

Legacy Coal Mining Impacts in the Transboundary Kootenai Watershed

Rich Janssen Jr
Department Head
Natural Resources
Department
Confederated Salish and
Kootenai

Erin Sexton
Sr. Research Scientist,
University of Montana
Flathead Lake Biological
Station





Rich Janssen Jr
 Department Head
 Natural Resources
 Department
 Confederated Salish
 and Kootenai

TRIBES OF THE INDIAN NATION



Thlingit
Togiah
Tahltan
Carrier
Karamaat
Haida
Heiltsuk
Belel
Gwada
Kwakiwilt
Shoswap
Chilkatin
Lillooet
Squamish
Mlakypamuk
Cowlitz
Kootenay
Nisqually
Quinalt
Chenahla
Cowlitz
Palus
Kalapuya
Yakima
Tenino
Umatilla
Waiilatpa
Wapapi
Klamath
Northern
Paiute
Gosiute
Bannock
Wind River
Shoshone
Teton
Sana Arc
Dakota
Cheyenne
Arikara
Santee
Sioux
Yankton
Wahpeton
Menomini
Sauk-Fox
Kickapoo
Winnebago
Kaskaskia
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Bucklipo
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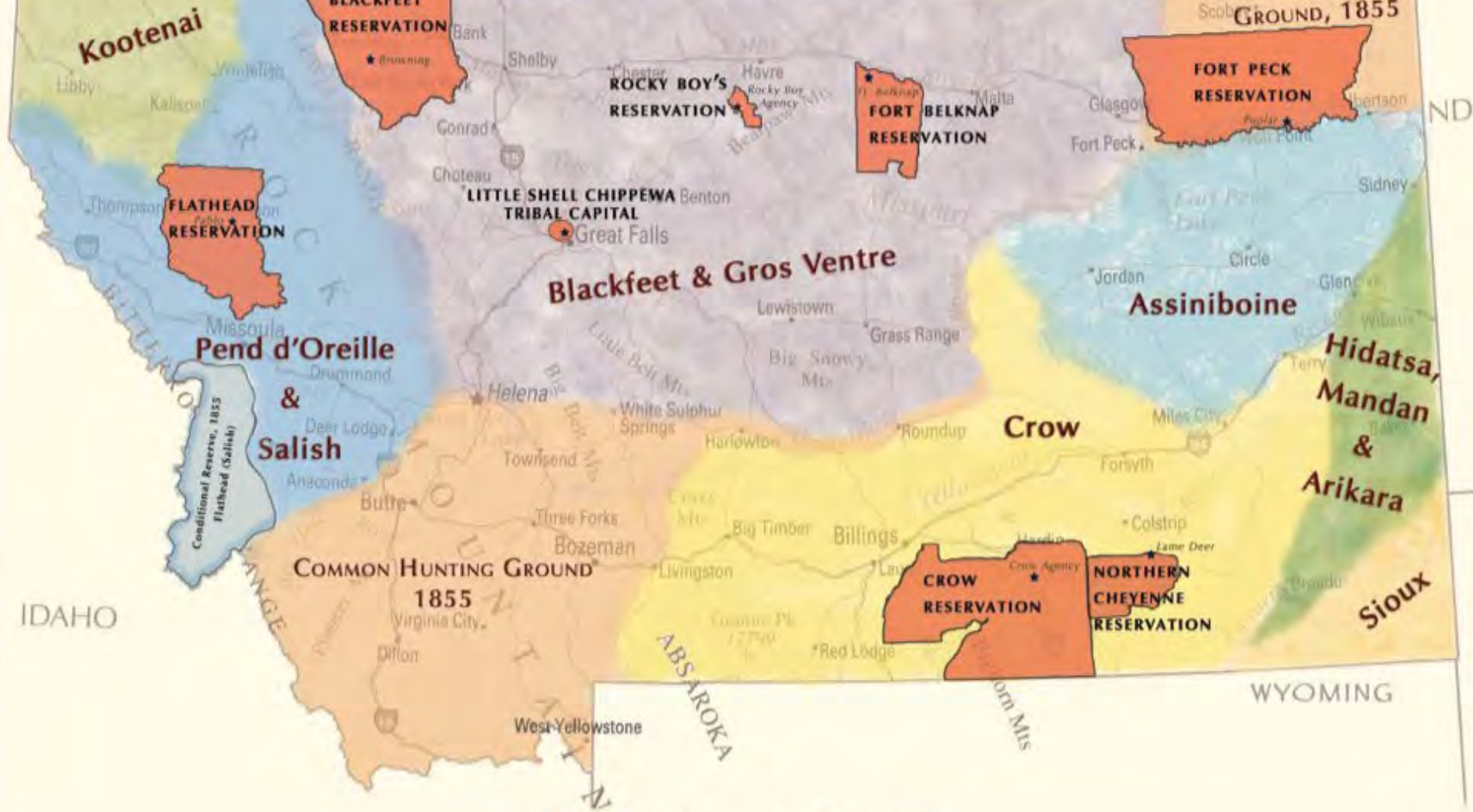
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Tribal Territories in Montana

Boundaries as defined by the Fort Laramie Treaty of 1851, and the Flathead and Blackfeet Treaties of 1855.*



Reservations today shown in red.



Star indicates location of tribal capital.

Names Tribes Call Themselves: A Key

Salish / Sélish

Pend d'Oreille / Qispé

Kootenai / Ksanka

Blackfeet / Niitsitapi (Pikuni)

