Legacy Coal
Mining
Impacts
in the
Transboundary
Kootenai
Watershed

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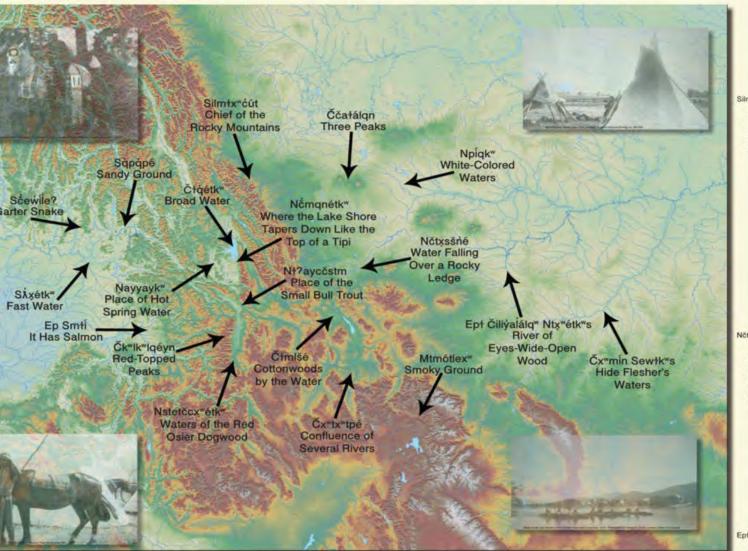




Servi. Cires and Austriboins up-Blackfoot) According of this live (Kalispel) MONTANA KUTENAI-TUNAXE Coeur d'Alene I PEND d'OREILLE (Shoshone) SALISH-TUNAXE SEMTEUSE (Next specified and Kilmen Perce H andred air Shorehome Cross, Gross Vention, Avapathous, Charystone and Laboria unknown at FLATHEAD (Shoshone) Short-hone Development drawn when Text, J. A.: "The Ballaban Tribes of the Western Plantenia," 45th Arrest Report of the Bureau of (Shoshone) American Ethiodogy, 1927-1928. Washington 1930, pp. 303-508 Tast successful that informations between 1904 and 1909

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Selected Salish Place Names in the Aboriginal Territories of the Salish and Pend d'Oreille Tribes of the Flathead Reservation



tgrass Hills)

55, at K"all Sewik"s (Yellow Waters - Judith River), US officials and leaders of seven tribes held treaty negotiations to divide the buffalo hunting grounds east of the Continental Divide. Pend d'Oreille head chief Horses - Alexander) insisted on and secured the right of the Salish and Pend d'Oreille to continue hunting in this vital part of their aboriginal territories. According to minutes of the treaty negotiations, Chief lared: "A long time ago our people, our ancestors belonged in this country. The country around the Three Buttes. We had many people on this side of the mountains, and now you have shown us only a narrow really of our people here. There are many beyond the mountains, it is a very small place you give us for a hunting ground. A long time ago our people used to hunt about the Three Buttes and the Ifar north. When my father was living he told me that was an old road for our people." None of the leaders from the other tribes disagreed with Chief Alexander.



Silmtx**cut- (Chief Mountain)

Prior to the introduction of horses, firearms, and non-native Mountain and the Rocky Mountain Front was part of the territ Kootenai and the Salishan Turiaim. After these tribes and pushed west of the mountains, they continued to travel to territories to hunt buffalo, conduct raids, or for other purp Silmhx'éur remained an important landmark and cultural site



Nčtxsšńé - (Great Falls area)

