

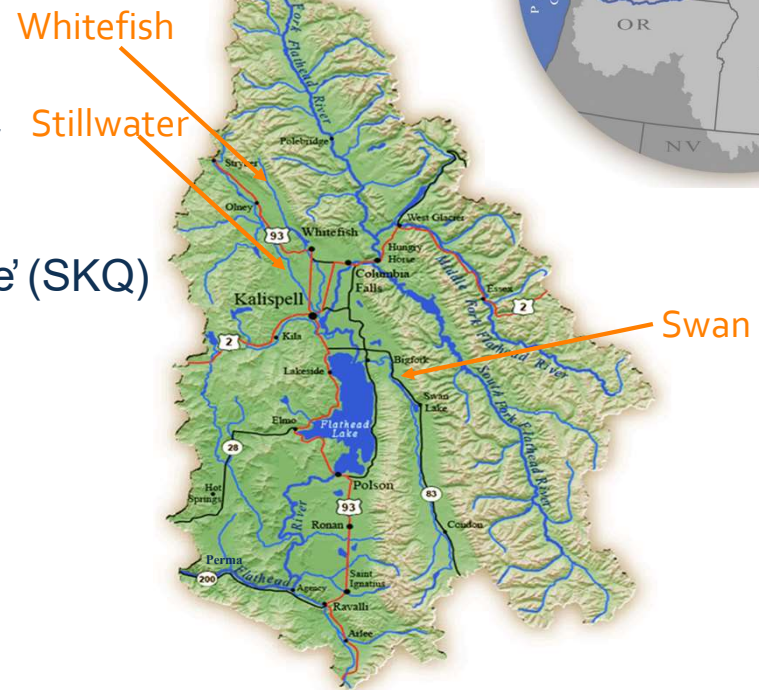


EKI's Stewardship of Flathead Lake and the Lower Flathead River

Eve James
March 14, 2024

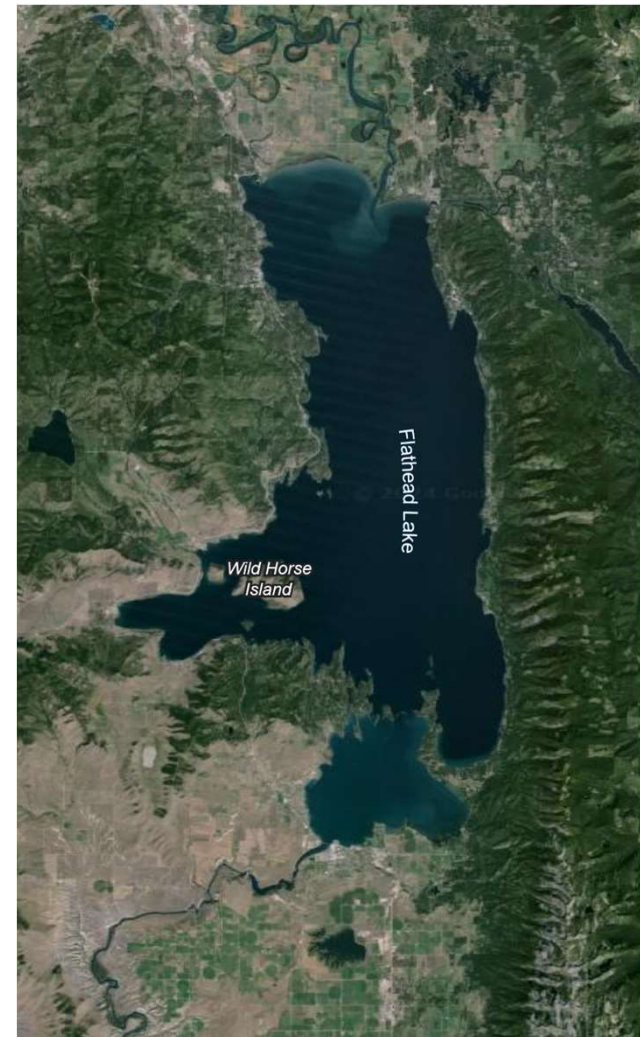
The Flathead River Basin

- Part of the Columbia River Basin
- Covers an area of 8,795 square miles
- North, Middle, and South Forks of Flathead River
- South Fork regulated by Hungry Horse
- Some small tributaries above Seliš Ksanka Q'lispe' (SKQ)
 - Stillwater
 - Whitefish
 - Swan
- Annual average discharge at Perma
 - 11.4 Thousand Cubic Feet Per Second (KCFS)
 - 8.2 Million Acre Feet (MAF)