Chippewa (Ojibwe) / Anishinabe

Plains Cree / Ne-i-yah-wahk

Gros Ventre / A'aninin

Assiniboine / Nakoda, Nakona

Sioux / Lakota, Dakota

Northern Cheyenne / Tsetsêhesêstâhase and So'taa'eo'o

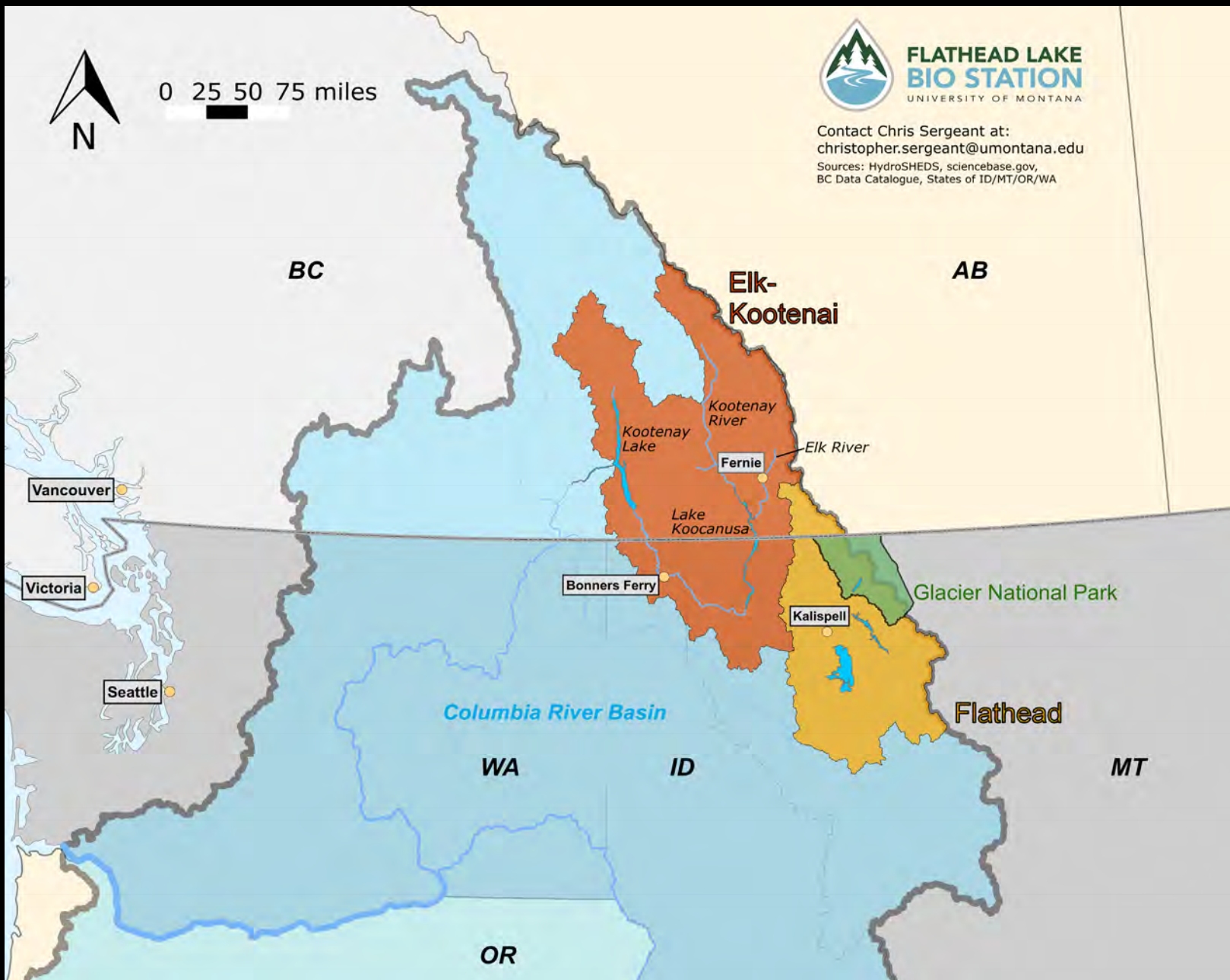
Crow / Apsáalooke

Little Shell Chippewa / Anishinabe and Métis



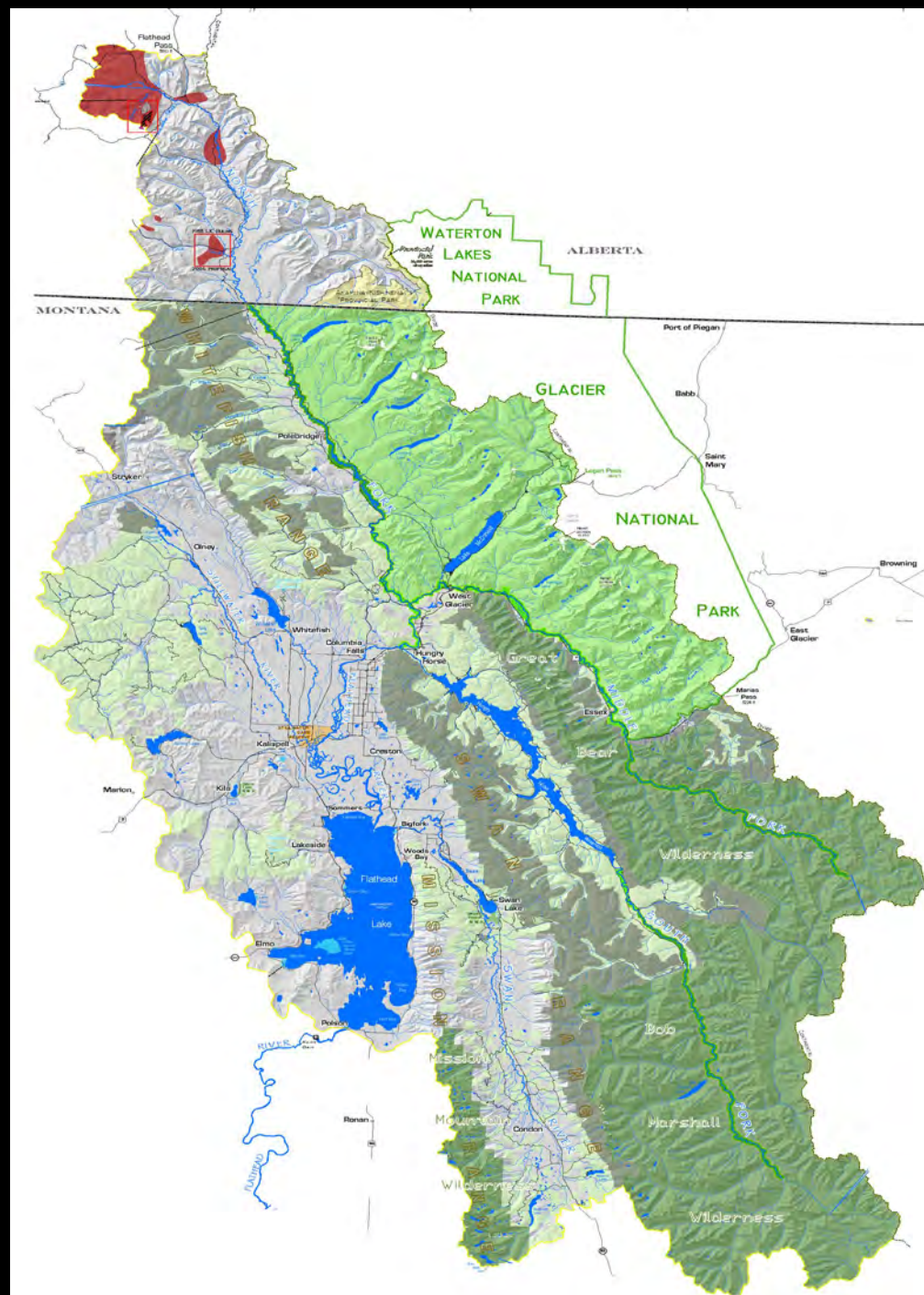
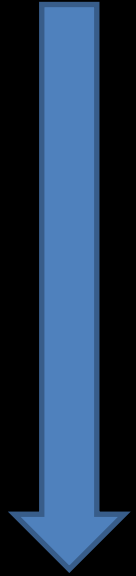
EcoFlight Flyover of
Elk Valley Mines,
August 2022





