28th August, 2020

Tim Davis| Administrator, Water Quality Division, Montana Department of Environmental Quality |LKMRC Co-Chair
Sean Moore| Director, Watershed Science and Adaptation, Environmental Sustainability and Strategic Policy Direction, BC Ministry of Environment| LKMRC Co-Chair
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Dear LK MRC Co-Chairs and Members,

Please accept this recommendation on behalf of the Confederated Salish and Kootenai Tribes (CSKT) and the Kootenai Tribe of Idaho (KTOI), constituent governments of the transboundary Ktunaxa Nation. You will find herein our scientific justification and rationale, regarding the request to provide written recommendation on the inputs to the model developed by US Geological Survey (USGS), in support of a site-specific selenium criteria for Koocanusa Reservoir.[1]

The Transboundary Kootenai watershed sits entirely within the transboundary Ktunaxa Nation Territory and provides critical habitat for rare and threatened fish species including bull trout, burbot, westslope cutthroat trout, and endangered Kootenai River white sturgeon. Unabated selenium inputs from the Elk Valley mines into Koocanusa Reservoir demonstrate a clear, increasing trend dating back to 1984.[2] Selenium leaching from the Teck Ltd. mines in the Elk Valley of British Columbia is resulting in degradation of water quality and presenting unacceptable impairment and risks to Ktunaxa Territory resources. As noted in our previous

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[1] Presser, T.S., Naftz, D.L. Naftz, 2020, Understanding and documenting the scientific basis of selenium ecological protection in support of site-specific guidelines development for Lake Koocanusa, Montana, U.S.A. and British Columbia, Canada: U.S. Geological Survey Open-File Report 2020-1098, 40 p., https://doi.org/10.3133/ofr20201098.

[2] Unpublished data from 2019 collected by the U.S. Environmental Protection Agency, U.S. Geological Survey and Kootenai Tribe of Idaho for the Kootenai River and tributaries. 2019.

letters, we are specifically concerned about impacts on the water quality, fish and fish habitat, species at risk, impacts to other species and resources that depend on those waters and fish, and traditional cultural values, including human health impacts from consumption of contaminated fish, in the entire transboundary Kootenai watershed.

Based on historical and recent data for water quality and fish tissue, it is imperative that Montana work now to adopt a site-specific selenium criteria for the health and protection of all fish species in Koocanusa Reservoir and downstream in the Kootenai watershed. We recognize that existing data documents increasing selenium in several species of fish in Koocanusa Reservoir, including three species that exceed the 2016 EPA recommended criteria for selenium in fish tissue. Further, Koocanusa Reservoir is currently unprotected, given that Montana did not adopt the national recommended selenium criteria, as revised and released by EPA in 2016.[3] The best available science, including the 2020 USGS model and report, demonstrates that there are historical, on-going, and projected future inputs of selenium into Koocanusa Reservoir, and it is the responsibility of the State of Montana to adopt a selenium criteria that is sufficiently protective to ensure the immediate and long-term protection and restoration of Koocanusa Reservoir, and downstream uses in the Kootenai River, from the ecological impacts of selenium contamination. Given the current impacts and risk to Ktunaxa territory resources, the KTOI and CSKT are in full support of the commitment by the State of Montana to adopt a site-specific selenium criterion by December, 2020, including initiation of the formal rule-making process in September, 2020.

In addition, we support the scientifically defensible and peer-reviewed report and model developed by USGS in support of criteria development, including the approach of the USGS to base the model on a conservative and protective approach. The authors of the model are among the top selenium experts in North America, with decades of experience in the field of selenium toxicology, and the model they have developed is peer-reviewed and capable of generating a defensible, protective criterion for the reservoir, based on the factors that influence selenium in the reservoir.

Given that Koocanusa Reservoir is already degraded due to input of contaminants from mining in the Elk Valley of British Columbia, we support a criterion that manages the reservoir to improve and restore from the already degraded condition. Current levels of selenium contamination caused by Elk River coal mining above and below Libby Dam is with high probability already causing, and threatens to continue, negative physiological effects to organisms dependent on aquatic resources, including birds, and possibly humans. A conservative site-specific criterion is needed to support management that improves and restores the water quality and aquatic life in the reservoir.

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[3] U.S. Environmental Protection Agency [USEPA], 2016a, Aquatic life ambient water quality criterion for selenium—Freshwater: Washington, D.C., U.S. Environmental Protection Agency, EPA 822–R–16–006), 807 p., accessed May 2020 at https://www.epa.gov/ sites/ production/ files/ 2016- 07/ documents/ aquatic_ life_ awqc_ for_ selenium_ - _ freshwater_ 2016.pdf.