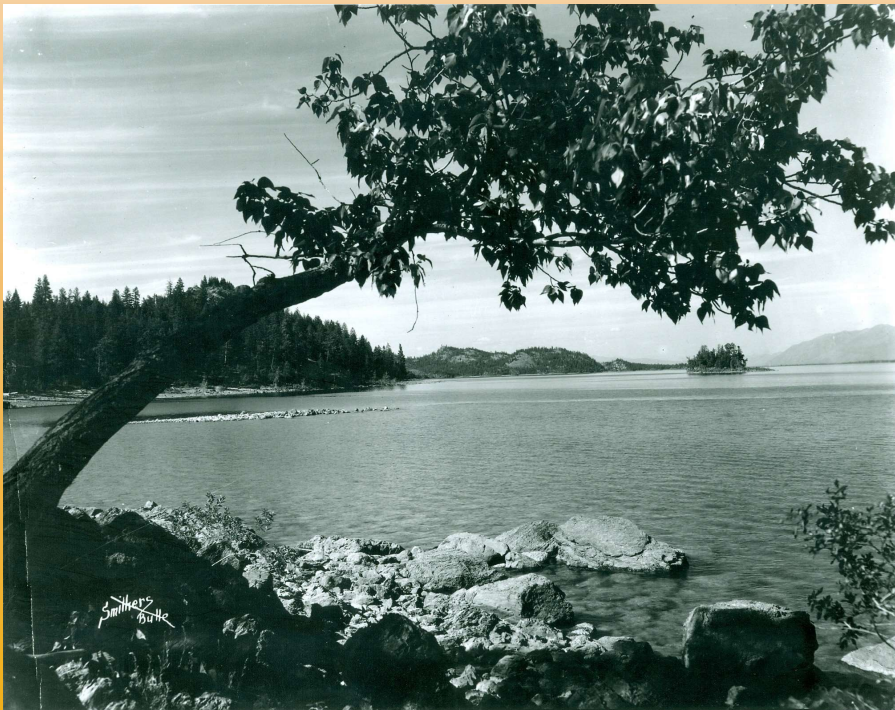
Flathead Lake

- The top ten feet of Flathead Lake are impounded by SKQ Dam
- A big lake – approximately 30 miles long and 15 miles wide with a surface area of nearly 200 square miles
- How much water is in a foot of storage in Flathead Lake?
 - ~60 KSFD in each foot
 - Ten feet of storage holds 614.7 KSFD or ~1.22 million-acre feet (MAF)
 - One foot of storage at Flathead Lake is ~5.4 feet of storage at Hungry Horse reservoir
 - 1 KSFD = 1,000 CFS of flow for one day
 - 1 MAF = 504 KSFD



Seliš Ksanka Ql̓ispe Dam History

The Seliš Ksanka Ql̓ispe Hydroelectric Project is built on sacred lands of the Confederated Salish and Kootenai People (CSKT). Lands originally reserved by the Hellgate Treaty of 1855. A Steven's Treaty is still in place today.



These lands and waters reserved by CSKT's treaty are the center of their homelands and provide the spiritual sustenance necessary for the perpetuation of CSKT's people and culture.

Seliš Ksanka Q'ispe Dam History



The Kerr Project (former name of SKQ Dam) was developed as a result of federal assimilation policies implemented on the Flathead Indian Reservation from 1908-1934

- Allotting of the land
- Creation of the Flathead Indian Irrigation Project (irrigation and power)
- Development of power sites by non-Indian business entities.

Seliš Ksanka Qlispe Dam History



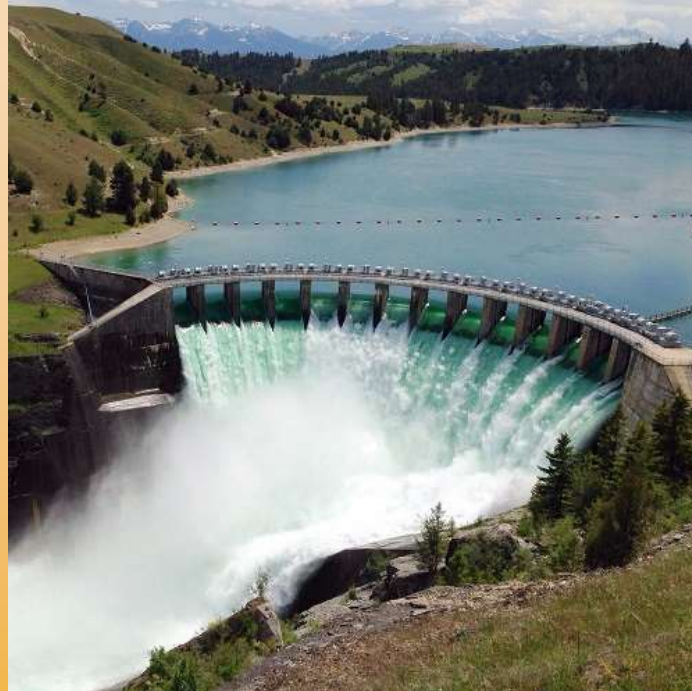
On September 5, 2015, CSKT reacquired the Seliš Ksanka Qlispe' Project implementing a goal of 40 years.

CSKT turned over operations to their wholly owned Independent Power Producer – Energy Keepers Inc.