Headwaters of the Columbia River Basin

2003 - Mines
proposed in the
headwaters of the
Flathead in British
Columbia, CA

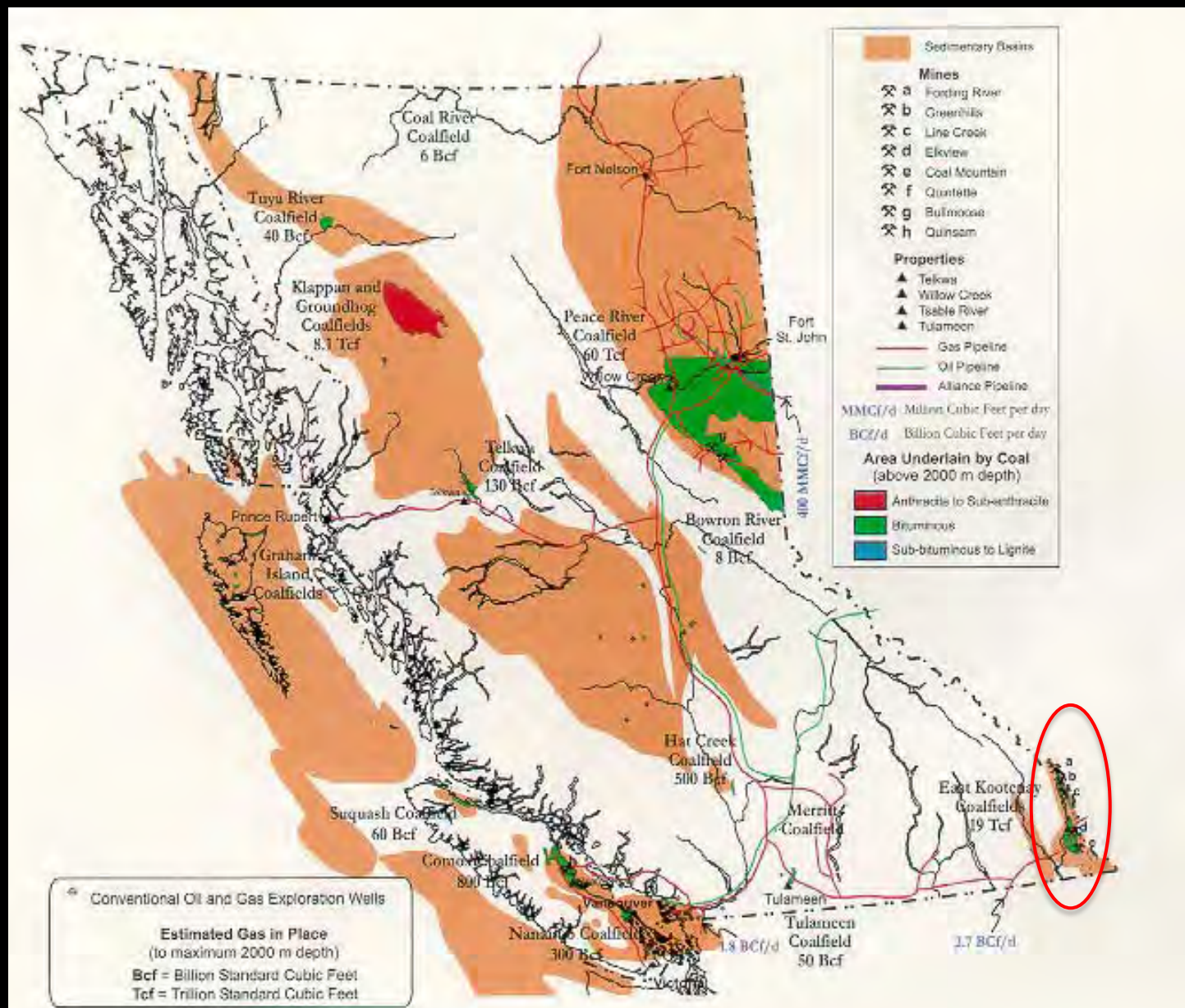


Impacts in the US,
MT, Flathead River
and Lake

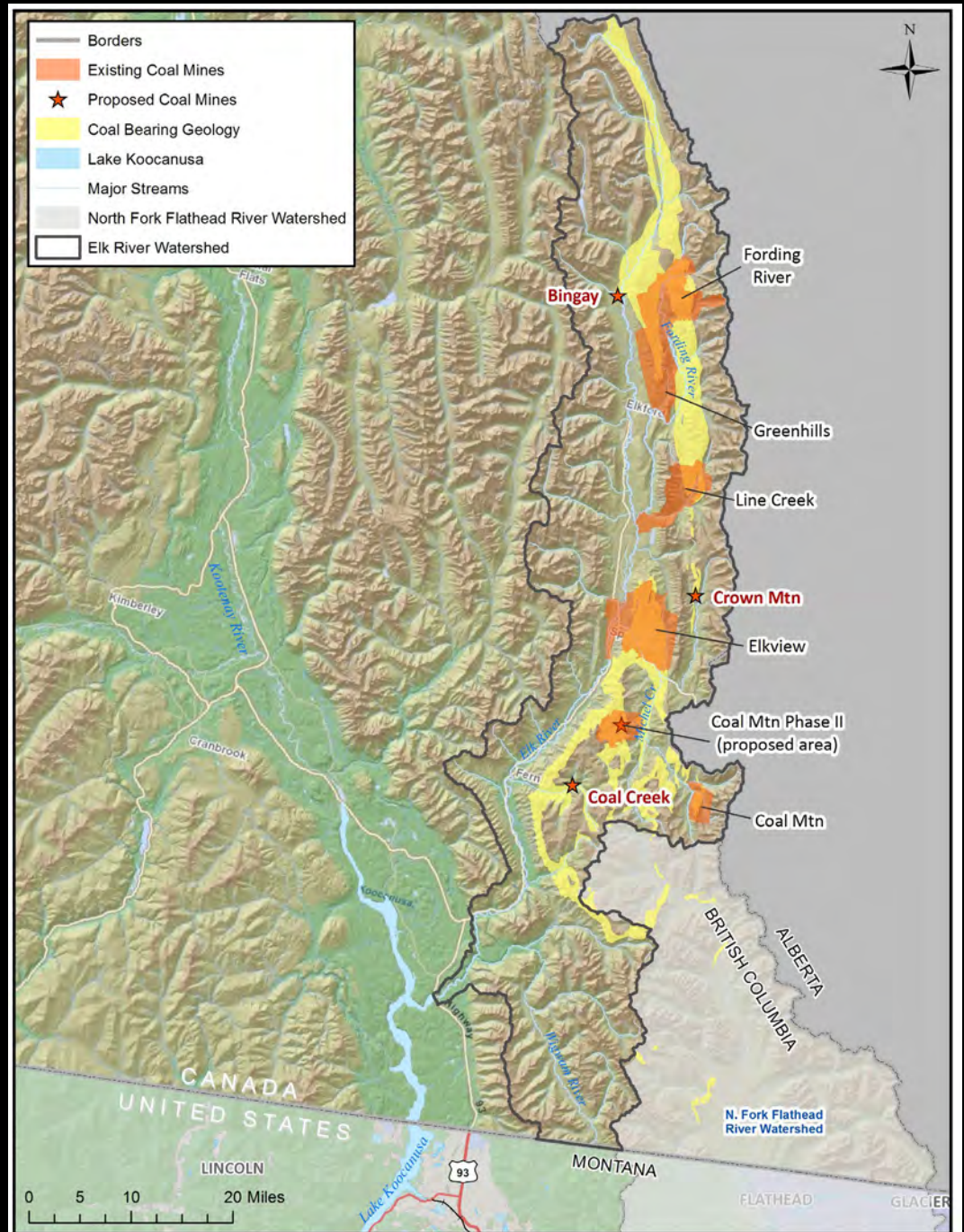
Coal-bearing Basins of British Columbia

Kootenai and Flathead Headwaters

Elk Valley-
21.5 Million
Tonnes of
Metallurgical
Coal in 2022



- Operating at the industrial scale since the 1970s
- Mountain-top removal coal mining
- Leaching Selenium, Nitrates and Sulphates into the Elk and Fording Rivers, Lake Koochanusa and the Kootenai River



