

# LIBBY DAM OPERATIONS WATER YEAR 2023

Date: 16 October 2023

Leon Basdekas  
Greg Hoffman



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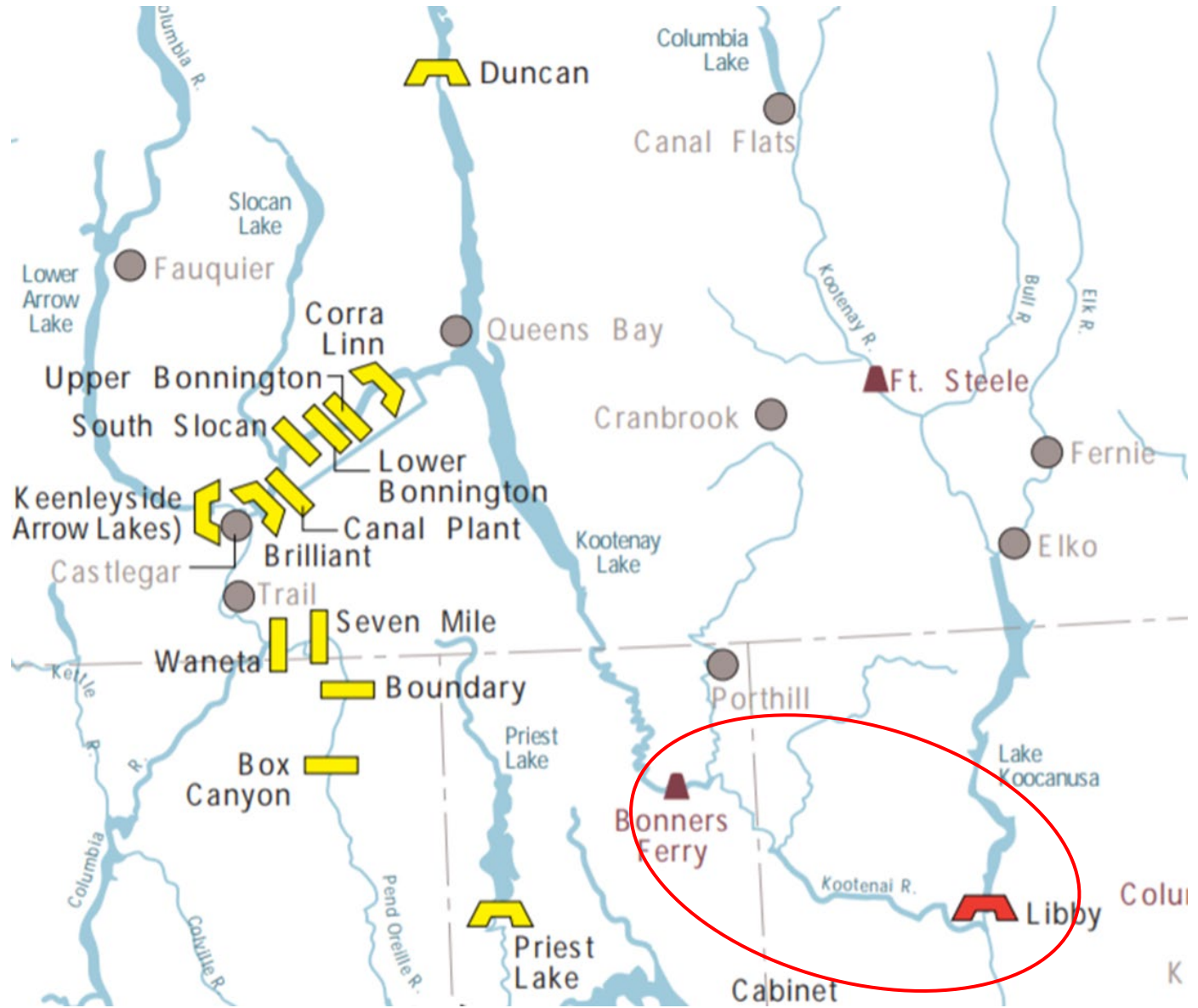
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# GENERAL BACKGROUND