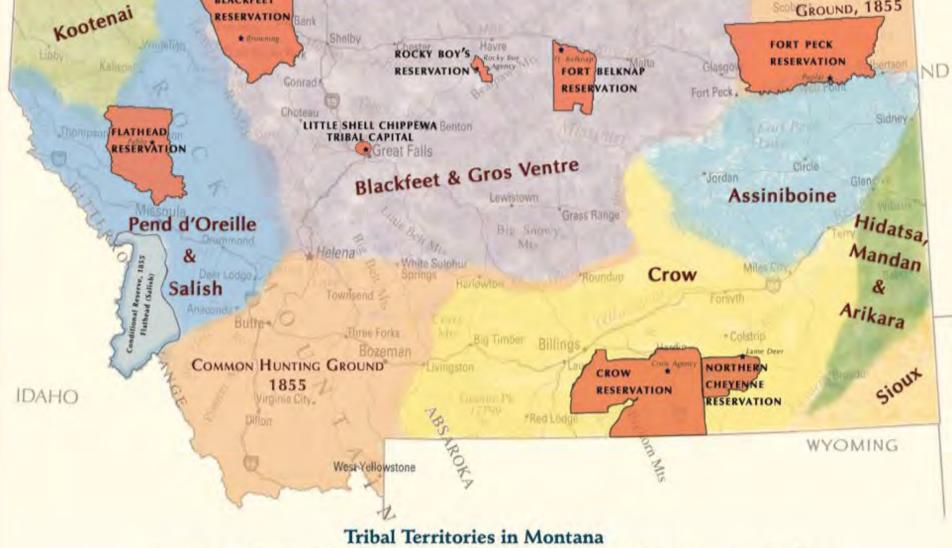
After the Salish and Pend d'Oreille were pushed west of the r they continued to travel often to the area of Nčtpsšŕné for buff other purposes. From N°2 y (Place of Small Bull Trout - Miss were several major routes. The most direct route followed the River drainage to the Continental Divide, then on to Snsû ?** - the main camp of the Qlispě-Tuháxn along Sun River near Nacqaqėyn (Things Sitting Atop a Flat Plane - the buttes in t Simms-Ulm Flats area), and then on to Nčtsšŕné.



Ept Čiliýalálo" Ntx"étk"s - (Musselshell River)

Musselshell River (also the name for the uppermost camp are North Fork of the Musselshell) Ciliyaláig* - "Eyes-Wide-Open Salish name of "diamond willow," which is actually a condition a number of willow species. Ciliyaláig* probably refers specification willow (Salix eriocephala var. watsonii). The Musselshell was important buffalo hunting areas for the Salish and Pend d'Ore many Salish placenames along the Musselshell Rilver; six are thanks to the contributions of Salish elder Paul Antoine, record





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.

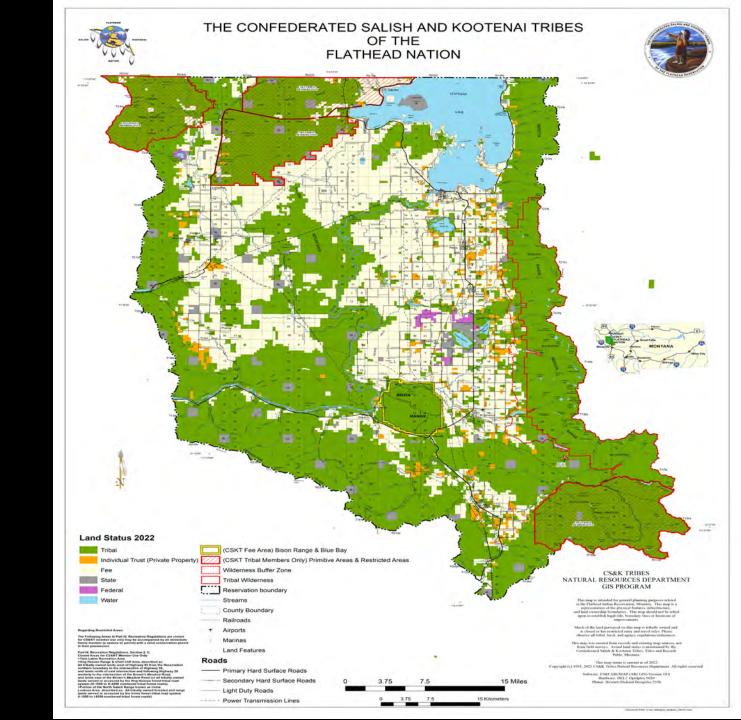
Names Tribes Call Themselves: A Key

Salish / Sélish Pend d'Oreille / Olispé

Kootenai / Ksanka

Blackfeet / Niitsitapi (Pikuni) Chippewa (Ojibwe) / Annishinabe 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 / Annishinabe and Métis