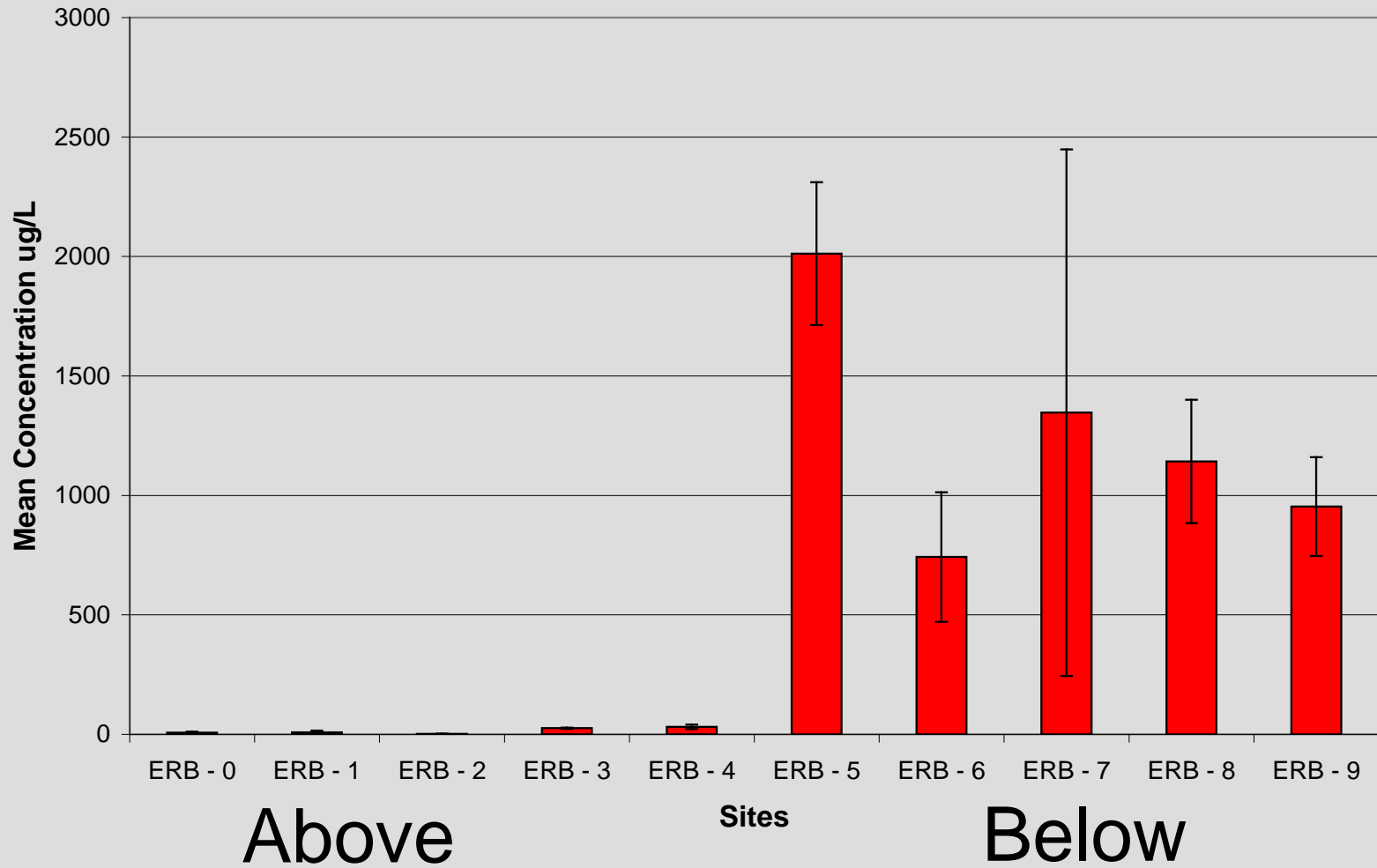


Data Collection Efforts 2005-2011

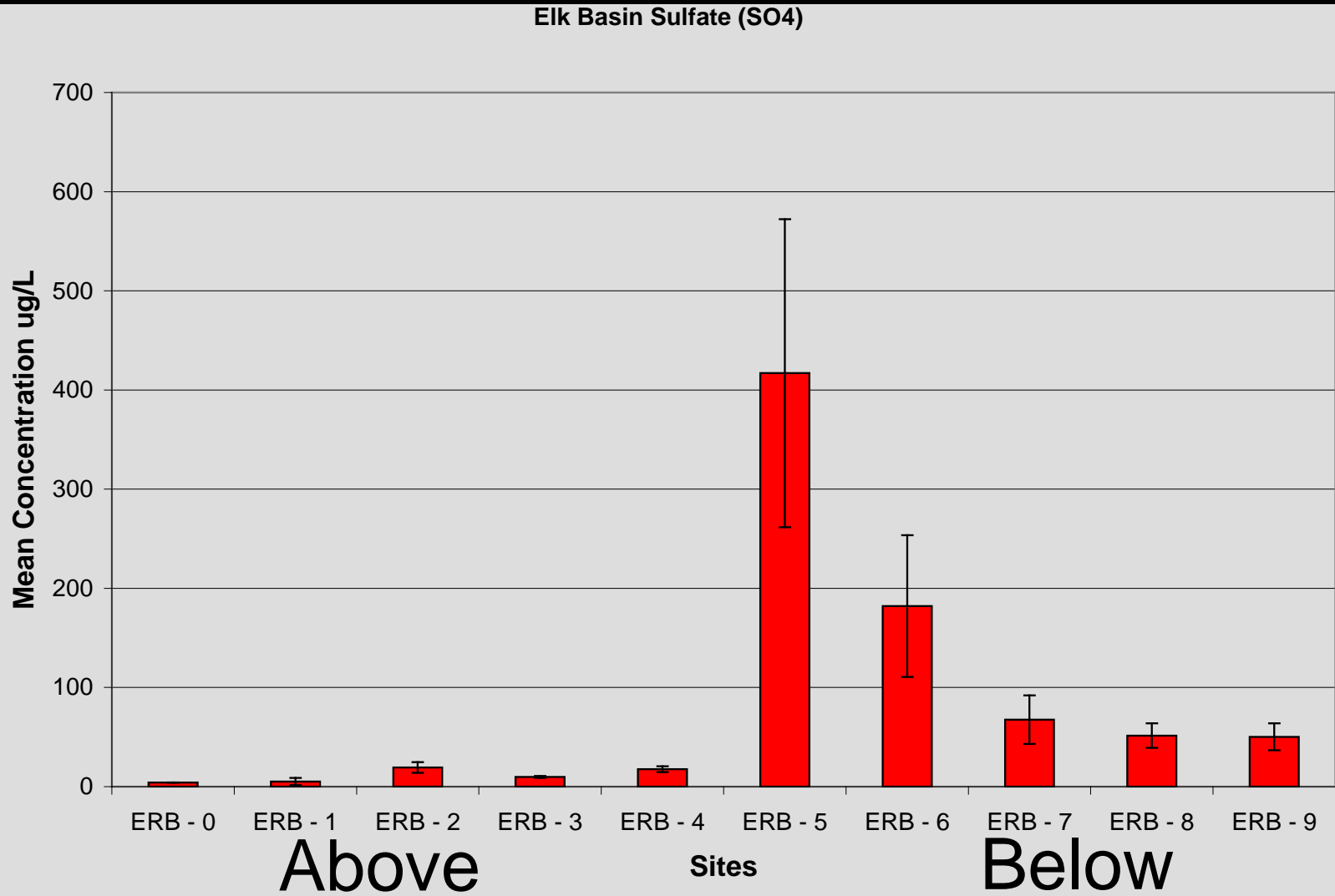
- Water Quality
- Fisheries
- Aquatic Life



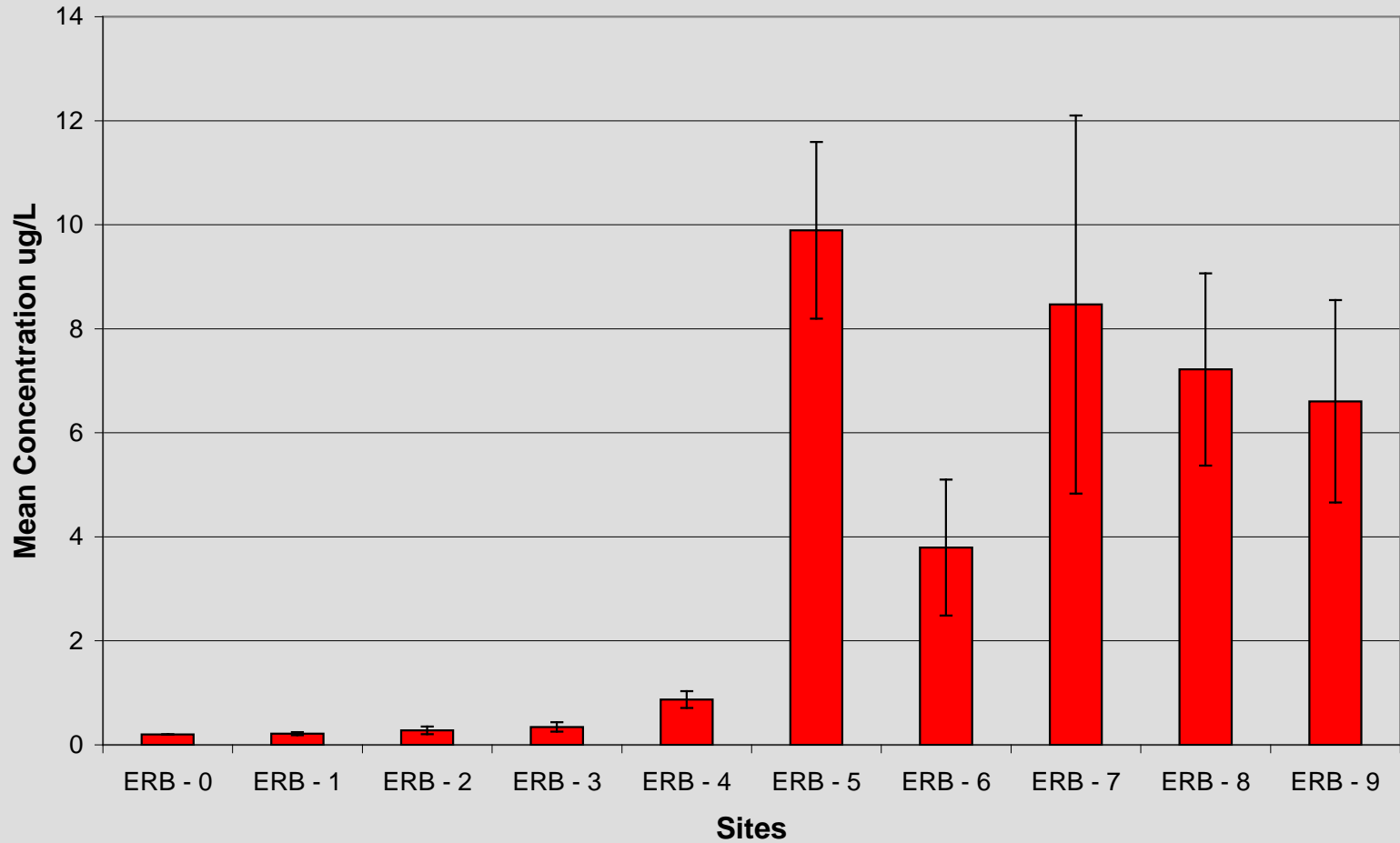
Nitrate Nitrogen (NO_3) Above and Below the Elk Valley Mines