Seliš Ksanka Qfispe Dam

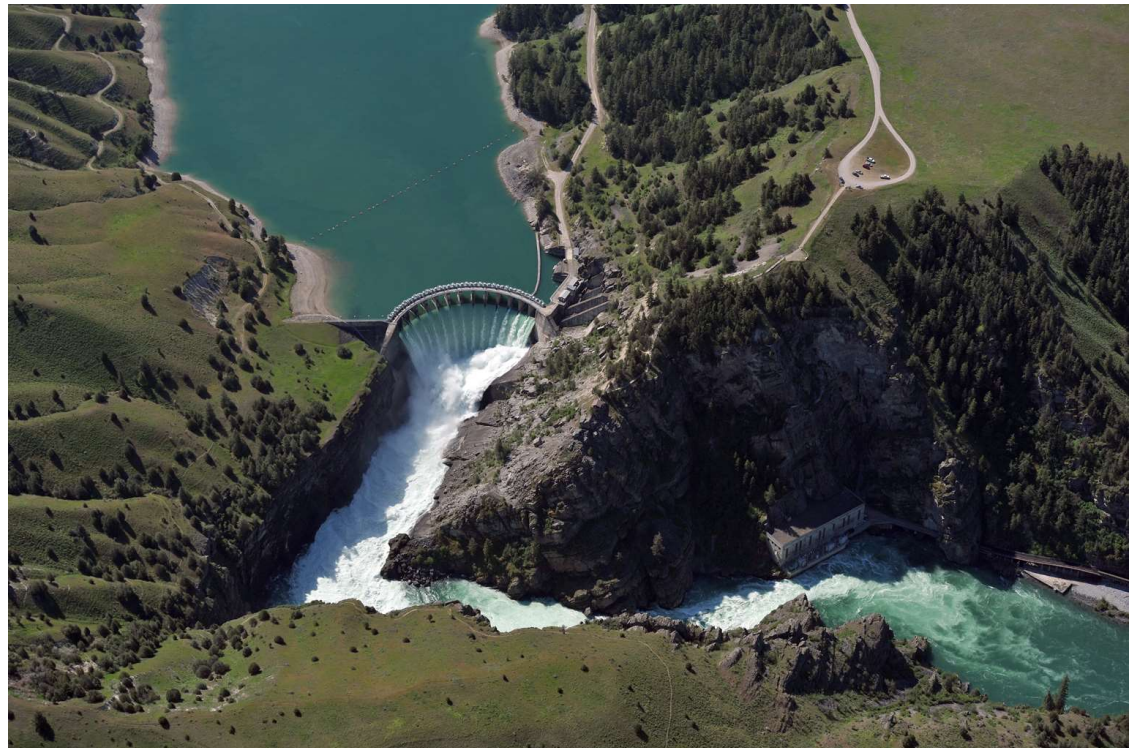
- Concrete arch dam
- 381 feet long
- 200 feet high
- 3 generating units
- 14 Spill Gates
 - ~40 KCFS Spill Capacity at full pool



On average, it produces 1.1 million MWh annually, enough to power 100,000 – 110,000 homes every year!

Federal Energy Regulator Commission (FERC) License P-005, The Seli's Ksanka Qlispe' Project

- + 50 Year License issued in 1985 to the Montana Power Company and the Confederated Salish and Kootenai Tribes as Co-Licensees
- + 80 Articles total, 25 are mitigation articles added in 1996
 - + Article 43 (lake levels)
 - + Articles 55-58 mitigation articles (flow levels)
 - + Articles 60 & 68 mitigation articles



Article 43 – Authorizes Storage of 1.2 MAF



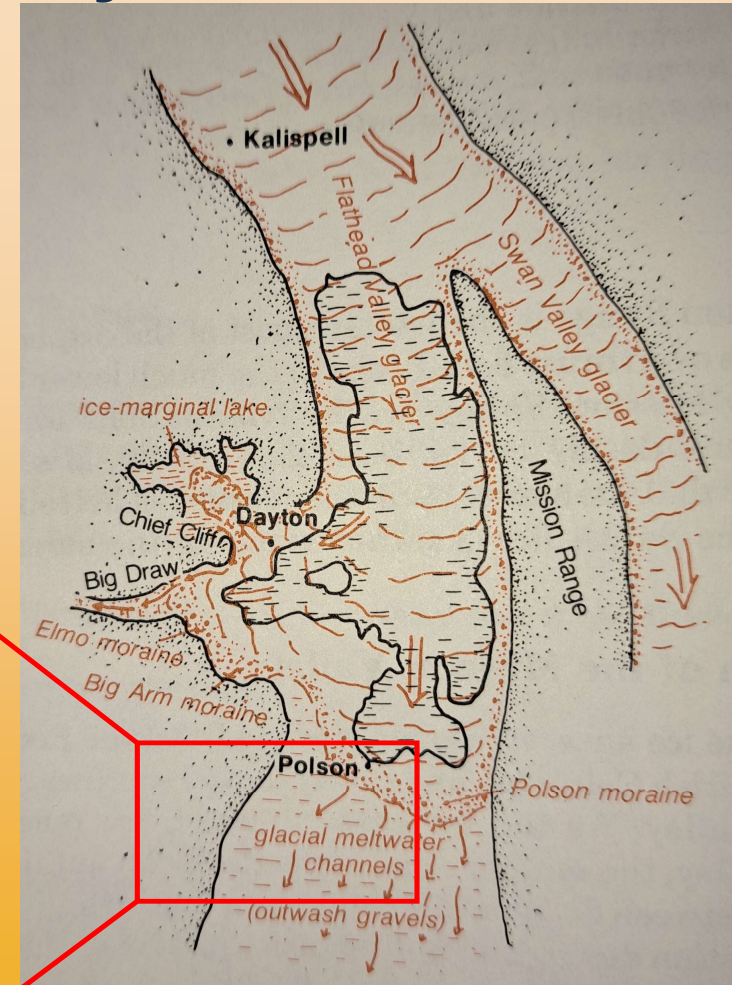
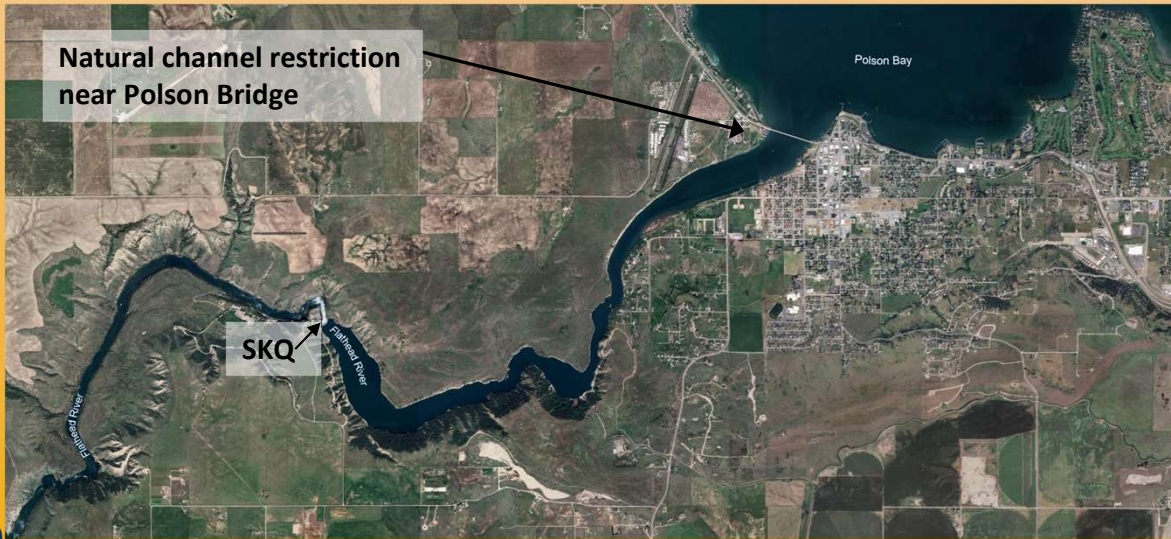
Article 43 Authorization:

