



July 2022

Water Policy Interim Report

REPORT TO THE 68TH MONTANA LEGISLATURE

DRAFT

HJ37



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This report is a summary of the work of the Water Policy Interim Committee, as outlined in the Water Policy Interim Committee’s 2021-22 work plan and House Joint Resolution 37 (2021). Members received additional information and public testimony on the subject, and this report is an effort to highlight key information and the processes followed by the Water Policy Interim Committee in reaching its conclusions. To review additional information, including audio minutes, and exhibits, visit the Water Policy Interim Committee website: www.leg.mt.gov/water.

A full report, including links to the documents referenced in this print report, is available at the Water Policy Interim Committee website: www.leg.mt.gov/water.

HJ37: STUDY OF LAKE KOOCANUSA SELENIUM STANDARD

That the Legislative Council be requested to designate the Environmental Quality Council, subject to section 5-5-217, MCA, and to direct sufficient staff resources, pursuant to section 5-11-112, MCA, to establish a collaborative process with the Department of Environmental Quality to:

- (1) analyze the data and processes referenced in and used to support rulemaking to determine if ARM 17.30.632, as it pertains to Lake Kooconusa, complies with the Montana Water Quality Act and the federal Clean Water Act; and
- (2) offer recommendations on what changes, if any, are needed to ARM 17.30.632 or supporting documentation.

DRAFT FINDINGS

1. Selenium is a micronutrient that may be toxic in high doses.
2. Selenium affects fish by interrupting the reproductive cycle.
3. Elevated levels of selenium have been recorded in Lake Kooconusa and the Kootenai River, attributable to coal mining operations further upstream in British Columbia.
4. The Department of Environmental Quality and other agencies have been gathering water quality and fish tissue data in the basin since at least 2015. As the regulatory agency for water quality in Montana, DEQ has contemplated site-specific criteria since that time.
5. Mathematical modeling was used to compute protective criteria for water column and fish tissue limits for selenium in Lake Kooconusa and the Kootenai River. Various federal, tribal, non-Montana entities, and the public provided input into these calculations.
6. The proposed selenium standards rule underwent hearings and comments in late 2020, including a hearing in front of the Water Policy Interim Committee. The rule was approved by the Board of Environmental Review and subsequently the Environmental Protection Agency.
7. Some have questioned if selenium levels have increased, if the selenium modeling was correctly calibrated, and if various fish species were adequately sampling.
8. The Board of Environmental Review reversed the prior board decision when it determined the selenium rule for the water column standard is more stringent than federal standards. The board has ordered a rewriting of the selenium rule, but it is unclear of the order's effect.
9. The DEQ submitted written findings to the Board of Environmental Review, as provided under the stringency review. The rule remains in effect.

INTRODUCTION

The Clean Water Act requires the nation to improve the nation's waters. It allows the states to execute this legislation, ranging from assessing the quality of waters, setting standards for those waters, and issuing permits to pollute those waters. The setting of standards for the Kootenai River and the Lake Kootenai reservoir behind Libby Dam is the subject of this report.

Though a highly localized issue in far northwestern Montana, this study also involved more than the WPIC and the DEQ, including another legislative interim committees, a legislatively created boards, federal agencies, tribes, a state and a province.

LAKE KOOCANUSA AND THE KOOTENAI RIVER

The Kootenai River, known as the Kootenay in Canada, begins in the Beaverfoot Range of the Rocky Mountains west of Banff, Alberta. Its name stems from an indigenous word for "water people."¹ The river runs 485 miles to the Columbia River at Castlegar, British Columbia, draining a watershed of 16,180 square miles. Much of the river course follows the Rocky Mountain Trench, a geologic feature caused by geologic faulting.

The river flows southward into Montana, before bending northwesterly near Libby and coursing through northeastern Idaho and back into Canada. The river's J-shaped course flows around the Purcell Mountains, and is bound by the Continental Divide ranges to the east, the Selkirk Mountains in the west, and the Cabinet Range in the south.² The river bends again to join the Columbia River before entering the state of Washington. Tributaries include the Vermilion, Cross, Palliser, White, Wild Horse, St. Mary, Elk, Fisher, Yaak, Moyie, Goat, and Slocan rivers. Major lakes and reservoirs include the Kootenay Lake and Lake Koocanusa.