There is evidence of significant bioaccumulation of selenium already occurring across the Kootenai ecosystem, including the Idaho and BC portions of the Kootenai.[4] This bioaccumulation has been occurring and will continue even at current water column selenium concentrations that are below the current criteria/exceedance limits. Literature provides evidence that body burden concentrations found in Kootenai River white sturgeon, burbot, mountain whitefish, and freshwater mussels are likely already having significant physiological effects. This is a critical concern to the Ktunaxa Nation governments, given the cultural significance of these species, as well as the tremendous effort and resources dedicated to ecosystem restoration.

The selection of a conservative and protective site-specific selenium criterion is necessary to, at minimum; prevent further increases in selenium into the Kootenai ecosystem. Current data is showing increasing concentrations of selenium in larger portions of the reservoir, which in turn will increase selenium concentrations below Libby Dam.[5] This trend will continue until effective mine impact mitigation is implemented at an appropriate scale.

The overall selenium loading into the reservoir from the Elk River needs to be stabilized and reduced in order to prevent near-future partitioning and release of selenium into the reservoir and also the downstream Kootenai River.

After reviewing the model outputs for the differing variables, CSKT and KTOI highlight that, at minimum, the recommended water column selenium criteria needs to be below 1.0 µg/L. Therefore, based on the specific framework of the USGS model W6, Model run #2, the CSKT and KTOI are specifically recommending a water column selenium concentration criterion of 0.61 µg/L selenium.

Based on the attached background, modeling recommendations and rationale, the KTOI and CSKT recommends using a 5.6 mg/kg dw whole-body threshold. The 5.6 mg/kg dw whole-body threshold accounts for the potentially sensitive fish species of mountain whitefish and burbot and incorporates the Ktunuxa Nation Council's preferred fish consumption rates.

In summary, we are recommending a conservative site-specific criterion for selenium in Koocanusa Reservoir, based on the following uncertainties;

1. Koocanusa Reservoir currently demonstrates system degradation and impairment. This is demonstrated by the following:
    a. Fish tissue concentrations (muscle, whole body, and/or egg ovaries) at times exceed USEPA and B.C. recommend thresholds.

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[4] https://governmentofbc.maps.arcgis.com/apps/webappviewer/index.html?id=0ecd608e27ec45cd923bdcfeefba00a7

[5] Presser, TS, and DL Naftz. 2020. Understanding and documenting the scientific basis of selenium ecological protection in support of site-specific guidelines development for Lake Koocanusa, Montana, USA, and British Columbia, Canada: US Geological Survey Open-File Report 2020-1098, 40 p. https://doi.org/10.3133/ofr20201098.

    b. The reservoir has increasing pollutant loads, as demonstrated by B.C. long-term monitoring station on the Elk River at HWY 93.
    c. The reservoir has an increasing mass of selenium over an increasing reservoir area (Presser and Naftz, Figure 17).
    d. The reservoir has declining burbot populations.
    e. Fish populations demonstrate gonadal disfunction and dysfunctional selenium dietary bioaccumulation.
2. Water quality monitoring data indicate the Koocanusa Reservoir is a dynamic system and it is possible that current monitoring efforts have not defined nor captured critical time periods or critical portions of the reservoir.
3. A delay or lag in uptake of selenium into the food web, from the water column, is highly likely and at a magnitude that presents a significant risk. The outcome is increasing and perpetuated bioaccumulation of selenium in benthos and fish above elevated levels.
4. To return to a restored condition, MT DEQ must avoid normalizing current degraded conditions and strive for a condition that is improved from current conditions.
5. On-going revisions to the modeling in the Elk and Fording River, including the Implementation Plan Adjustment to the Elk Valley Water Quality Plan, that increases the observed and modeled future contaminant delivery into Koocanusa Reservoir from the Elk Valley Mines.[6]

In conclusion, the KTOI and CSKT support a conservative approach to the adoption of a site-specific selenium criteria that is protective of all species of fish and wildlife at all times of the year, throughout the reservoir, and protective of the downstream ecosystem.