- 1.2 MAF to be stored between 2883 and 2893 for use by the licensee.
- Limited by 1964 Flood Control MOU
 - Max Elev. 2883' if conditions allow – April 15
 - Max. Elev. of 2890' – no sooner than May 31
 - Max. Elev. 2893' if conditions allow – on or about June 15



Stream Channel Capacity

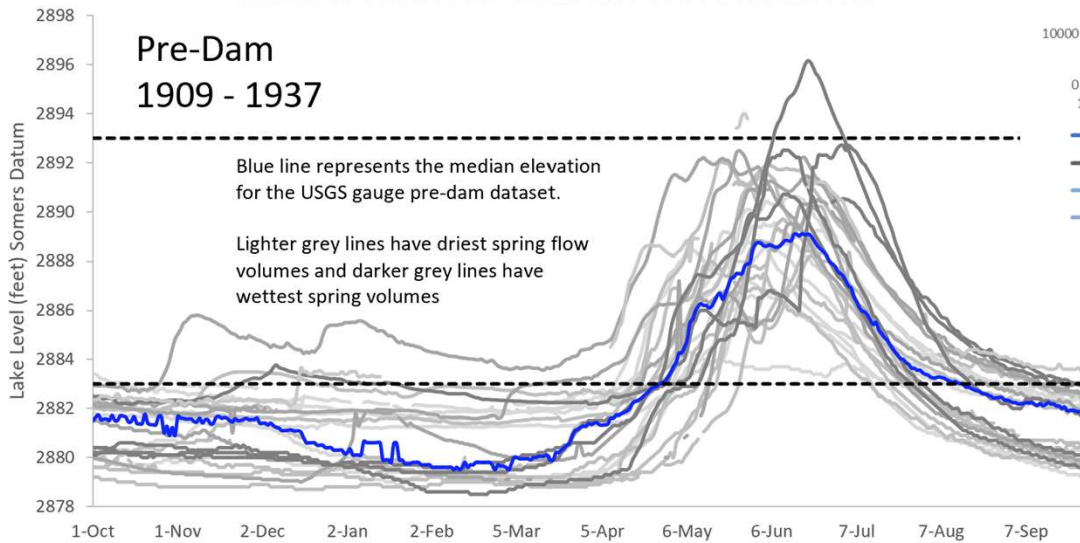
- After some earlier ice age, the Flathead River cut through a buried knob of hard Precambrian sedimentary rock to create a narrow gorge. SKQ dam was built at the north end of this gorge.
- Flathead Lake fills a basin that formed where a large mass of stagnant ice lingered as the last ice age ended.
- Before construction of SKQ dam, the lake level fluctuated throughout the year due to the channel restricted outflows near Polson Bridge.



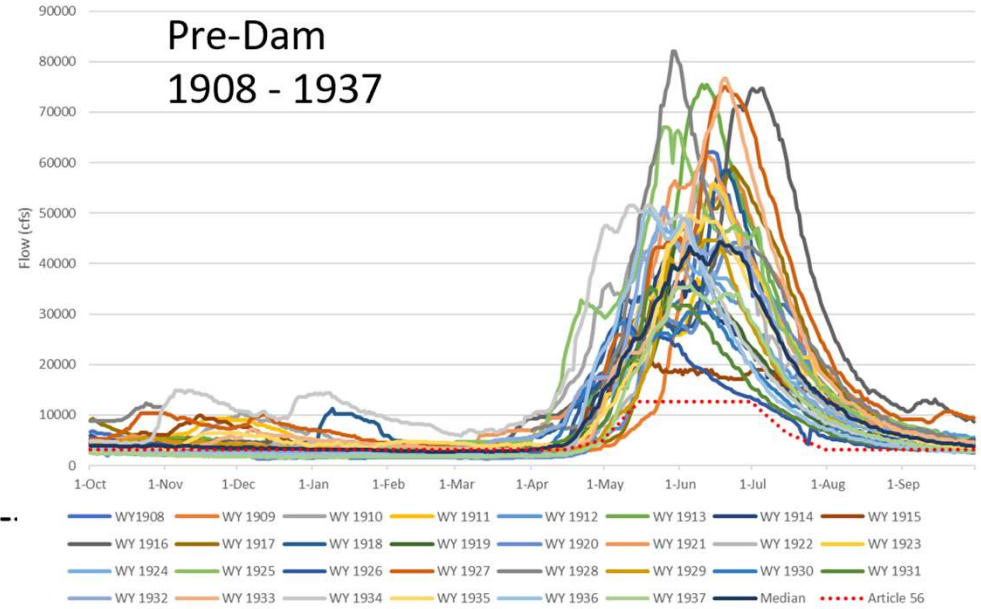
Graphic from Roadside Geology of Montana by University of Montana Professors David Alt and Donald Hyndman – extent of ice ~15,000 years ago