The river is subject to the Columbia River Treaty. The Kootenai River has four dams along its course, providing mostly for flood control. The first dam is at Libby.

Lake Koocanusa is a 90-mile long reservoir formed by Libby Dam. The dam's authorized purpose is flood control and hydropower. The dam was constructed under the Columbia River Treaty between the U.S. and Canada.³

The dam and reservoir also provide recreation, water quality, and fish and wildlife benefits. The Kootenai River downstream is home to bull trout (a threatened species under the Endangered Species Act) and white sturgeon (endangered).⁴ Sport fish include rainbow trout, west slope cutthroat trout, brook trout, Kokanee salmon, burbot, whitefish, Kamloops trout, and others.

¹ <https://www.britannica.com/place/Kootenay-River>

² <https://kootenairivernetwork.org>

³ <https://www.nwd.usace.army.mil/CRSO/Project-Locations/Libby/>

⁴ <https://www.nwd.usace.army.mil/CRSO/Project-Locations/Libby/>

SELENIUM AND LAKE K

Scientists and government agencies have kept a watchful eye on water quality in "Lake K" and the Kootenai River since at least 1972.⁵

Increasing levels of selenium and other contaminants (nitrates, cadmium, sulfates) have long emanated from the Elk River Valley, an upstream tributary in British Columbia.⁶ Coal mining in Canada has caused selenium levels to rise, as water running through tailing piles carries selenium and other substances into the watershed.⁷

Coal mining in the Elk River Valley began in 1897 east of Fernie, British Columbia. Today, Teck Resources Ltd. operates four Elk Valley mines, employing approximately 4,000 workers and exporting "steelmaking coal" mostly to the Asia-Pacific region.⁸ As one of the world's largest sources of steelmaking coal, the mines are expected to operate for years into the future. Other deposits in the valley may also be mined.

Selenium is an element present in sedimentary rock, shales, coal, and phosphate deposits and soils.⁹ It is a micronutrient essential for fish and human diets, but can bioaccumulate and is toxic at high levels. In fish, which are more sensitive to selenium than humans, the element acts by interrupting reproduction; selenium halts reproduction, causing deformities at a young age and resulting in fewer fish.¹⁰ For example, a year class of fish could disappear.¹¹

Ninety five percent of the selenium entering Lake Kootenai is from the Elk River.¹² The DEQ listed aquatic life in the lake as "threatened" due to rising selenium levels.¹³

The Clean Water Act allows authorized state agencies to set water quality standards. These standards are subject to approval from the Environmental Protection Agency. In 2016, the EPA recommended that states adopt "site-specific" standards because of how the element bioaccumulates and moves up the food chain depends upon local conditions.¹⁴

In 2020, the department proposed a water quality standard for selenium for the Kootenai River from the U.S.-Canada border to the Montana-Idaho border, including the Lake Kootenai reservoir, citing their observed increasing selenium levels.

⁵ <https://www.usgs.gov/centers/wyoming-montana-water-science-center/science/kootenai-river-basin-dissolved-selenium-data>

⁶ Department of Environmental Quality, *Selenium Site-Specific Criterion Update* (2020)

⁷ U.S. Geological Survey, *Selenium and mercury in the Kootenai River, Montana and Idaho, 2018-2019* (2020)

⁸ Teck Resources Ltd., *2021 Annual Report* (2022)

⁹ Department of Environmental Quality, *Selenium Site-Specific Criterion Update* (2020)

¹⁰ Testimony of Tonya Fish, Region 8 water quality standards contact (EPA) to HJ37 special committee, Feb. 28, 2022.

¹¹ Testimony of Trevor Selch, fisheries pollution control biologist (FWP) to HJ37 special committee, Feb. 28, 2022.

¹² Department of Environmental Quality, *Selenium Site-Specific Criterion Update* (2020)

¹³ I.b.i.d.

¹⁴ I.b.i.d.

The DEQ held a public hearing on the selenium criteria on Nov. 5, 2020. This hearing came after a Oct. 9, 2020, hearing by the WPIC, which has oversight of water quality and quantity issues. The WPIC did not object to the rule at that time. On Dec. 24, 2020, the Board of Environmental Review adopted the rule.¹⁵ The Environmental Protection Agency approved the rule in February, 2021.

