the Upper Columbia Basin Environmental Collaborative (UCBEC), a group founded in 2016 whose mission is “to provide a unified environmental voice for consideration by all parties engaged in the modernization of the 1964 Columbia River Treaty (CRT) and other related processes”. The group represents provincial, regional and local environmental organizations and is supported by select scientific, technical and policy experts.

The 18-page paper presents proposals for further studies and operational changes to dam operations that can lead to improvements in ecosystem function in the Canadian portion of the Upper Columbia Basin, including the Columbia, Kootenay

and Pend d’Oreille Rivers. Ecosystem function refers to “the combination of all processes in an ecosystem and how they work together” - the focus is on ecosystems and habitats, rather than a single-species approach. This includes reproduction, migration, and production of upland, riparian, wetland and aquatic habitats for ungulates, birds, reptiles, amphibians, fish and invertebrates. As the US and Canadian negotiators discuss aspects of a new Columbia River Treaty (CRT), there is a need for additional research and public discussion to support full incorporation of ecosystem function within a modernized CRT. The photo below is from the cover of the report.



The proposed measures summarized in the report are as follows:

- Add ecosystem function as a third primary purpose of the Treaty, equal to the existing purposes of flood-risk management and hydropower generation.
- Ensure equal and effective representation of ecosystem function objectives in all dam operations and related decision-making including Treaty governance.
- Establish an ongoing funding source for ecosystem restoration and mitigation programs, including for adaptive management research

that proactively and continually evaluates management for improvements.

- Ensure there is flexibility in dam operations to improve ecosystem function in the UCB, respond to future climate disruption, and implement adaptive management.

Specific proposals for improving ecosystem function in each reservoir and river reach in the UCB are provided in the Discussion Paper. First Nations participation is mandatory as per truth and reconciliation report. It is hoped that this report will also encourage the US side to prepare a similar plan to address ecosystem function. The full Discussion Paper can be downloaded at <http://www.kootenayresilience.org/columbia-river-treaty> and can be found on our website as well. Interested individuals with further questions or comments can contact Martin Carver (UCBEC Lead) at [aqua@netidea.com](mailto:aqua@netidea.com).

The second paper is an 85-page document prepared by the EPA and entitled “Total Maximum Daily Load (TMDL) for Temperature in the Columbia and Lower Snake Rivers.” This TMDL was triggered by a district court ruling on October 17, 2018 that found that Washington and Oregon had made a “constructive” submission to EPA of no TMDL to address the temperature impairments, triggering a mandatory duty for EPA to approve or disapprove, and if disapproving, to issue the TMDL. Within this report, EPA evaluates the temperature impacts from the following sources: (1) point source discharges of heat subject to National Pollutant Discharge Elimination System permits; (2) nonpoint source heat loading from dams and reservoirs; (3) tributaries to the mainstems of the Columbia and lower Snake Rivers; (4) increasing air temperatures and other factors associated with climate change; and (5) elevated water temperatures in the

mainstems of the Columbia and lower Snake Rivers where they enter into Washington from Canada and Idaho, respectively.

A figure from this report, shown below, highlights the Washington and Oregon waterbodies in the Columbia and lower Snake Rivers identified as impaired for temperature pursuant to the Clean Water Act 303.



The report estimates the contribution of these sources on elevated water temperatures and provides a model of temperature impacts of dams by altering (in the RBM10 model) the river geometry within the TMDL study area to reflect the free-flowing river conditions that could occur in the absence of the existing dams. They also assessed the sufficiency of cold-water refuges in the lower Columbia River, from the mouth to its confluence with the Snake River with respect to mitigating elevated water temperatures.

EPA’s analysis of the cumulative nonpoint source heat loading from dam impoundments shows that the dam impoundments have a greater temperature impact than point sources and tributaries. However, based on their model, when point and nonpoint

sources are removed from the model simulation, Washington's 20°C daily maximum water quality criteria at the Bonneville Dam tailrace will sometimes be met and sometimes not be met.

TMDLs are generally designed to identify a path for attainment of water quality standards in an impaired waterbody, and I do not believe that this TMDL meets that goal. In addition, implementation of the TMDL depends on development of implementation plans by the states of Washington and Oregon, which may be poorly equipped to do so without additional financial and technical support. While this report provides recommendations for states to consider such as continued development, revision, and implementation of tributary TMDLs; funding mechanisms to address traditional nonpoint sources of heat; voluntary conservation programs; a collaborative monitoring and tracking program; and other activities designed to reduce water temperature, I do not think that this TMDL provides sufficient data to understand the likely impacts from these measures or an understanding of what it will take to achieve success in protecting salmon and other fish from elevated water temperatures. The report notes that The Columbia River System Operations agencies (US Army Corps of Engineers, Bureau of Reclamation, and Bonneville Power Administration) are currently finalizing the 2020 Final operations Environmental Impact Statement which may or may not identify water temperature improvement projects for the Columbia River. The Northwest Power Act requires the Northwest Power and Conservation Council to implement the Columbia River Basin Fish and Wildlife Program to mitigate the impact of the federal hydropower system. The Fish and Wildlife Program includes fish passage and tributary improvements, both key areas in reducing water temperature. The EPA will provide outreach to point source dischargers and the Grant

County, Chelan County, and Douglas county public utility district and is prepared to engage with all stakeholders.