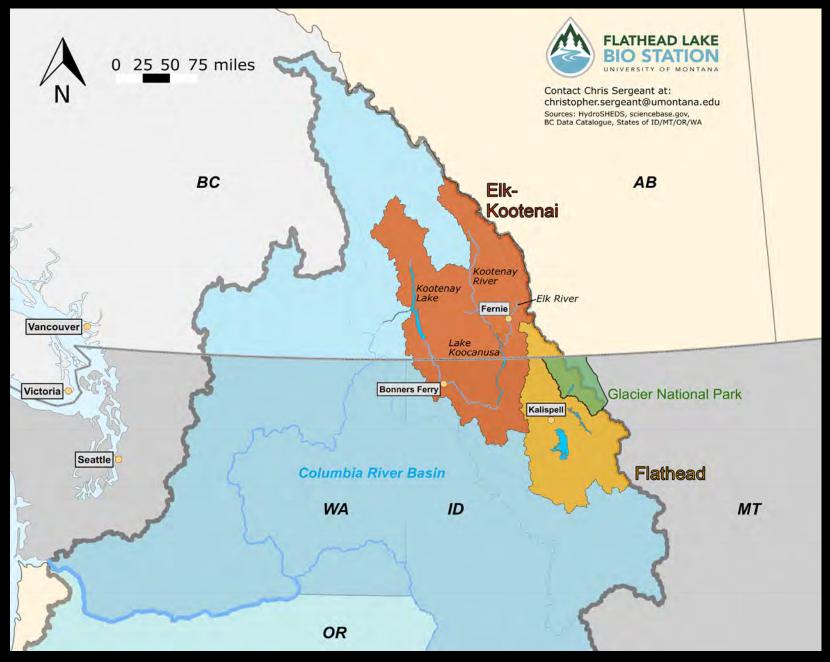
Reservation Lands in Montana, and American Indian Tribes based on those lands





EcoFlight Flyover of Elk Valley Mines, August 2022

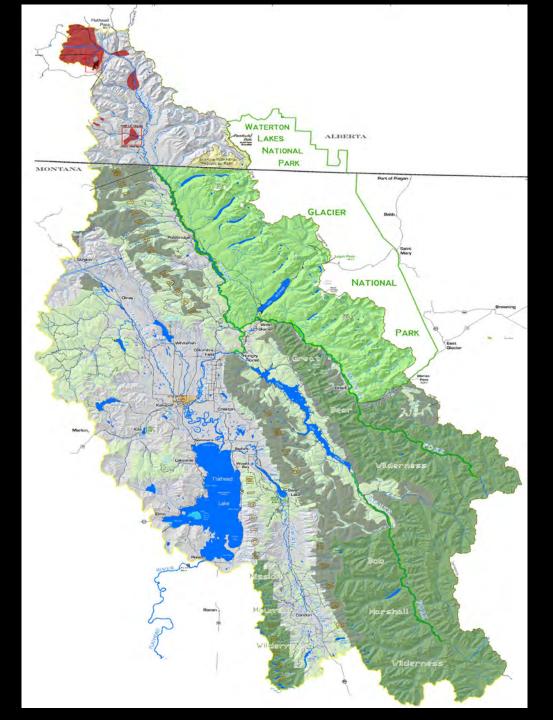




Headwaters of the Columbia River Basin

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

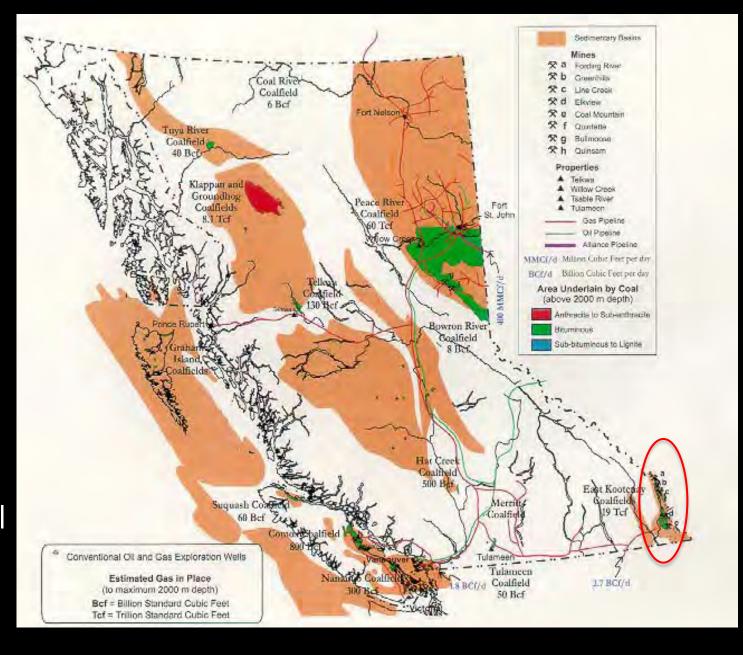
Impacts in the US, MT, Flathead River and Lake