Thank you very much for your consideration,

Sincerely,

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[6] 2019 Implementation Plan Adjustment Annex B - Regional Water Quality Model Modifications https://www.teck.com/media/Annex-B-Regional-Water-Quality-Model-Modifications.pdf

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August 28, 2020

Dear SeSTC Committee Members and Co-Chairs,

Selenium Technical Sub-Committee members were requested to submit written recommendations to the SeTSC Co-Chairs for the site-specific selenium criteria. Below you will find our recommendations, serving as a representatives of the Kootenai Tribe of Idaho (KTOI) and the Confederated Salish and Kootenai Tribes (CSKT). Please see below for background, recommendations and rationale for the site-specific criteria.

We based on our recommendation on a site-specific criterion that protects burbot (*Lota lota*), the fish species that are most sensitive to selenium bioaccumulation in Koocanusa Reservoir. Burbot have been functionally extirpated from the reservoir and are culturally important to the Ktunaxa Nation community. Burbot populations declined over two decades ago when the ambient reservoir Se concentrations were below what is currently seen today. In published literature, burbot have been shown to be particularly sensitive and susceptible to the bioaccumulation of selenium.[1] Muscatello and Janz observed significant bioaccumulation in burbot (10 ug/g dw WB) at low aqueous (<0.5 µg/L) and benthic invertebrate (0.5-3 µg/g) selenium concentrations.[2] This is reinforced with the general knowledge that the burbot population decline[3] and eventual functional-extirpation in Koocanusa Reservoir coincides with the Elk River Coal Mines operational history and subsequent water pollution caused by those coal mines; and severely complicates the restoration of burbot above Libby Dam.[4]

The burbot population declined when the ambient reservoir Se concentrations were below the aqueous concentrations that are currently seen today. Limited KTOI data is also showing that burbot in the mainstem Kootenai River are accumulating selenium at rates that are known to cause significant negative physiological effects on other fish species. Those effects include reproductive failure, reduced growth, and mortality (KTOI, unpublished data).
Further, mining contaminant inputs into Koocanusa Reservoir present a critical uncertainty in the Kootenai River Ecosystem Restoration program[5], and will continue to act in synergy with

[1] Muscatello, JR, and DM Janz. 2009. Selenium accumulation in aquatic biota downstream of a uranium mining and milling operation. Sci Tot Environ 407:1318-1325.

[2] Muscatello, JR, and DM Janz. 2009. Selenium accumulation in aquatic biota downstream of a uranium mining and milling operation. Sci Tot Environ 407:1318-1325.

[3] Dunnigan, J., J. DeShazer, T. Ostrowski, M. Benner, J. Lampton, L. Garrow, and M. Boyer. 2018. Mitigation for the Construction and Operation of Libby Dam, 1/1/2017 – 12/31/2017 Annual Report, 1995-004-00. 252 pp.

[4] Cope, A. 2018. Upper Kootenay River Burbot Conservation Strategy, Draft Report. 59 pp.

[5] www.http://restoringthekootenai.org

the habitat alterations perpetuating white sturgeon and burbot recruitment failure below Libby Dam.

In addition to burbot, it is critically important that the criterion is based on considerations for protection and restoration of the Kootenai River white sturgeon (*Acipenser transmontanus*) downstream of Libby Dam given their sensitivity to reproductive impacts from selenium toxicity. We note that white sturgeon are the most toxicologically sensitive fish as ranked by the US EPA in its national guidance.[6]

With respect to birds and wildlife, the Kootenai River Basin was once one of the more ecologically productive inter-montaine ecosystems, supporting resident and migratory bird populations; however, Koocanusa Reservoir currently does not support robust shorebird populations. Shorebirds are particularly vulnerable to selenium toxicity, as they are highly sensitive to selenium exposures.[7] Skorupa et al found reproductive failure in aquatic birds with 3.0 µg/g selenium concentrations in their eggs.[8] Birds have been shown to be particularly sensitive to selenium exposures due to their feeding habits that are linked to the aquatic environment.[9] Stanley et al found that a 7 mg Se/kg dietary exposure in mallard ducks caused a >30% embryo mortality.[10]

Hamilton reviewed approximately 40 different studies investigating selenium toxicity for fish, aquatic birds, phytoplankton, and zooplankton.[11] Several tables within this paper provided a comprehensive compilation of species tested, tissues sampled, selenium concentrations tested for effects, corresponding physiological effects, and study citations. The physiological effects concluded by the individual studies listed throughout the review tables are "Mortality", "Reduced Growth", "Reproductive Failure", "Reduced Weight", and "Reduced Cell Replication".