Pre-Dam - Lake and River Hydrographs

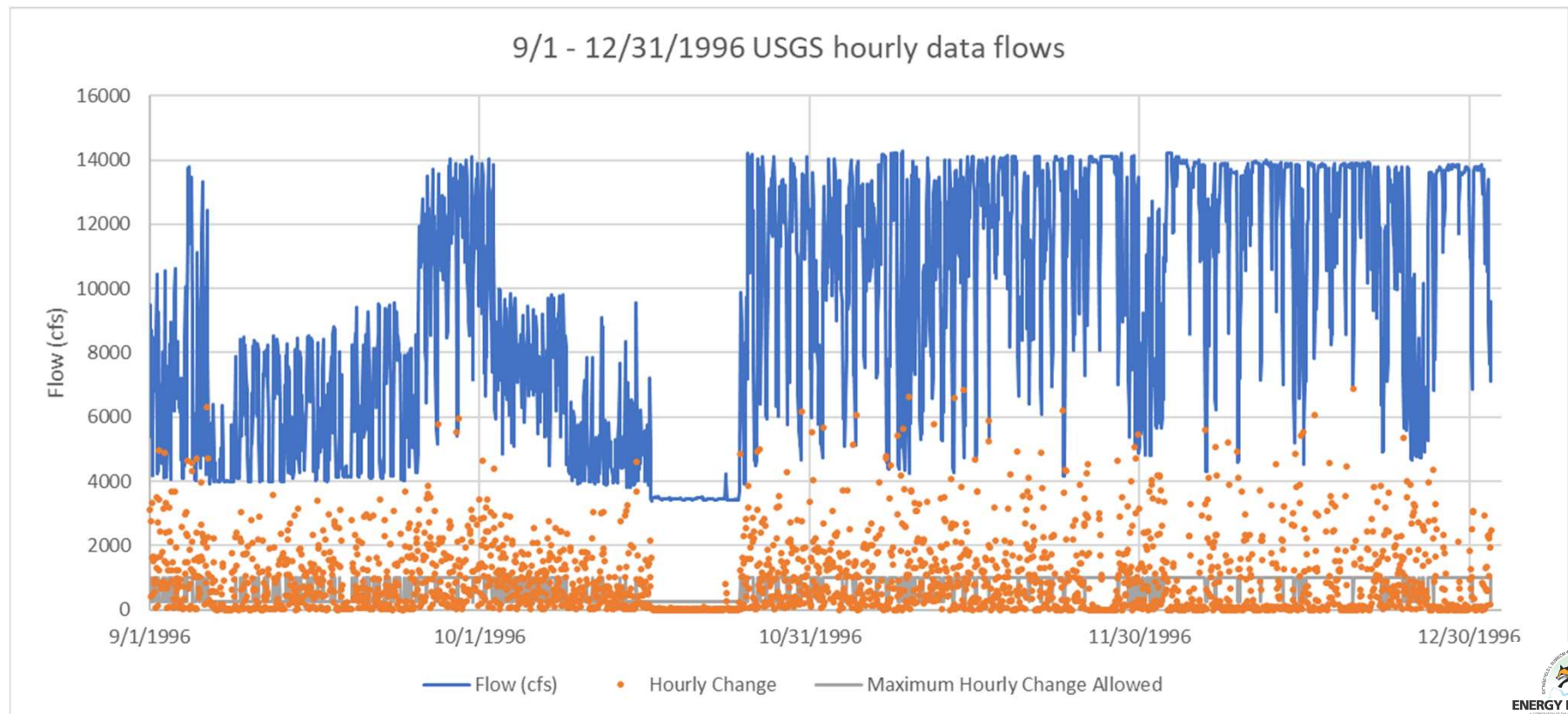
Natural Flathead Lake Level Fluctuations