DISCUSSION OF THE STANDARD

The rule has been the subject of challenge and discussion ever since its adoption.

In particular, the Montana Legislature to pass House Joint Resolution 37, requesting a study to "analyze the data and processes referenced in and used to support rulemaking."

The Legislative Council assigned the study to the Water Policy Interim Committee, which has jurisdiction over the quality and quantity of water.¹⁶ To meet the spirit of the resolution, which requested the study be assigned to the Environmental Quality Council, the WPIC created the HJ37 Special Committee on Selenium Standards in Lake Kooconusa¹⁷ to "engage in additional, thoughtful, collaborative, and scientifically defensible analysis with state regulators to determine whether the 2020 site-specific standards for Lake Kooconusa are appropriate."¹⁸

The special committee held three public meetings in 2022. The special committee reviewed data assembled by the DEQ and heard the scientific statements from other experts, such as the EPA, U.S. Geological Survey, Confederated Salish and Kootenai Tribes, Kootenai Tribe of Idaho, Idaho Department of Environmental Quality, and the Montana Department of Fish, Wildlife and Parks.¹⁹ These agencies and others comprised the Lake Kooconusa Monitoring and Research Working Group,²⁰ which first met in October, 2015,²¹ to review data and create a methodology for the rule.

The department's rulemaking process has been challenged by local elected officials and Teck Resources. The company's four active mines are the primary source of elevated selenium levels. Specifically, they said, the rule was rushed, selenium levels may not be increasing, and the statistical modeling used to set the selenium limits was incorrect.²²

¹⁵ The board no longer has rulemaking authority per SB 233 (2021).

¹⁶ Section 5-5-231, MCA.

¹⁷ Special committee members were Sen. Walt Sales (presiding officer), Sen. Jill Cohenour, Rep. Willis Curdy, Rep. Steve Gunderson, Sen. Ryan Lynch, Rep. Rhonda Knudsen, Rep. Marilyn Marler, Sen. Mark Sweeney, and Sen. Cary Smith.

¹⁸ HJ37 (2021).

¹⁹ See various appendices

²⁰ Members also included the British Columbia Ministry of the Environment and consultants for Teck Resources Ltd.

²¹ <http://lakekooconusaconservation.pbworks.com>

²² Teck Resources memo to HJ37 special committee, January 27, 2022.

The company cited the department's "misuse of fish tissue data," such as claiming alarming trends in selenium levels, collecting fish tissue data at the wrong time in a fish lifecycle, or not collecting enough data.²³

The department noted that selenium rules are meant to be preventative, i.e. before widespread problems occur. The department found increasing levels of selenium in their fish tissue sampling. The Department of Fish, Wildlife, and Park continues to collect fish tissue samples.

A University of California-Davis research ecologist testified to the special committee that the statistical modeling used to determine the quantitative limits for selenium was not correctly calibrated.²⁴ Thus, the model overpredicted concentrations in the food web, and therefore the standard is too high, according to Samuel Luoma.^{25 26}

The rule was appealed to the Board of Environmental Review, which hears administrative appeals of certain DEQ actions.

Teck Resources and the local officials specifically asked the Board of Environmental Review for a stringency review under state law.²⁷ Montana law allows the board to review a rule to determine if it was set more stringent than federal standards.²⁸ The board agreed the water column standard was more stringent than federal standards.²⁹

The board ruled that the rule was aimed "in a manner adverse to" Teck Resources and would "impact discharge limitations for new projects in Lincoln County."³⁰ The board also ruled that "in order to have a valid and enforceable lake water column standard, new rulemaking must be initiated."³¹

²³ Teck Resources Ltd., memo to HJ37 special committee for Feb. 28, 2022, meeting

²⁴ Testimony of Samuel Luoma, research ecologist (University of California-Davis) to HJ37 special committee, Feb. 28, 2022.

²⁵ I.b.i.d.