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[6] U.S. Environmental Protection Agency [USEPA], 2016a, Aquatic life ambient water quality criterion for selenium—Freshwater: Washington, D.C., U.S. Environmental Protection Agency, EPA 822–R–16–006), 807 p., accessed May 2020 at https://www.epa.gov/ sites/ production/ files/ 2016- 07/ documents/ aquatic_ life_ awqc_ for_ selenium_ - _ freshwater_ 2016.pdf.

[7] Stewart, R., M. Grosell, D. Buchwalter, N. Fisher, S. Luoma, T. Mathews, P. Orr, and W. Wang. 2010. Bioaccumulation and trophic transfer of selenium. In Ecological assessment of selenium in the aquatic environment; proceedings. SETAC Workshop on Ecological Assessment of Selenium in the Aquatic Environment (2009: Pensacola, FL) Ed. by Pellston M. Chapman et al. CRC Press. 339 pages.

[8] Skorupa, JP, HM Ohlendorf, and RL Hothem. In press. Interpretive guidelines for selenium-exposed waterbirds. J. Wildlife Management.

[9] Stewart, R., M. Grosell, D. Buchwalter, N. Fisher, S. Luoma, T. Mathews, P. Orr, and W. Wang. 2010. Bioaccumulation and trophic transfer of selenium. In Ecological assessment of selenium in the aquatic environment; proceedings. SETAC Workshop on Ecological Assessment of Selenium in the Aquatic Environment (2009: Pensacola, FL) Ed. by Pellston M. Chapman et al. CRC Press. 339 pages.

[10] Stanley, TR Jr, GJ Smith, DJ Hoffman, H Heinz, and R Rosscoe. 1996. Effects of boron and selenium on mallard reproduction and duckling growth and survival. Environ Toxicol Chem 15:1124-1132

[11] Hamilton, SJ. 2003. Review of residue-based selenium toxicity thresholds for freshwater fish. Ecotoxicology and Environmental Safety 56:201-210.

For several fish and aquatic bird studies listed, the selenium toxicity levels causing mortality, reduced growth, reproductive failure, and/or reduced weight were whole body tissue and/or egg concentrations as low as 1-4 ppm.

Thorley cites data collected from water and fish tissue (whole body and egg/ovary) Se concentrations for Koocanusa Reservoir.[12] Water concentrations ranged 0.5 -1.5 µg/L, and corresponding fish tissues from several fish species ranged from 1.0 – 6.0 ppm for whole body, and ~2.0 to 80.0 for egg/ovary. Even if the 80.0 µg/g observation is an outlier, results from peamouth chub (*Mylocheilus caurinus*), redside shiner (*Richardsonius balteatus*), and Northern pikeminnow (*Ptychocheilus oregonensis*) were predominantly 10.0 – 40.0 µg/g for egg/ovary samples. These are tissue concentrations at water concentrations of 0.5-1.5 µg/L.

Thorley also presents data collected from zooplankton and benthic macroinvertebrate Se concentrations for sample sites located within Koocanusa Reservoir.[13] Zooplankton selenium concentrations ranged between <1 to 5 µg/g, with some samples upwards of 14 µg/g Se. Benthic macroinvertebrate tissue concentrations ranged between <1 to 12.5 µg/g Se, with the mean Se concentration near 5 µg/g Se.

The EPA whole-body threshold of 8.5 mg/kg dw is based upon the known sensitivity of white sturgeon. This is scientifically defensible and appropriate on the national level. However, the 8.5 mg/kg dw whole-body criterion does not account for other potentially sensitive and susceptible fish species or protection of the most sensitive designated use, which includes tribal harvest treaty rights. Whitefish (*Prosopium williamsoni*) and burbot are culturally important fish species that are consumed by Ktunaxa citizens from all three Ktunaxa Nation governments. A minimum whole-body threshold of 5.6 mg/kg dw should be considered. Using the BC MOE egg/ovary guideline of 22 mg/kg dw, and factoring in the safety/assessment factor of 2, and using the EC10 egg/ovary to whole-body conversion for rainbow trout of 1.9, this leads to a more conservative 5.6 mg/kg dw whole-body recommendation. The KTOI and CSKT recommend using a 5.6 mg/kg dw whole-body threshold. The 5.6 mg/kg dw whole-body threshold accounts for the potentially sensitive fish species of mountain whitefish and burbot and incorporates the Ktunuxa Nation Council's preferred fish consumption rates. The KTOI and CSKT recommend a conservative site-specific criterion for Koocanusa Reservoir until additional science and data collection demonstrate otherwise.