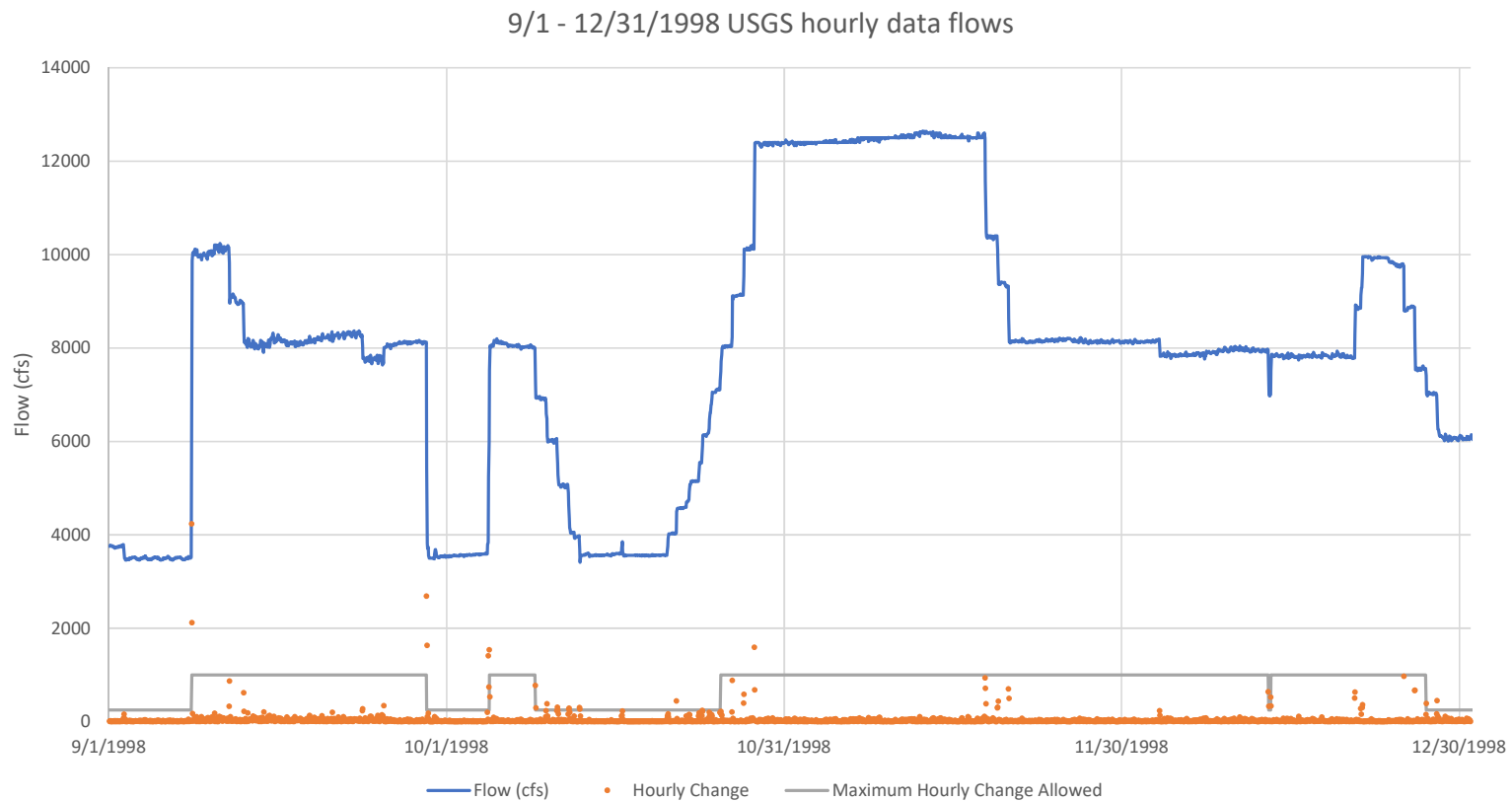
Flathead River near Polson, MT



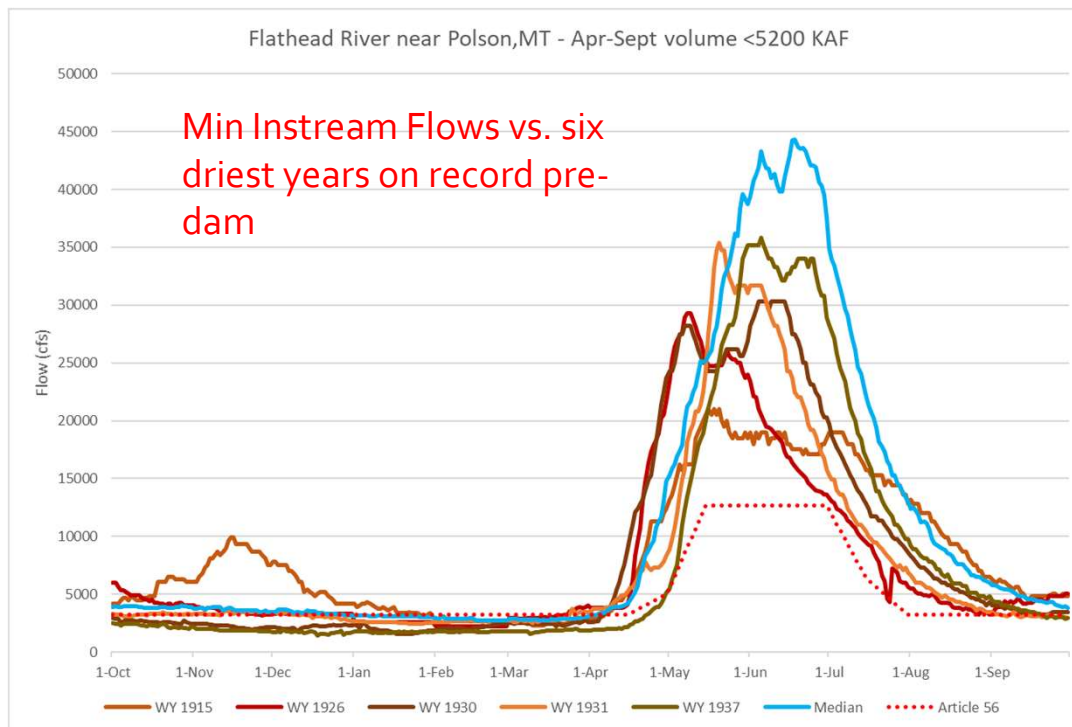
Lower Flathead River Prior to 4e conditions