I urge those of you with an interest in salmon re-introduction and ecosystem function for these rivers to read the report and provide comments to the EPA. This document was released on May 18<sup>th</sup> and is available for public comment until July 21, 2020. The document can be downloaded from the following URL (I can provide a copy for anyone who needs one): <https://www.epa.gov/columbiariver>. Comments should be provided to [ColumbiaRiverTMDL@epa.gov](mailto:ColumbiaRiverTMDL@epa.gov) by 5:00 pm Pacific time on July 21, 2020.

Mindy Smith, CCC secretary

### **Soil Removal Action in Northport Planned**

Information about the history of the smelter in Northport and the 2004 property evaluation and clean-up by the EPA is provided in our January 2020 newsletter. In October 2019, the Region 10 Removal Program conducted a removal site evaluation of properties within Northport city limits that were sampled in 2003/2004 and contained lead in soil at concentrations near or above the current action level of 700 mg/kg, but at which no soil removal action was taken. Monica Tonel from the EPA has secured funding for this round of removal actions that will enable clean-up of 16 properties. CCC would like to publicly thank her for her tireless efforts on behalf of our community.

Mindy Smith, CCC secretary on behalf of the CCC board and technical advisor

### **Technical Advisor Report**

My efforts over the past six months focused on the site-wide human health risk assessment (HHRA), the toxicity identification evaluation (TIE) pilot study and the soil amendment technology evaluation study (SATES).

Public meetings for the presentation of the HHRA were cancelled by EPA due to the COVID-19 pandemic. EPA scheduled two webinars for public presentation of the HHRA instead of in-person meetings. Webinars were scheduled for June 10 and July 15, both at 5:30 pm. I reviewed the draft webinar slide presentation in May. My suggestions included aligning fish consumption risk slides with the Washington State Department of Health (DOH) fish advisories, defining all risk terms, and using consistent color coding on maps presenting sampled areas with risks of exceeding blood lead levels of 3, 5 and 8 micrograms per deciliter (ug/dL). I also assisted with distribution of paper copies of the slides to community members who have no internet access and could not join the webinar.

The June 10 webinar was attended by 60 community members and 11 representatives of EPA and Teck American, Inc. (TAI). The webinar presentation had eight fewer slides and was much less technical than the draft presentation. The webinar presentation included only one map showing lead level results for soil testing. The single map presented results for the upland soil study. Due to privacy concerns, no maps were presented showing lead levels for the residential soil studies. Many fewer questions were asked during the webinar than at typical in-person community meetings. Follow-up questions and discussions were extremely limited.

EPA proposes including several more pauses during the July 15 webinar to encourage questions and follow-up discussion. At the time of the residential soil studies, the human health risk from soil lead

contamination was evaluated using a screening level of 400 milligrams of lead per kilogram of soil. The HHRA evaluates risk from soil lead contamination as blood lead levels of 3, 5 and 8 ug/dL resulting from accidental soil ingestion. Due to this significant change in risk assessment, CCC requested that EPA send all property owners who participated in soil and beach sampling revised risk assessment evaluation letters using blood lead levels.

I reviewed the TIE resin pilot study progress report in May. My main concern was the continued inability of the laboratory to perform ion exchange resin experiments with acceptable test organism survival rates. I suggested that if the mechanism of action of the resin in the study sediment is not understood, then study data cannot be properly evaluated.

In spite of the closure of Ohio State University (OSU) and EPA Region 10 offices due to the COVID-19 pandemic, significant progress was made on the SATES program. The four-month results from the six-month bench scale study were issued and evaluated to determine which amendments to apply to the field test plots this fall. The discussion and choice of amendments was made on a series of conference calls in April and June that I attended. It was decided that liquid soluble phosphate, compost, and a combination of liquid soluble phosphate and biochar will be the three soil amendments for field testing.

Joe Wichmann, PhD; CCC Technical Advisor

### **Want to be More Involved?**

CCC welcomes new members. Our next General Member Meeting will be in the fall. Please join us. We will post updated information on Facebook (<https://www.facebook.com/groups/315230442457913/>).

With questions for the EPA project managers, contact Robert Tan for information on human health studies at [Tan.Robert@epa.gov](mailto:Tan.Robert@epa.gov) and Kathryn Cerise for information on ecological studies at [Cerise.Kathryn@epa.gov](mailto:Cerise.Kathryn@epa.gov). Kira Lynch is responsible for the Soil Amendment Technology Evaluation Study (SATES) and can be reached at [Kira.Lynch@epa.gov](mailto:Kira.Lynch@epa.gov). Concerns may also be directed to the EPA assistant Region 10 Deputy Regional Administrator Michelle Pirzadeh ([Pirzadeh.Michelle@epa.gov](mailto:Pirzadeh.Michelle@epa.gov)).

Mindy Smith, CCC secretary