Current reservoir selenium outflows are approximately 1.0 µg/L (range between 0.8 and 1.2 µg/L, depending upon dam operations, time of year, and hydrologic conditions within the basin). Kootenai River white sturgeon egg selenium concentrations in the mainstem river

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[12] Thorley, JL. 2020. Koocanusa Reservoir Water and Fish Tissue Selenium Concentrations 2019. A Poisson Consulting Analysis Appendix. https://www.poissonconsulting.ca/f/1298248550.

[13] Thorley, JL. 2020. Koocanusa Reservoir Water and Fish Tissue Selenium Concentrations 2019. A Poisson Consulting Analysis Appendix. https://www.poissonconsulting.ca/f/1298248550.

below Libby Dam range between 3.0 and 6.0 mg/kg dw. Of the five whole-body burbot tissue samples collected by the KTOI, one was above the 8.5 mg/kg dw EPA threshold, and mountain whitefish egg concentrations exceed EPA's 15.1 mg/kg dw threshold, with some of these values almost double the EPA recommended criteria (KTOI 2020; unpublished data). These measurements indicate that, like Koocanusa Reservoir, the Kootenai River requires the development of a site-specific water column selenium criterion. KTOI and CSKT understand that this will likely require a multi-year effort to collect adequate data and develop a site-specific criterion for the Kootenai River, and we encourage DEQ to begin this effort immediately in collaboration with both Tribes. For now, KTOI and CSKT support MT DEQ setting an interim criterion for the Kootenai River that is equal to EPA's national recommended value for water column, fish tissue, and egg/ovaries. In summary, we support the adoption of a conservative site-specific criterion for Koocanusa Reservoir now, to reduce uncertainty and risk in the Kootenai River downstream, and the subsequent initiation of a rigorous, scientific process to develop a site-specific criterion for the Kootenai River.

After evaluating multiple scenarios using a reasonable range of variable values within the USGS models provided to the SeTSC, the KTOI and CSKT recommends using the 'W6. TFM with TL3 100% Aquatic Insects' model. This model is conservative and protective of the most selenium-susceptible trophic levels; and is also considered the most protective, as it incorporates whitefish and burbot.

We recognize the variability of TTF's, conversion factors, and K_d values. Given the uncertainty and wide fluctuations in K_d throughout the reservoir (values ranging between 400 and 7000), a conservative K_d should be used. In order to be protective of the reservoir ecosystem across time and location, the 90th percentile K_d should be used to capture the worst-case scenario. The use of the median K_d value is also supported in literature. The use of the 1.1 TTF is supported by literature and is scientifically defensible. To manage the uncertainty in the water concentration guideline, Jenni, Naftz, and Presser (2017) suggested triangular distributions with a TTF for invertebrates (aquatic insects and zooplankton combined) between 1 and 3.5 with a mode of 1.3, a TTF for fish between 0.6 and 1.6 with a mode of 1.1 and a Kd between 800 and 6,500 with a mode of 3,000.

<u>Model Input Recommendations</u>

With respect to the specific model inputs, we provide the following recommendations and rationale; Given the varying K_d values within the reservoir, and the two recommended TTF values for aquatic insects, we ran six variations of the W6 model that incorporate the different K_d and TTF values. Listed below are the outputs from the six model runs.

1. Model W6 (TFM with TL3 100% Aquatic Insects) with the 5.6 mg/kg dw whole-body threshold, a TTF of 1.1 for fish, a TTF of 2.8 for aquatic invertebrates, and a maximum K_d, water concentrations of 0.22 µg/L (given the model correction of 100% Se bioavailability) to 0.37 µg/L Se are produced as the criteria (given the model correction of 60% Se bioavailability).

2. Model W6 (TFM with TL3 100% Aquatic Insects) with the 5.6 mg/kg dw whole-body threshold, a TTF of 1.1 for fish, a TTF of 2.8 for aquatic invertebrates, and a median K_d of 4500, water concentrations of 0.37 µg/L (given the model correction of 100% Se bioavailability) to 0.61 µg/L Se are produced as the criteria (given the model correction of 60% Se bioavailability).

3. Model W6 (TFM with TL3 100% Aquatic Insects) with the 5.6 mg/kg dw whole-body threshold, a TTF of 1.1 for fish, a TTF of 2.8 for aquatic invertebrates, and a K_d of 3100, water concentrations of 0.53 µg/L (given the model correction of 100% Se bioavailability) to 0.89 µg/L Se are produced as the criteria (given the model correction of 60% Se bioavailability).