²⁶ In a written response, the department stated that Luoma's assertions account only for selenium in zooplankton, a primary food source for fish in the system. A proper model should also be calibrated for piscivorous fish, such as burbot and chub, that eat other fish (DEQ memo to HJ37 special committee, March 9, 2022). The department reviewed 13 modeling scenarios through the monitoring working group (DEQ memo to HJ37 special committee, March 9, 2022), and two independent selenium experts reviewed the modeling (Testimony of John Kilpatrick, director (Wyoming-Montana Water Science Center (USGS)) to HJ37 special committee, Feb. 28, 2022).

²⁷ Notice of schedule for implementation of review by the Board of Environmental Review, *In the Matter of Petitions of Teck Coal Limited and the Board of County Commissioners of Lincoln County, Montana, for Review of ARM 178.30.632(7)(a) Pursuant to Mont. Code Ann. Section 75-5-203—Stringency Review of Rule Pertaining to Selenium Standard for Lake Koocanusa*, June 30, 2021.

²⁸ Section 75-5-203, MCA

²⁹ Final agency action and order of the Board of Environmental Review, *In the Matter of Petitions of Teck Coal Limited and the Board of County Commissioners of Lincoln County, Montana, for Review of ARM 178.30.632(7)(a) Pursuant to Mont. Code Ann. Section 75-5-203—Stringency Review of Rule Pertaining to Selenium Standard for Lake Koocanusa*, April 19, 2022. This ruling does not apply to the fish tissue standards.

³⁰ I.b.i.d.

³¹ I.b.i.d.

It is unclear when and if new rulemaking will occur.³² The DEQ responded to the BER ruling with a written response, as also provided for in the same section of state law.³³ The rule remains in effect.

It is also unclear what effect a Montana administrative rule would have on a Canadian entity like the coal company—or what effect a downstream state (Idaho) rule may have on an upstream one.

Idaho has similar fish tissue standards, but the state's water column standard is 1.5 micrograms/L for selenium, which is greater than the Lake Koochanusa standard of 0.8 micrograms/L.

The British Columbia Ministry of the Environment proposed a water column selenium guideline slightly higher than Montana's and a whole-body fish standard lower than Montana's.³⁴ These guidelines do not have direct legal standing, but must be considered in provincial decisions, such as land use decisions, best management practices, and discharge authorizations.³⁵³⁶

Meanwhile, Teck Resources is expanding its water treatment capacity to meet water quality management measures required by the Elk Valley Water Quality Plan, which was approved by the British Columbia Minister of Environment in 2014. The company has five water treatment plants, and its process reportedly removes 95 percent of the selenium and nitrate in the water.³⁷ The company is also managing water flows to control selenium release at its source, through water diversions and geo-synthetic covers.³⁸

The company states that Montana's water quality standard "may not be achievable with existing technology," and that they are "taking steps to challenge this standard."³⁹

COMMITTEE RECOMMENDATIONS

At the time of the drafting of this report, neither the WPIC nor the special committee have offered recommendations on this issue.

A legislative response, including repealing the selenium rule, may be limited due to the authority of the EPA and the primacy of the federal Clean Water Act.

At the time of this report-writing, the special committee was set to meet again July 5 to discuss the legal status of the rule.

³² Standards may be reviewed during the DEQ's triennial review of water quality standards, and/or if new data shows a different standard is warranted.

³³ Section 75-5-203, MCA.

³⁴ Meeting notes from the Lake Koochanusa Monitoring and Research Working Group, Nov. 18, 2021.

³⁵ I.b.i.d.

³⁶ British Columbia Ministry of Environment, *Fact Sheet Water Quality Guidelines* (2016)

³⁷ Teck Resources Ltd., *Fact Sheet: Elk Valley Water Quality Plan* (2022). The company is not treating all runoff from its mining sites.

³⁸ I.b.i.d.

³⁹ Teck Resources Ltd., *2021 Annual Report (2022)*, 22-23.

APPENDIX A:
WATER POLICY INTERIM COMMITTEE MEMBERS

Before the close of each legislative session, the House and Senate leadership appoint lawmakers to interim committees. The members of the Water Policy Interim Committee, like most other interim committees, serve one 20-month term. Members who are reelected to the Legislature, subject to overall term limits and if appointed, may serve again on an interim committee. This information is included in order to comply with 2-15-155, MCA.

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