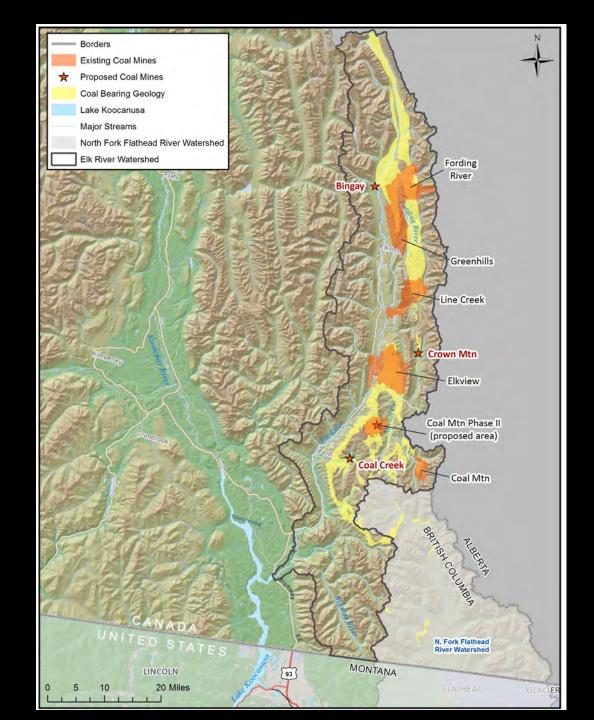
Coal-bearing Basins of British Columbia

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
 <u>Selenium</u>, <u>Nitrates</u>
 and <u>Sulphates</u>
 into the Elk and
 Fording Rivers,
 Lake Koocanusa
 and the Kootenai
 River





Data Collection Efforts 2005-2011

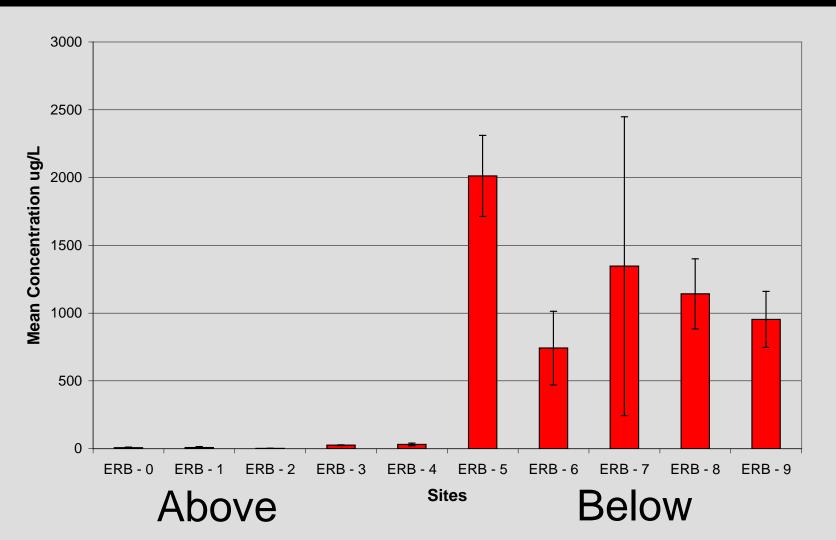
- Water Quality
- Fisheries
- Aquatic Life