Lower Flathead River After 4e conditions



Article 56 – Minimum Instream Flows



“The licensee shall maintain releases at or above the following instantaneous minimum flow, in cubic feet per second (cfs) on a continuous basis..... “

August 1 to April 15 = Continuous at 3,200 cfs
April 16 to April 30 = Increased from 3,200 cfs to 5,000 cfs at 120 cfs per day
May 1 to May 15 = Increased from 5,000 cfs to 12,700 cfs at 510 cfs per day
May 16 to June 30 = Continuous at 12,700 cfs
July 1 to July 15 = Reduced from 12,700 cfs to 6,400 cfs at 420 cfs per day
July 16 to July 31 = Reduced from 6,400 cfs to 3,200 cfs at 200 cfs per day

Article 60 – Drought Management Plan

- + Articles 56 and 60 are included in the license by the Secretary of Interior to protect the resources of the Flathead Indian Reservation
- + The purpose of Article 60 and the Drought Management Plan to be developed thereunder is to maintain minimum instream flows, even in the face of drought conditions, not to relax minimum instream flow conditions for purposes of maintaining a particular Flathead Lake level.
- + In some drought years there is not enough water volume available to store 1.2 MAF between 2883' and 2893' requiring an adjustment of either the maximum elevation or the minimum elevation which will be addressed in the drought management plan.
- + Sacrificing the minimum pool elevation decreases storage available for flood control and requires appropriate consideration with US Army Corps of Engineers (USACE).
- + EKI has maintained minimum instream flows and refilled the lake through the sacrifice of minimum pool elevation with USACE coordination through their flood risk management deviations process.
- + EKI will file an updated Draft Plan. Once the documentation is completed it will be submitted to the Secretary of the Interior and filed with the Commission.

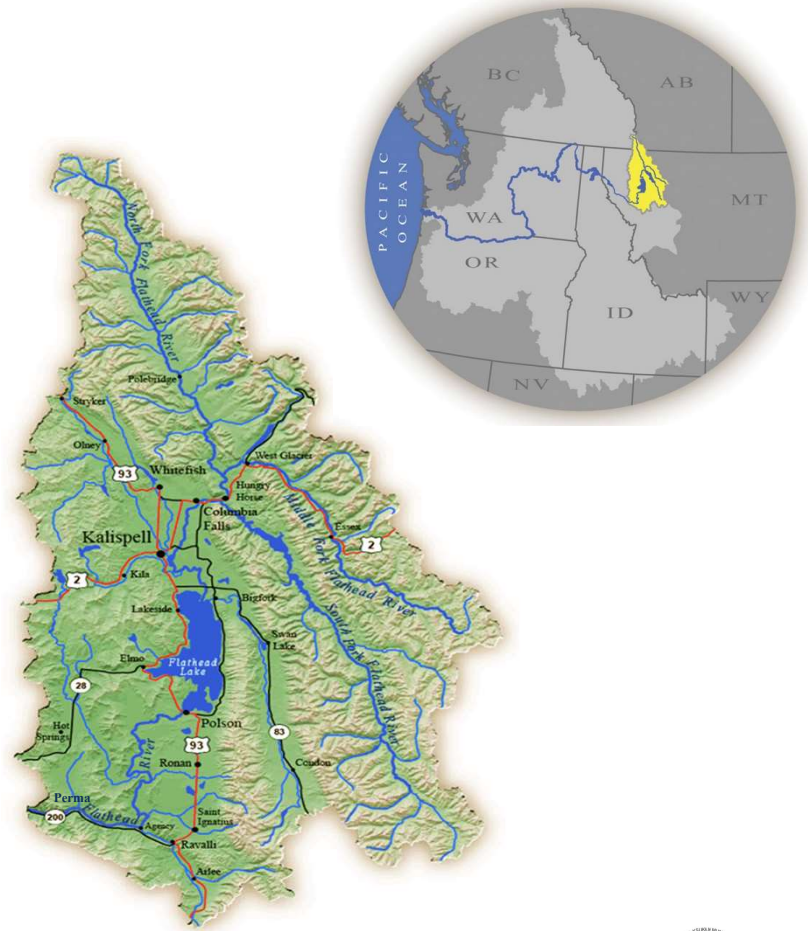


Article 68 – Northshore Erosion Control

- + Requires erosion control across the Lazy N Ranch Waterfowl Protection Area.
- + Gravel beaches combined with a Maximum Lake Elevation of 2891' no later than October 31st.
- + Habitat has increased over 20 acres since 2015.



- + The Flathead River is a headwater basin to the Columbia River System. Now the U.S. Army Corps of Engineers will describe the system and local flood risk management requirements.



Water Year 2022 and 2023 Flathead Lake Data

Snow water equivalent (water content of the snowpack) was similar for the Flathead Basin at the start of April of 2022 and 2023 with vastly different summer flow outcomes. Precipitation in mid-June 2022 resulted in a surcharge of the lake elevation and cooler temperatures slowly melted the snowpack until mid-July. Hot temperatures in May of 2023 rapidly melted the snowpack by mid-June and June precipitation was below normal resulting in low summer flows.