Sulfate (SO_4) Above and Below the Elk Valley Mines



Selenium (Se) Above and Below the Elk Valley Mines



Above

Below

Selenium Toxicity



- Tendency to bioaccumulate
- Toxic at low concentrations
- Physical deformities and reproductive failure (Lemly, 2002)
- 'Invisible contaminant'

Impacts to Aquatic Life

- Loss of sensitive species
- Loss of diversity



Caddisfly - Trichoptera



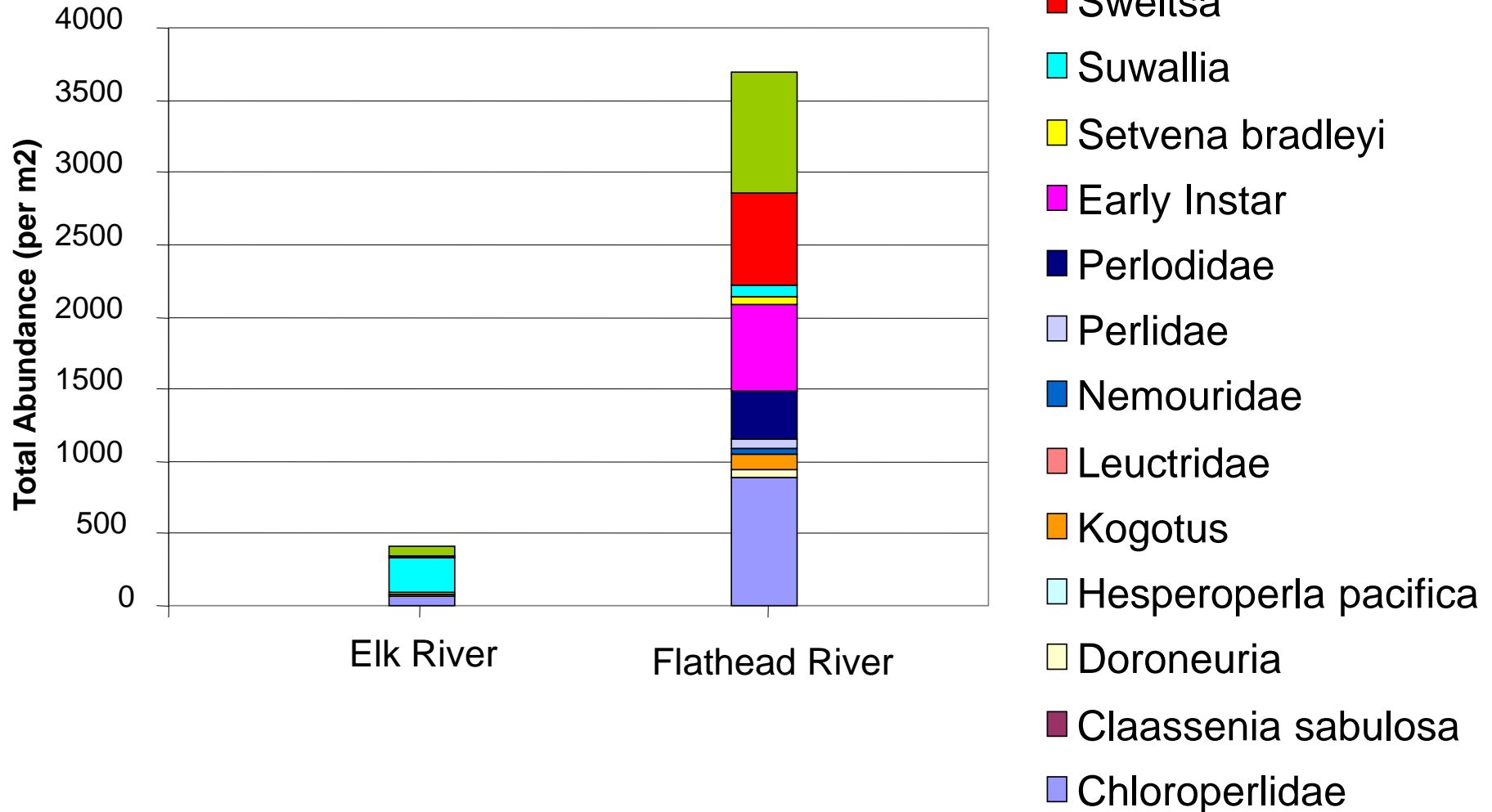
NABS (www.benthos.org)

Stonefly - Plecoptera



Mayfly - Ephemeroptera

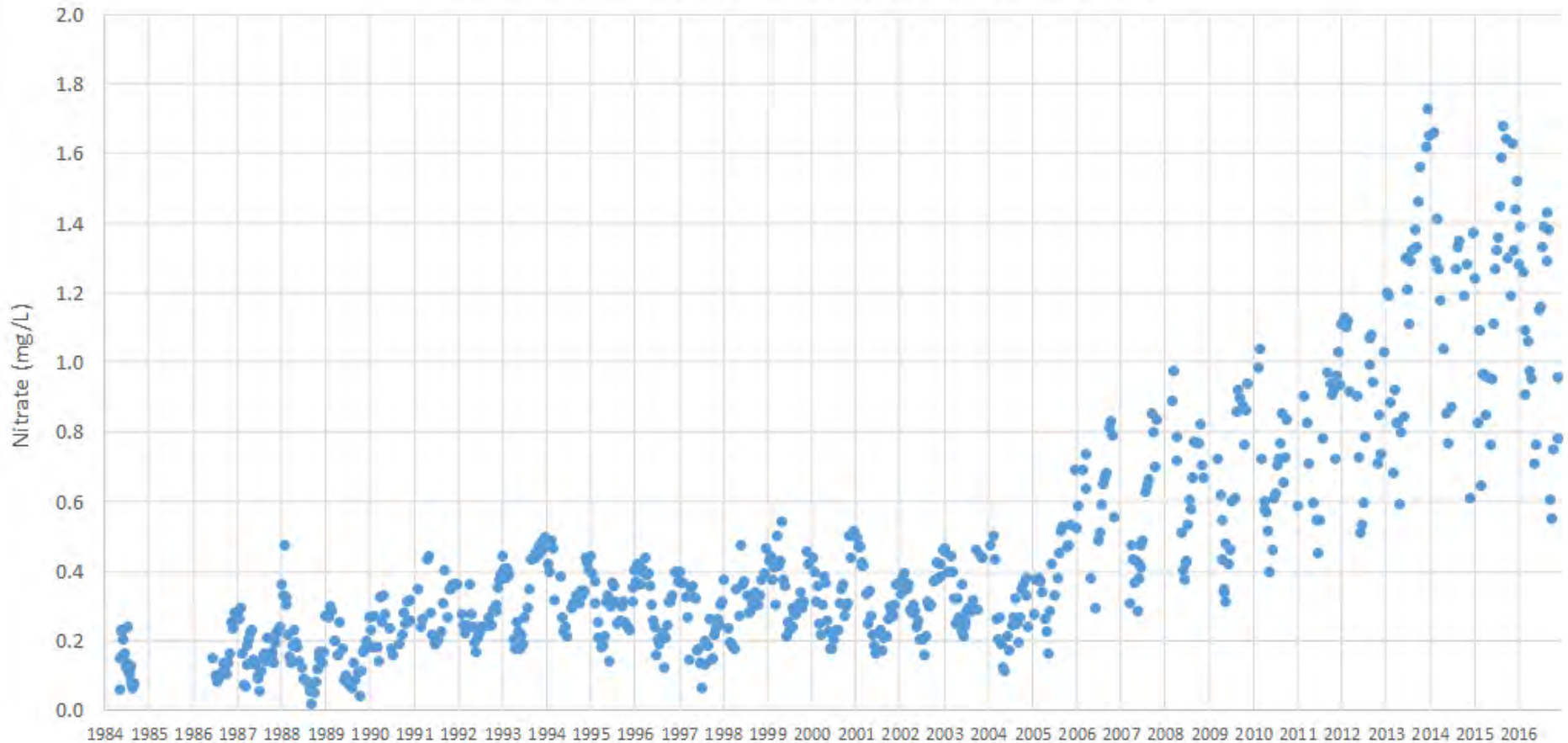
Stoneflies



Composition of the Order Plecoptera

Nitrates in the Elk River from 1984-2016

Elk River at Hwy 93 Crossing (near confluence with Lake Koochanusa)
Environment and Climate Change Canada (ECCC) Long-term Monitoring Station