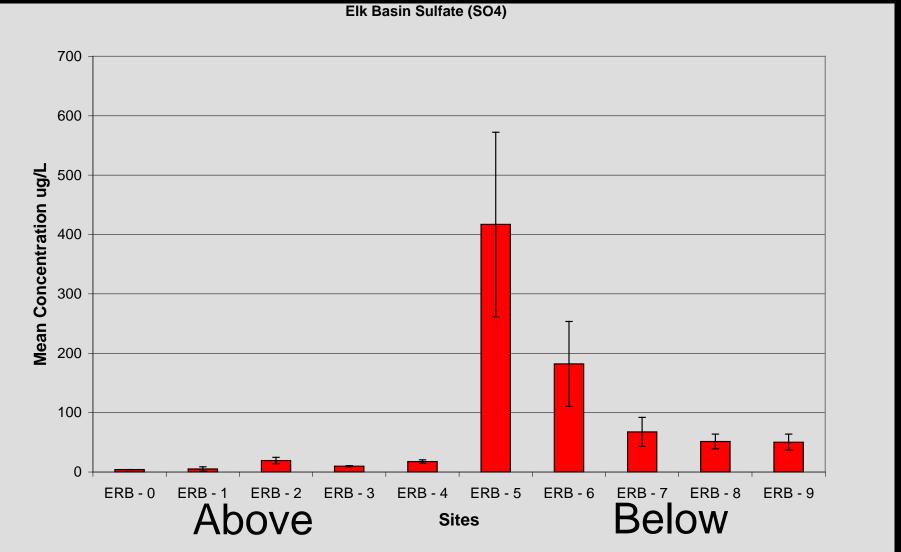


Nitrate Nitrogen (NO_3) Above and Below the Elk Valley Mines



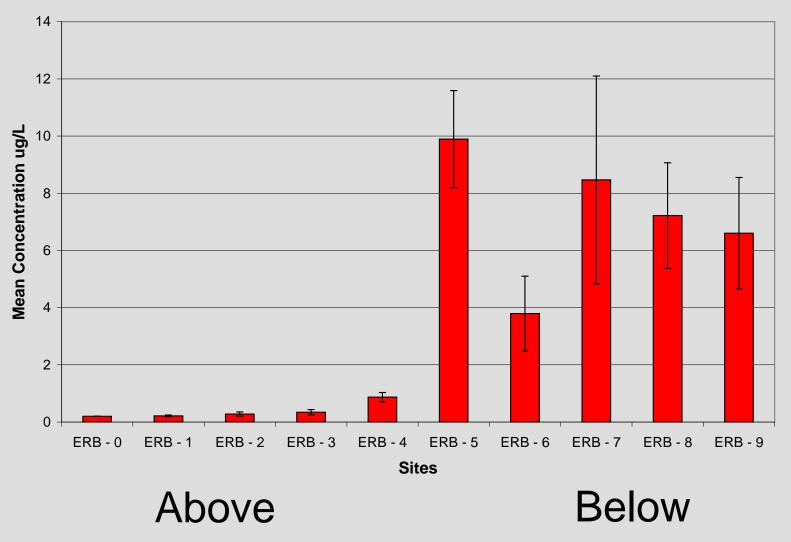


Sulfate (SO₄) Above and Below the Elk Valley Mines





Selenium (Se) Above and Below the Elk Valley Mines





Selenium Toxicity



- Tendency to bioaccumulate
- Toxic at low concentrations



- Physical deformities and reproductive failure (Lemly, 2002)
- 'Invisible contaminant'