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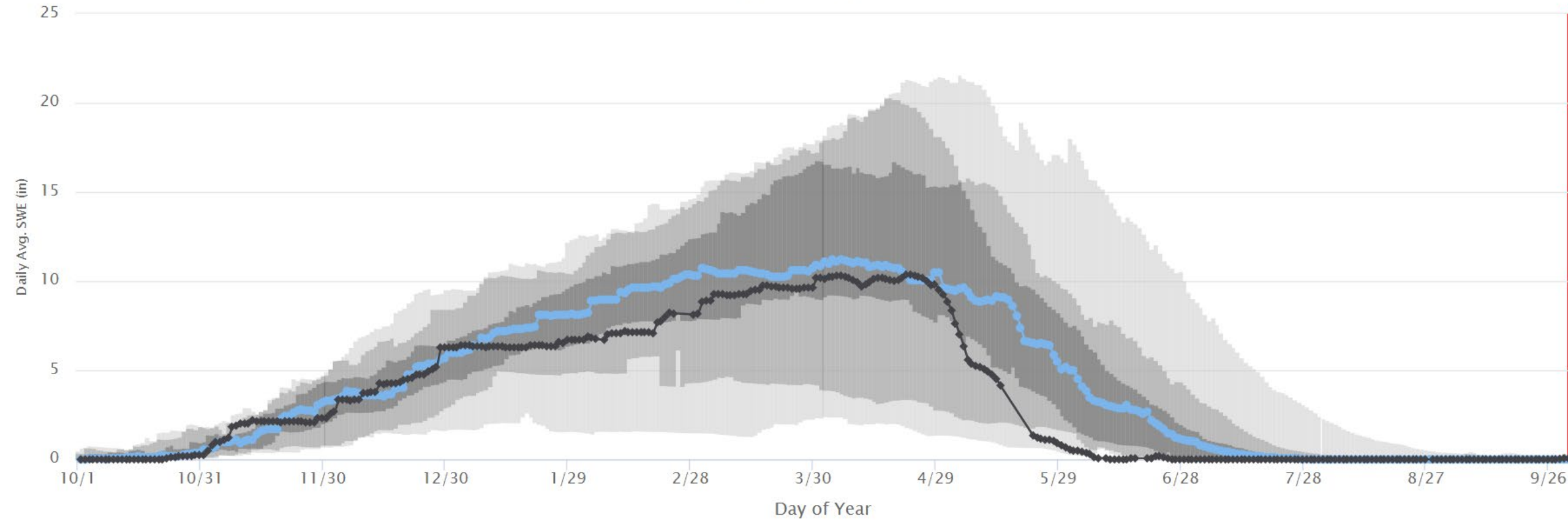


# BASIN SNOW

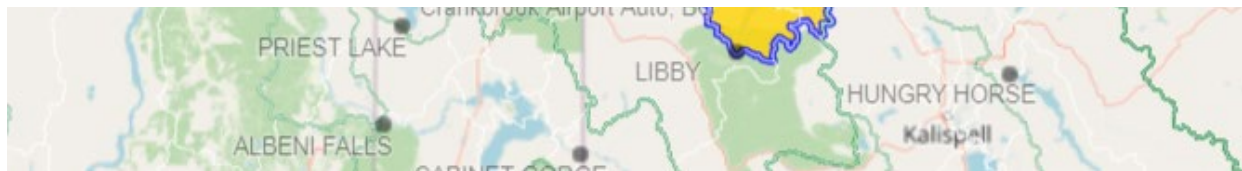


## SNODAS-Snow Water Equivalent-Libby Inflow

Water Year 2023



● Historical Max Min Range  
 ● Historical 10% to 90% Range  
 ● Historical 25% to 75% Range  
 — Historical Median  
 ◆ 2023 Daily SWE  
 ■ Current SNODAS Season