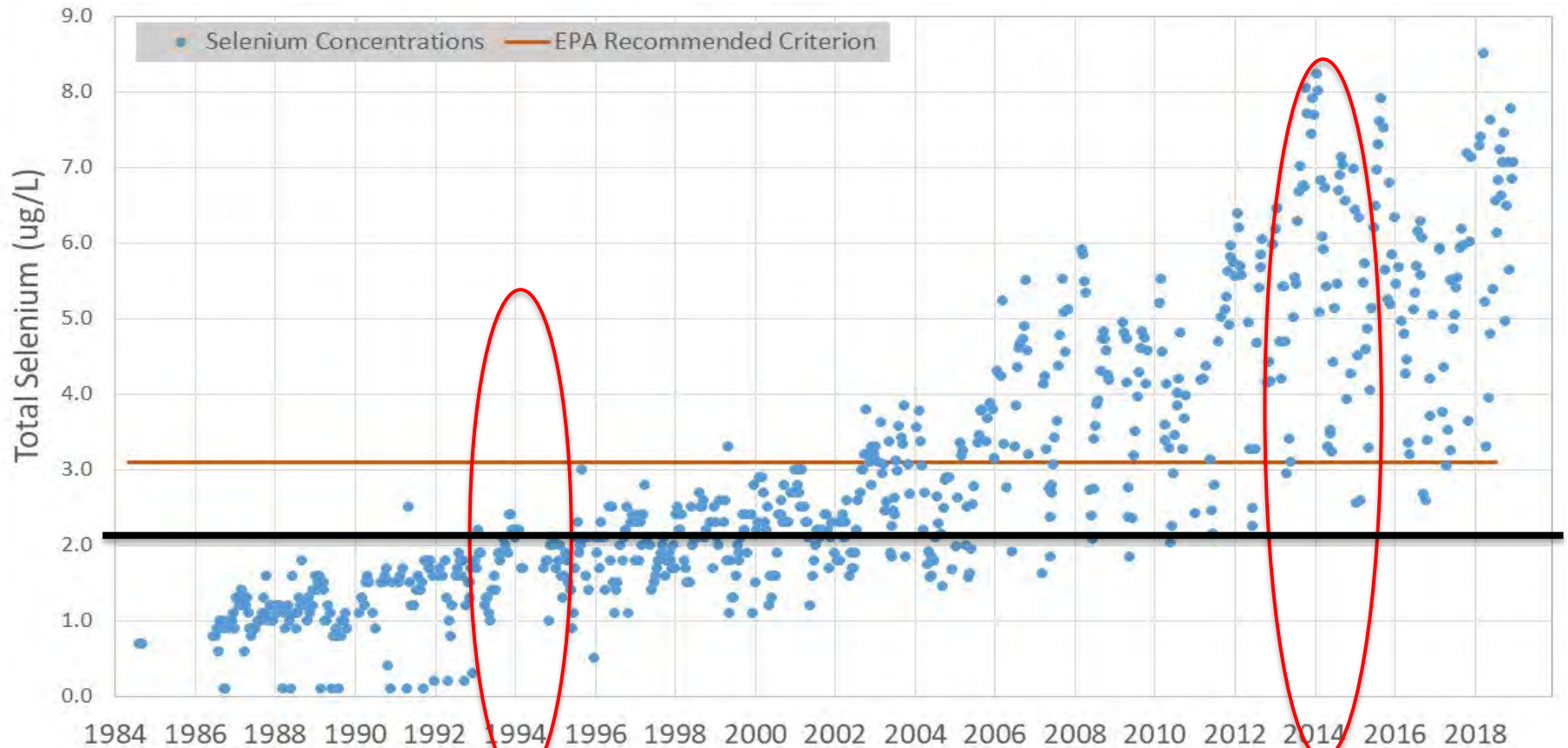


Data download from <http://aquatic.pyr.ec.gc.ca/webdataonlinational/en/Measurements/ChooseVariables/Sites/BC08NK0003/Projects/PYLTM/Regions/0>
on June 13, 2017

Water Quality Trend for Total Selenium in the Elk River; 1984-2018

2 ug/L = BC threshold for protection of aquatic life

Elk River at Hwy 93 Crossing (near confluence with Lake Koochanusa)
Environment and Climate Change Canada (ECCC) Long-term Monitoring Station



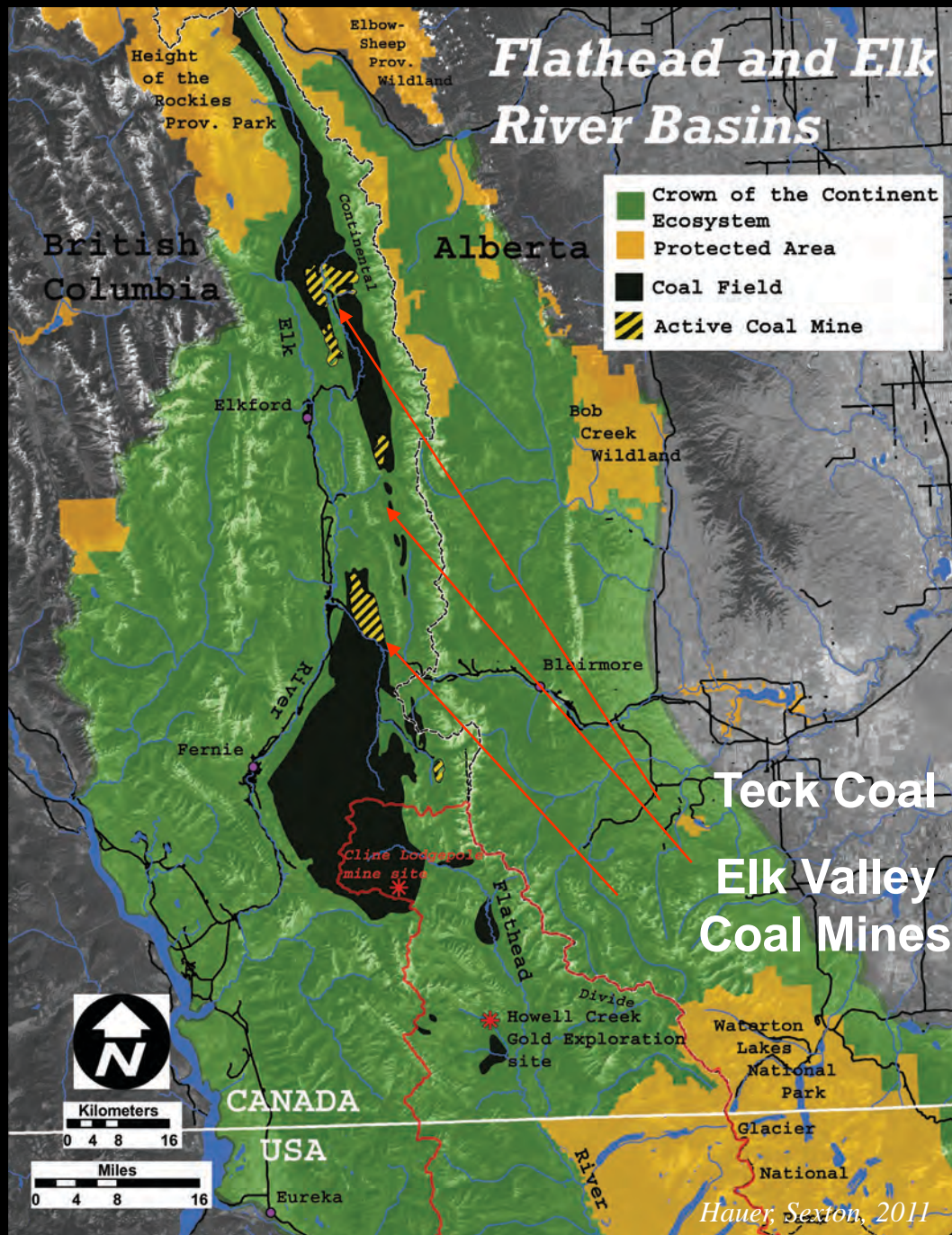
Data download from <http://aquatic.pyr.ec.gc.ca/webdataonlinenational/en/Measurements/ChooseVariables/Sites/BC08NK0003/Projects/PYLTM/Regions/0>
on Aug 1, 2019

2014

Province of B.C. directed Teck Coal Ltd stabilize and reverse increasing contaminant trends.