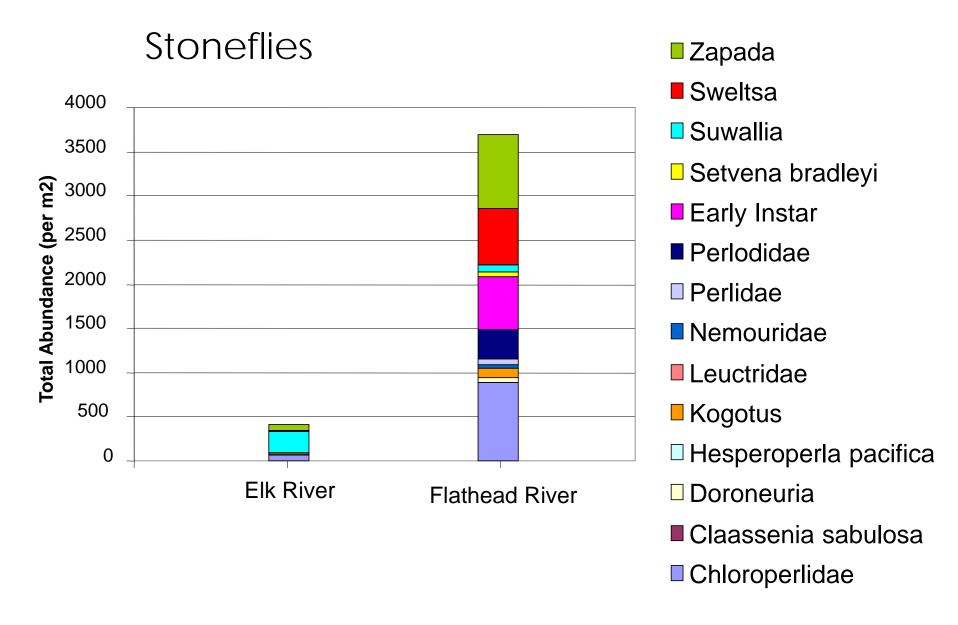
Impacts to Aquatic Life

- Loss of sensitive species
- Loss of diversity



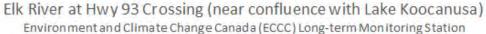
Caddisfly - Trichoptera

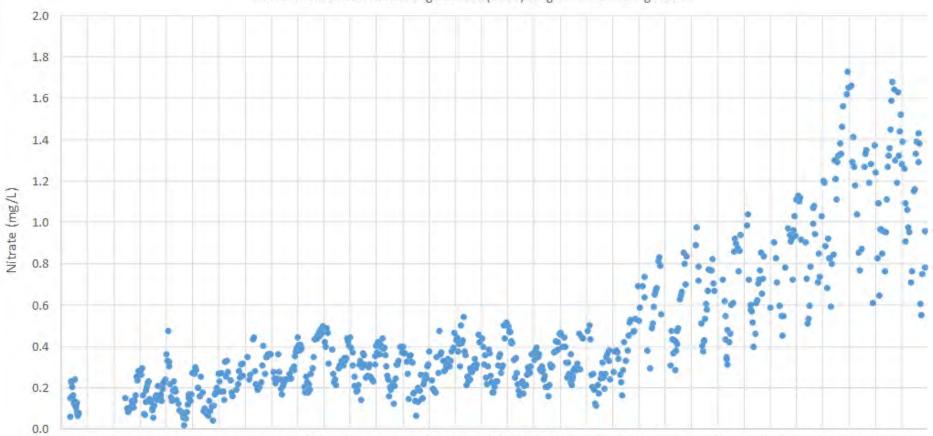




Composition of the Order Plecoptera

Nitrates in the Elk River from 1984-2016





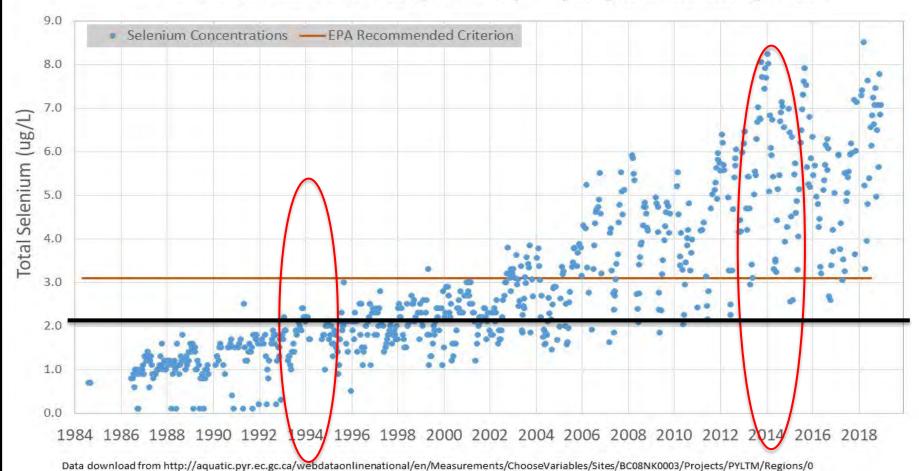
1984 1985 1986 1987 1988 1989 1990 1991 1992 1993 1994 1995 1996 1997 1998 1999 2000 2001 2002 2003 2004 2005 2006 2007 2008 2009 2010 2011 2012 2013 2014 2015 2016

Data download from http://aquatic.pyr.ec.gc.ca/webdataonlinenational/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 Koocanusa)
Environment and Climate Change Canada (ECCC) Long-term Monitoring Station