AWS Plot | SNOW WATER EQUIVALENT IN FLATHEAD

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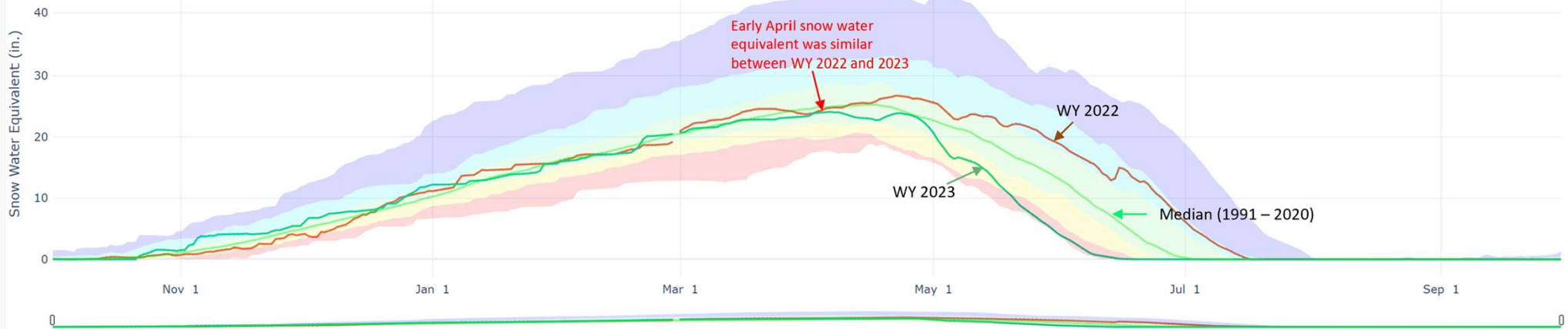
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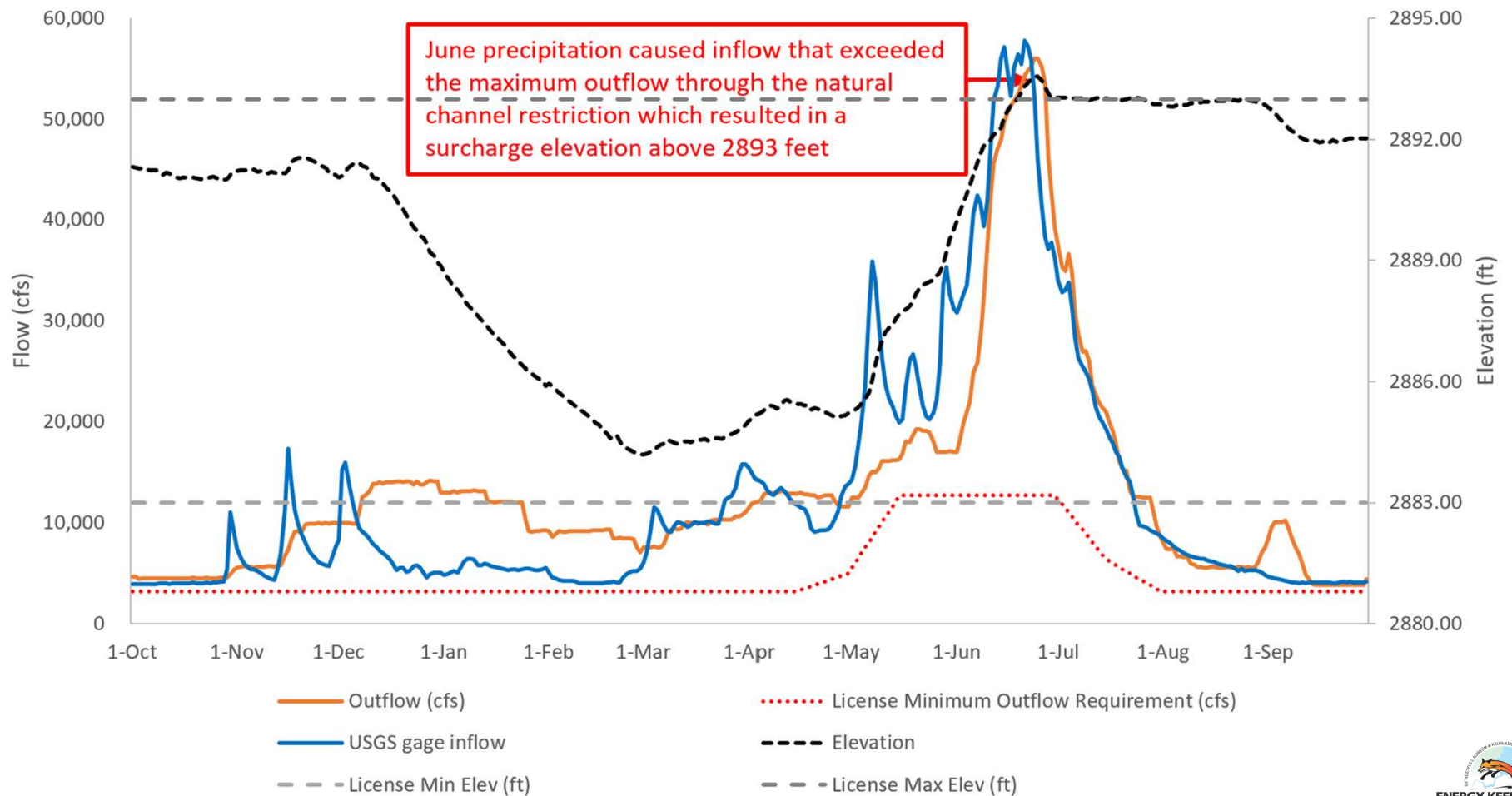
Reset Range

Link to data: CSV / JSON



Statistical shading breaks at 10th, 30th, 50th, 70th, and 90th Percentiles

Water Year 2022 Flathead Lake Data



Water Year 2023 Flathead Lake Data

Water Year 2023 Flathead Lake Data