Constituents of Concern:

- Selenium*
- Cadmium
- Nitrate*
- Sulphate*

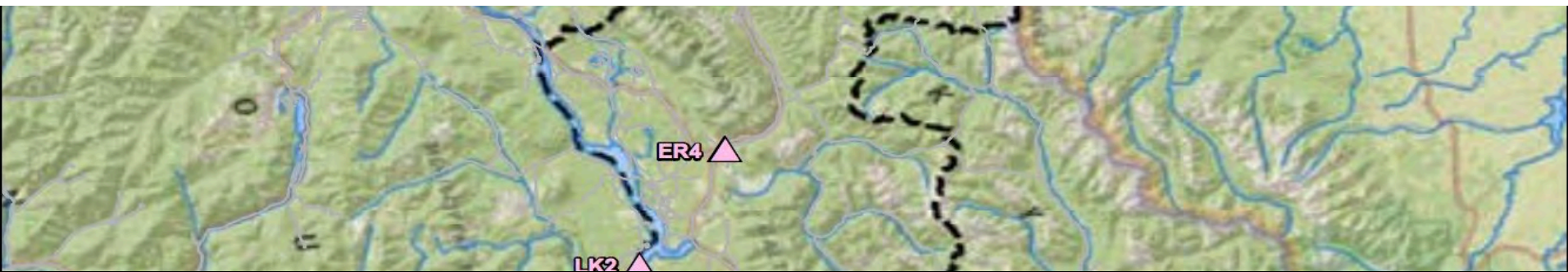


2014: Permit issued setting water quality objectives for the coal mines in the Elk Valley



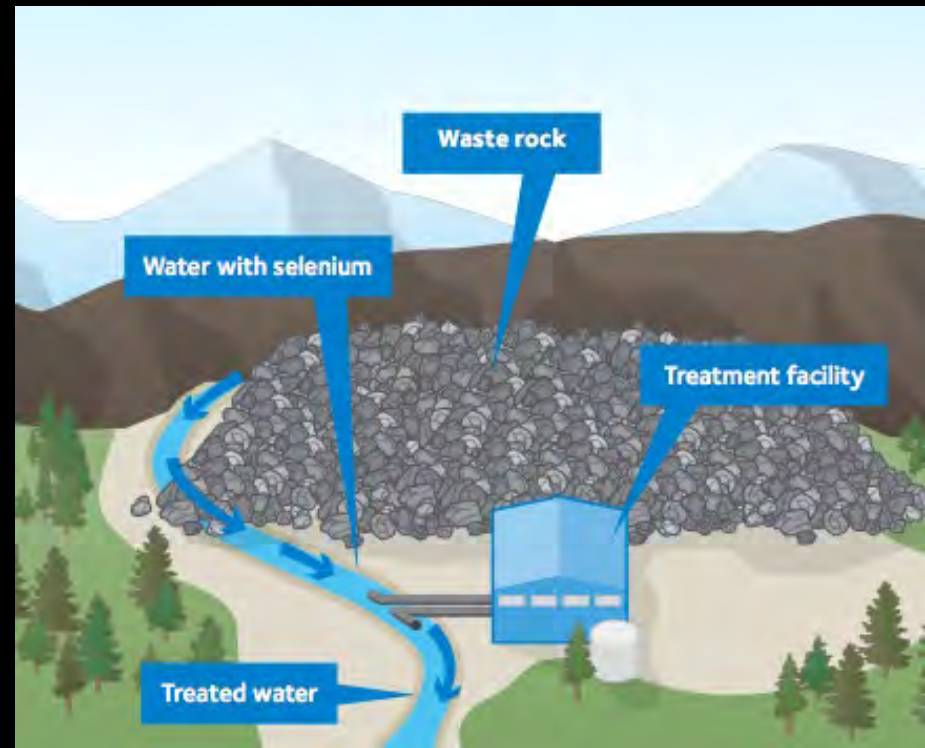
Table 8-16. Summary of long-term water-quality targets.

Management Unit	Order stations	Selenium ($\mu\text{g/L}$) ¹	Nitrate ($\text{mg/L NO}_3\text{-N}$) ²	Sulphate (mg/L) ³	Cadmium ($\mu\text{g/L}$) ⁴
1	FR4	57	11	429	0.39
2	FR5	40	11	429	0.39
3	ER1	19	3	429	0.24
4	ER2	19	3	429	0.24
5	ER3, ER4	19	3	429	0.24
6	LK2	2	3	308	0.19



Active Wastewater Treatment Facility

First plant built in 2013, plan for a new plant every two years from 2018 until 2034



Challenges with Active Water Treatment



- 2014
74 westslope cutthroat trout killed at outlet of the facility
- 2016
converted selenium to a more toxic form- impacts in bull trout and insects
- Plant shut down until late 2018
- Additional plant construction delayed by 3-5 years

New reports shed light on Fording River pollution problems

VANCOUVER — The Globe and Mail
Published Sunday, Oct. 12 2014, 9:44 PM
EDT

Elk Valley watershed: Why has this unfolding disaster been ignored?

VANCOUVER — The Globe and Mail
Published Sunday, Oct. 19 2014, 8:22 PM
EDT

Teck Resources water-treatment plant shut after dead fish found

VANCOUVER — The Globe and Mail
Published Tuesday, Oct. 28 2014, 8:13 PM
EDT

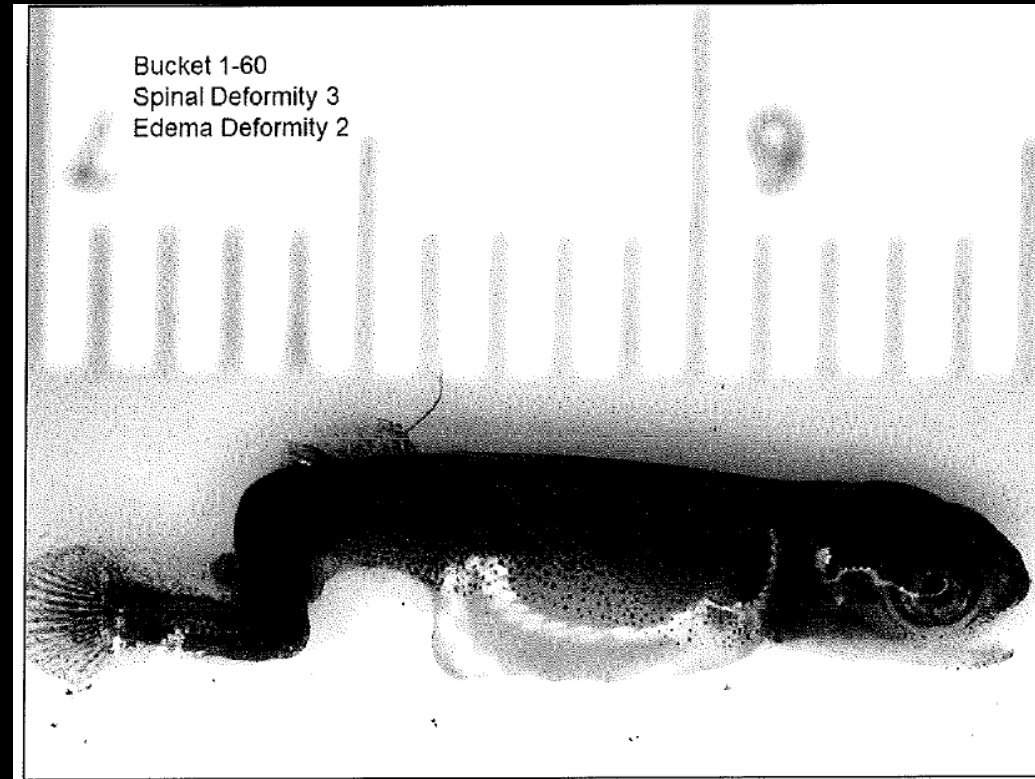


Figure 5A. Environment Canada Photos – Upper Fording River Westslope Cutthroat sample; presents marked spinal deformities (Lemly, 2014)

*International commission asks
Canada to join probe of
selenium flowing from Elk Valley*

CBC, June, 2022

*U.S. wants Canada to join
investigation of cross-border
pollution from B.C. coal mines*

June, 2022 Canadian Press

*First Nations angered by
delays in joint probe of
cross-border
contamination from coal
mines*

By Bob Weber The Canadian Press
October 21, 2022

*Ktunaxa Nation pushed for an
international inquiry into coal
mining pollution for more than a
decade. Is B.C. now on board?*