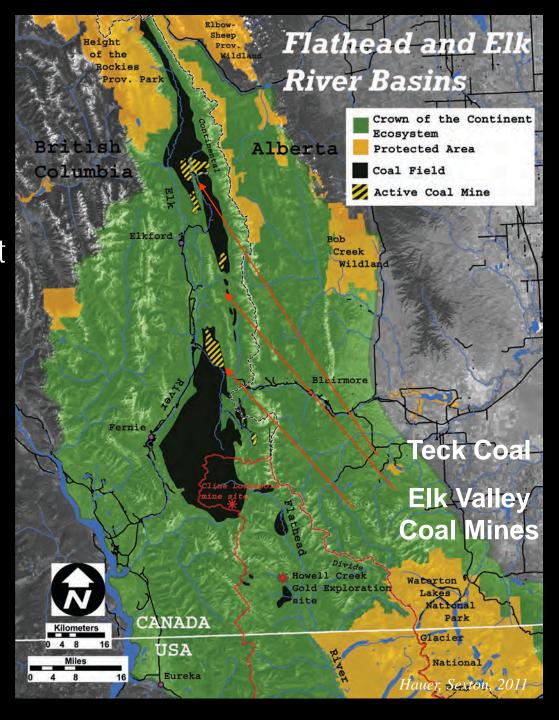
on Aug 1, 2019

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



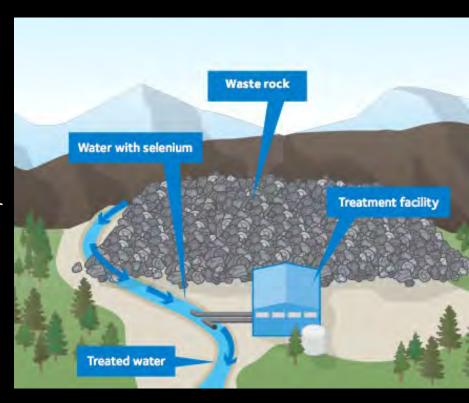
Table 8-16. Summary of long-term water-quality targets.

Management Unit	Order stations	Selenium (µg/L)¹	Nitrate (mg/L NO ₃ -N) ²	Sulphate (mg/L) ³	Cadmium (µg/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 FDT

Teck Resources watertreatment plant shut after dead fish found

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

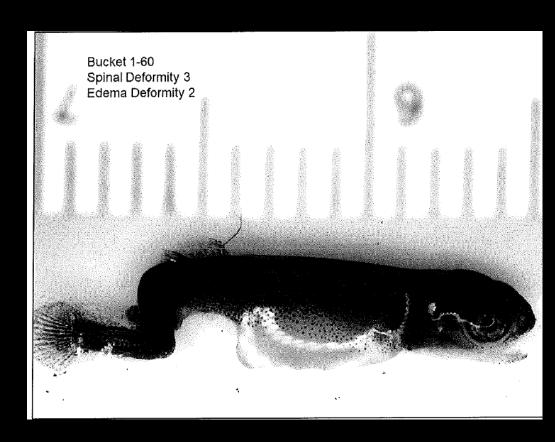


Figure 5A. Environment Canada Photos – Upper Fording River Westslope Cutthroat sample; presents marked spinal deformities (Lemly, 2014) International commission asks Canada to join probe of selenium flowing from Elk Valley CBC, June, 2022

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?