4. Model W6 (TFM with TL3 100% Aquatic Insects) with the 5.6 mg/kg dw whole-body threshold, a TTF of 1.1 for fish, a TTF of 2.1 for aquatic invertebrates, and a maximum K_d, water concentrations of 0.29 µg/L (given the model correction of 100% Se bioavailability) to 0.49 µg/L Se are produced as the criteria (given the model correction of 60% Se bioavailability).

5. Model W6 (TFM with TL3 100% Aquatic Insects) with the 5.6 mg/kg dw whole-body threshold, a TTF of 1.1 for fish, a TTF of 2.1 for aquatic invertebrates, and a median K_d of 4500, water concentrations of 0.49 µg/L (given the model correction of 100% Se bioavailability) to 0.82 µg/L Se are produced as the criteria (given the model correction of 60% Se bioavailability).

6. Model W6 (TFM with TL3 100% Aquatic Insects) with the 5.6 mg/kg dw whole-body threshold, a TTF of 1.1 for fish, a TTF of 2.1 for aquatic invertebrates, and a K_d of 3100, water concentrations of 0.71 µg/L (given the model correction of 100% Se bioavailability) to 1.18 µg/L Se are produced as the criteria (given the model correction of 60% Se bioavailability).

After reviewing the model outputs for the differing variables, CSKT and KTOI highlight that, at minimum, the recommended water column selenium criteria needs to be below 1.0 µg/L.

Based on the specific framework of the USGS model W6, Model run #2 as described above, the CSKT and KTOI is specifically recommending a water column selenium concentration criterion of 0.61 µg/L selenium.

Current whole-body fish tissue samples from Northern pikeminnow, peamouth chub, redside shiner, and largescale sucker in Koocanusa Reservoir exceed, and in many individuals sampled, greatly exceed, the EPA whole-body criteria in the current aqueous conditions in the reservoir.[14] This clearly indicates to KTOI and CSKT that to be protective of all fish species in the reservoir, the site-specific criterion should be lower than the current selenium concentrations

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[14] Thorley, JL. 2020. Koocanusa Reservoir Water and Fish Tissue Selenium Concentrations 2019. A Poisson Consulting Analysis Appendix. https://www.poissonconsulting.ca/f/1298248550.

sampled in the reservoir. Also, as noted in Presser and Naftz, 2020, it is important to determine where Koocanusa Reservoir is in an impairment-restoration cycle so as not to base protection on survivor bias, the maintenance of a currently degraded ecosystem, or normalized toxicity. In a broader context, one of the overall consequences of revised selenium regulations is that their derivation is now dependent on being able to define and understand the status of the ecosystem on which protection is based. And, as described in Presser and Naftz, 2020, the Koocanusa Reservoir system demonstrates traits of a currently degraded system (see Table 1 in the report and subsequent discussions). This further illustrates to CSKT and KTOI that a protective site-specific water column selenium criterion should be lower than existing conditions in the reservoir.

Given that there may be a lag in the biological uptake and detection of selenium across the food web in the reservoir, it is important to adopt a more conservative criterion at this time, to ensure protection under unknown future selenium levels and the increasing contaminant trends. Any selenium concentrations above the background concentrations represent an increase from baseline conditions for the Kootenai Basin and are likely already having, and will perpetuate negative impacts upon the ecosystem. According to Chapman et al[15] in the Selenium Risk Characterization chapter 7, Lentic systems were identified to be at an increased risk of Se-caused adverse effects due to the maximized mobility of selenium into the food web, thereby increasing the chance for elevated exposures.

Continuing downriver into the altered lower-river ecosystem driven by Libby Dam operations, the food web in the mainstem Kootenai River is quite different than the reservoir; therefore the movement of selenium from Koocanusa Reservoir through Libby Dam and into the lower-river is relatively unknown. Water and tissue sampling in the Kootenai River below Libby Dam suggests the current selenium concentrations and loading into the river are already having negative impacts on the ecosystem.

In conclusion, the KTOI and CSKT support a conservative approach to the adoption of a site-specific selenium criteria that is protective of all species of fish and wildlife at all times of the year, throughout the reservoir, and protective of the downstream ecosystem.

Thank you very much for your consideration,

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[15] Chapman PM, Adams WJ, Brooks ML, Delos CG, Luoma SN, Maher WA, Ohlendorf HM, Presser TS, Shaw DP. 2009. Ecological assessment of selenium in the aquatic environment: Summary of a SETAC Pellston Workshop. Pensacola FL (USA): Society of Environmental Toxicology and Chemistry (SETAC).