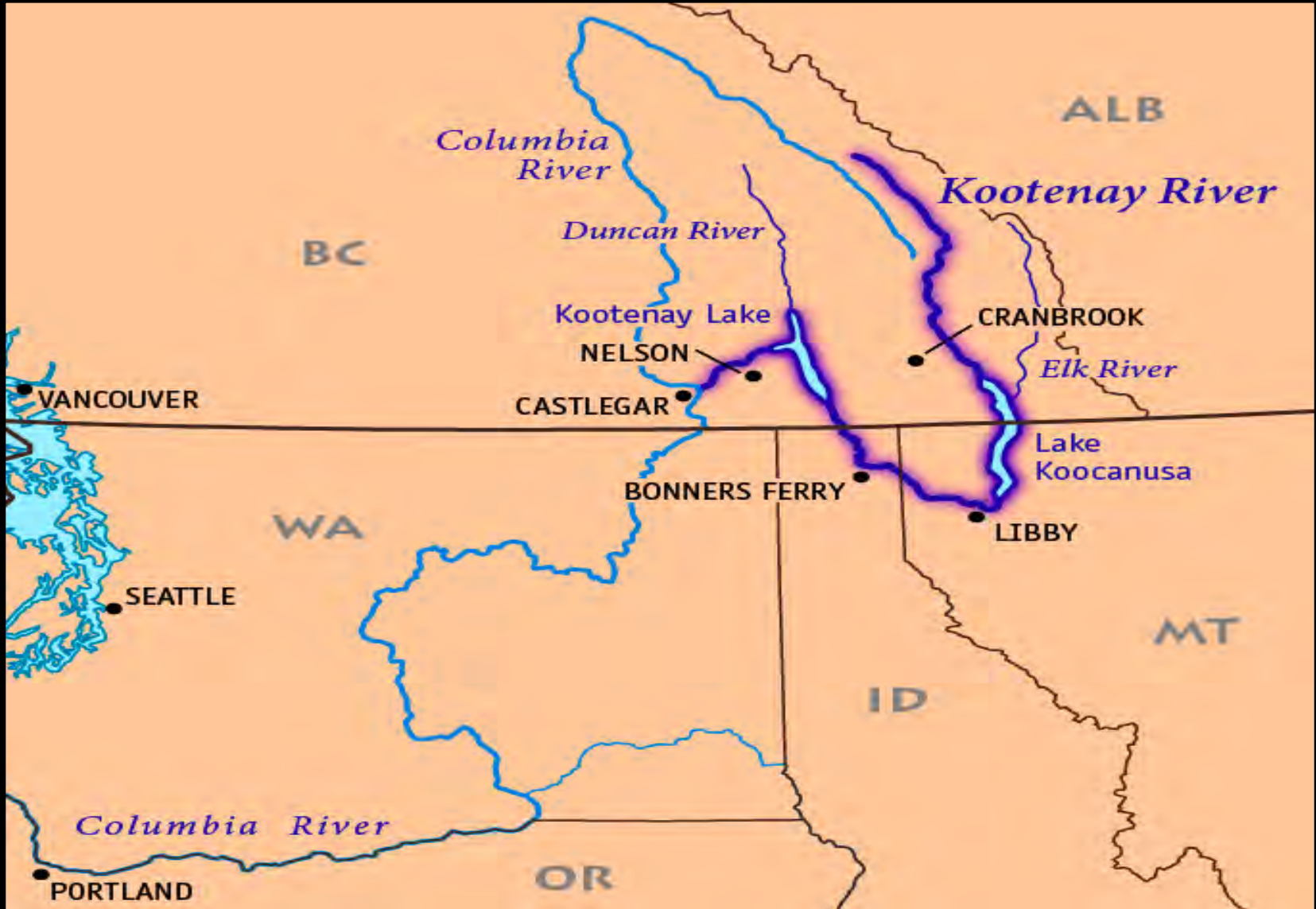
Narwhal, August, 2023



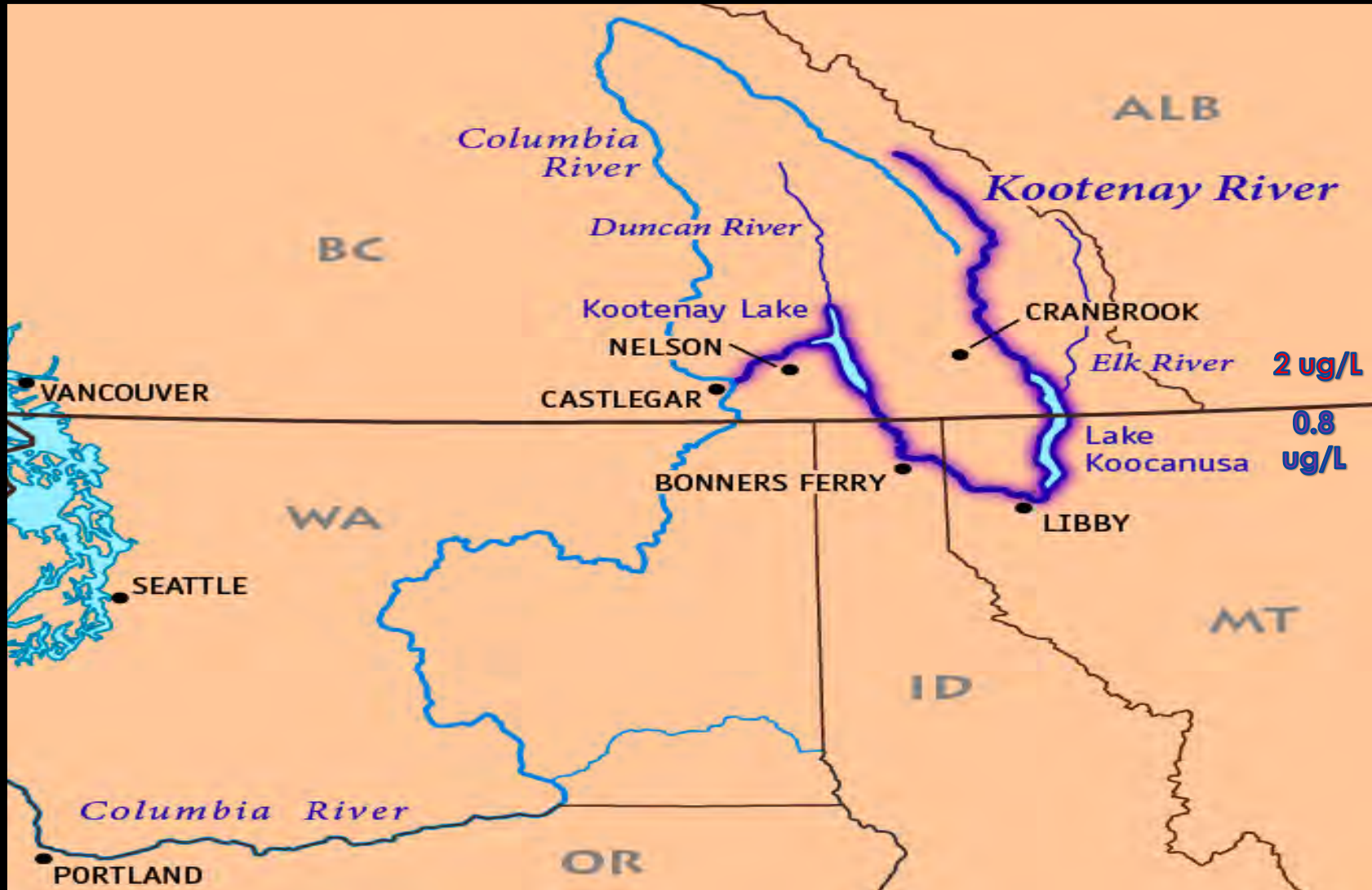
Where are we today...



Mine contaminants transported hundreds of km down river into US and Tribal Territory – reaching the Columbia River in B.C.



Koocanusa has two different water quality standards; one lake – two conflicting standards



Where are we today...

*The Boundary Waters Treaty of 1909 is being
violated in the Kootenai Watershed*



President Biden and Premier Trudeau commit to a solution in partnership with the transboundary Ktunaxa Nation by Summer, 2023



Tracing Mining's Threat to U.S. Waters

Environmental concerns are raised anew about potential contamination from Canadian open-pit mines flowing through the waterways into Montana's lakes, harming fish.

Jim Robbins, New York Times, July 11 2023

Since 2012; The transboundary Ktunaxa Nation has requested a reference to the International Joint Commission (IJC)



- **Accountability** for legacy damages
- **Cumulative** rather than piece-meal assessment of mines and impacts
- **Wholistic** watershed-scale approach led by the Indigenous governments
- **Inclusivity** for all impacted governments