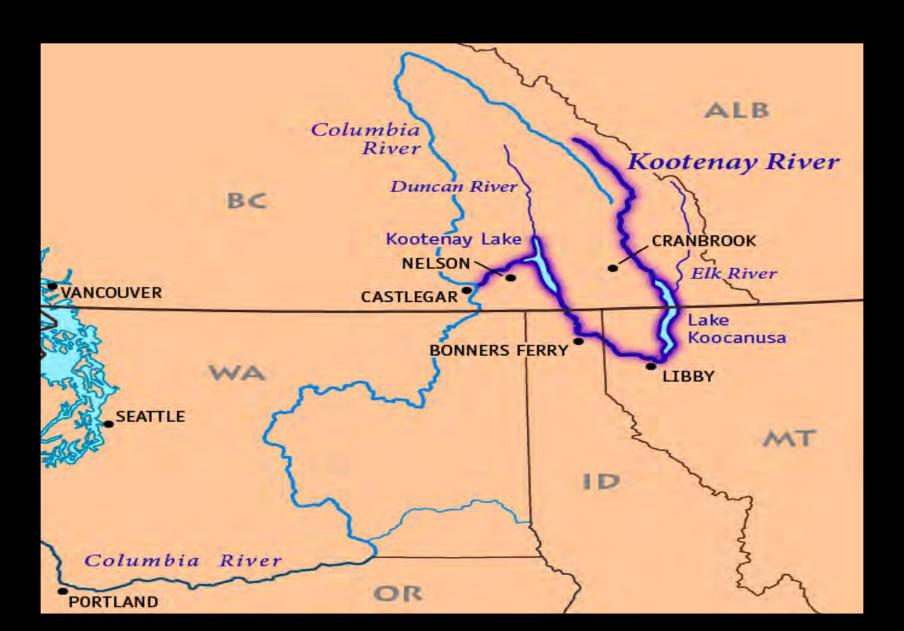
Narwhal, August, 2023



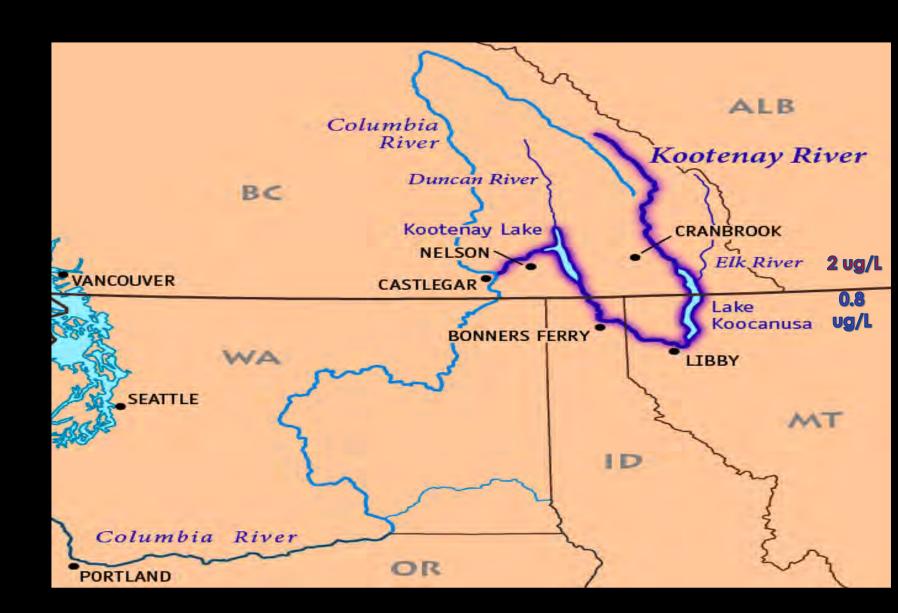
Where are we today...



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

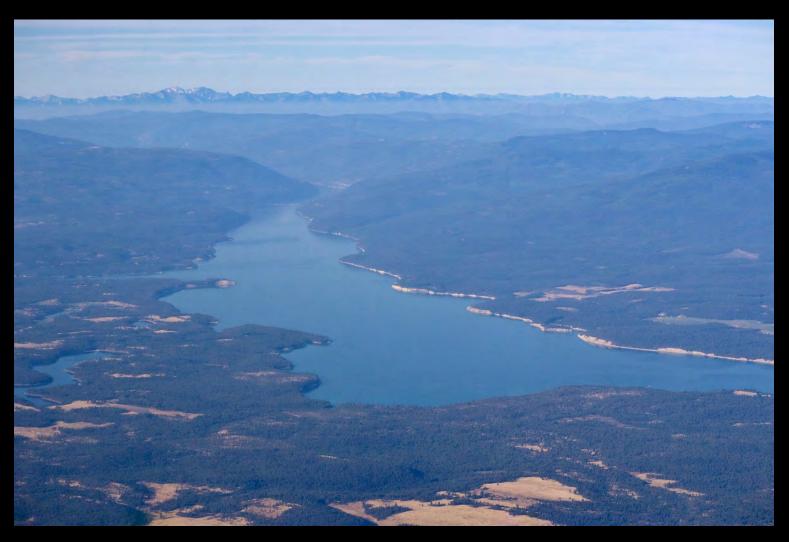


Koocanusa has two different water quality standards; one lake – two conflicting standards

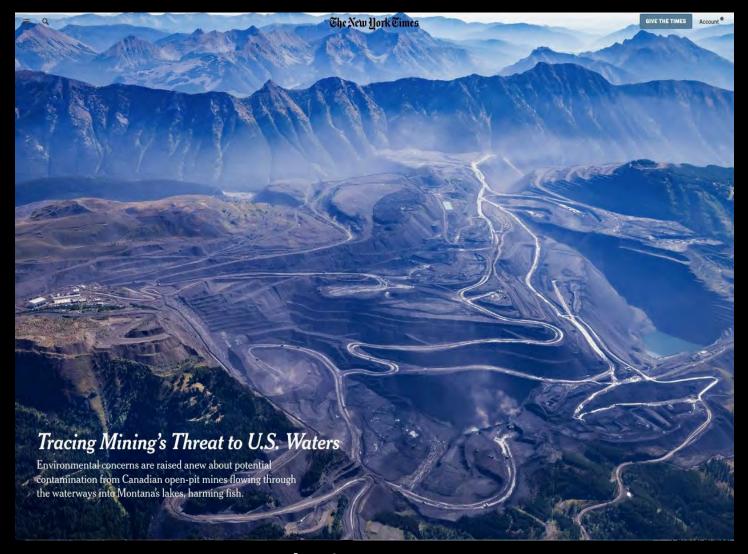


Where are we today...

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



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 watershedscale approach led by the Indigenous governments
- Inclusivity for all impacted governments