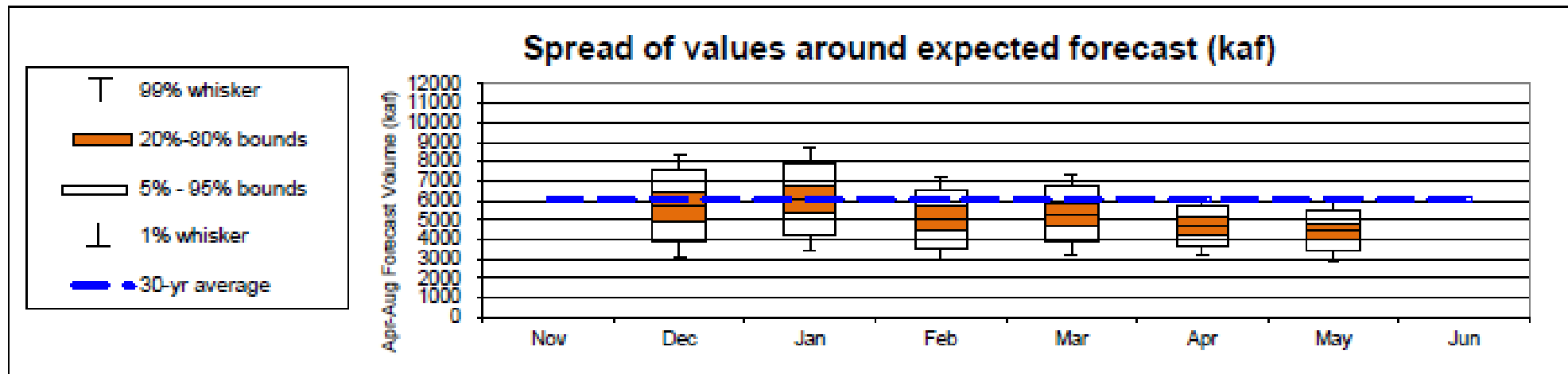




# MAY 1<sup>ST</sup> WATER SUPPLY FORECAST AND BIOP OBJECTIVES

- April-August inflow forecast for Libby Dam is 4.41 million acre-feet (MAF)
  - Forecast is 72% of average
  - Sturgeon Volume is 0.0 MAF, WSF < 4.8 MAF
  - Bull trout minimum flows May 15th through Sept 30 is 6 kcfs
- Libby flow augmentation draft 2439.0 ft for end of September (< 15th percentile)

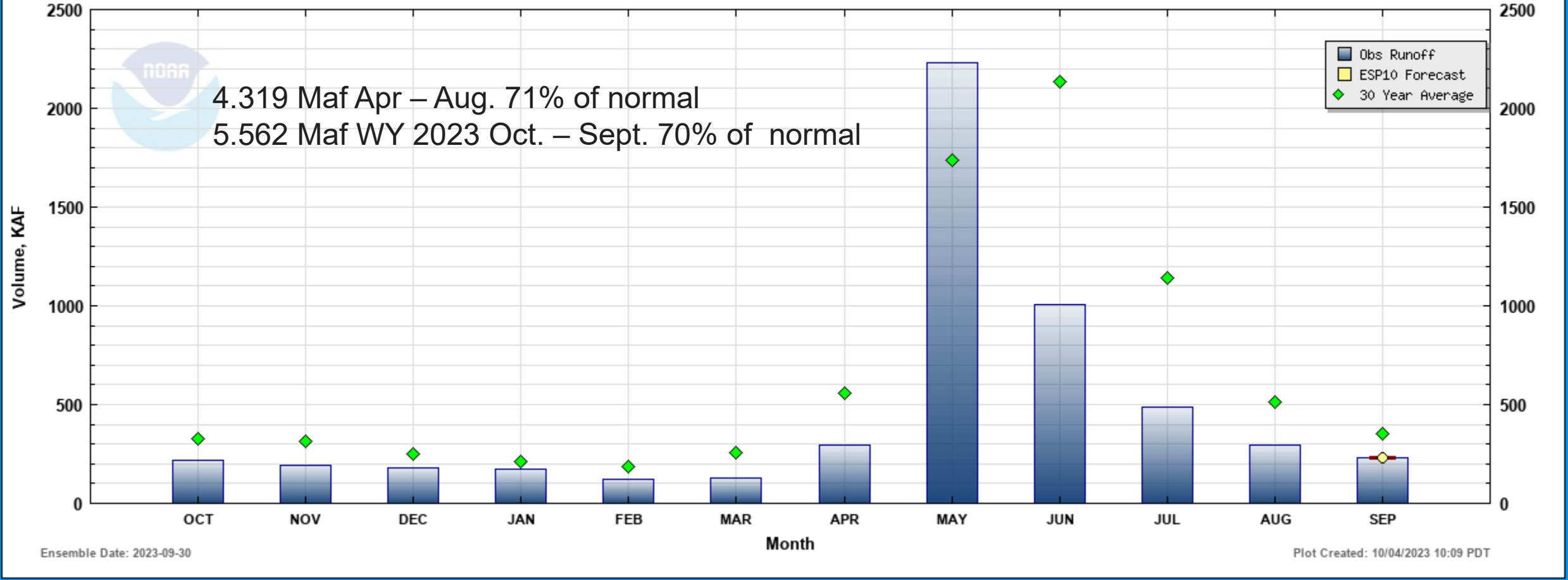
## • Libby Water Supply Forecast Trend:





# OBSERVED INFLOWS

Water Supply Volume Monthly Forecasts (ESP10) for Water Year 2023  
(LYDM8) KOOTENAI - LIBBY DAM





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# REFILL AND FLOW PLAN OBJECTIVES (FROM MAY MEETING)



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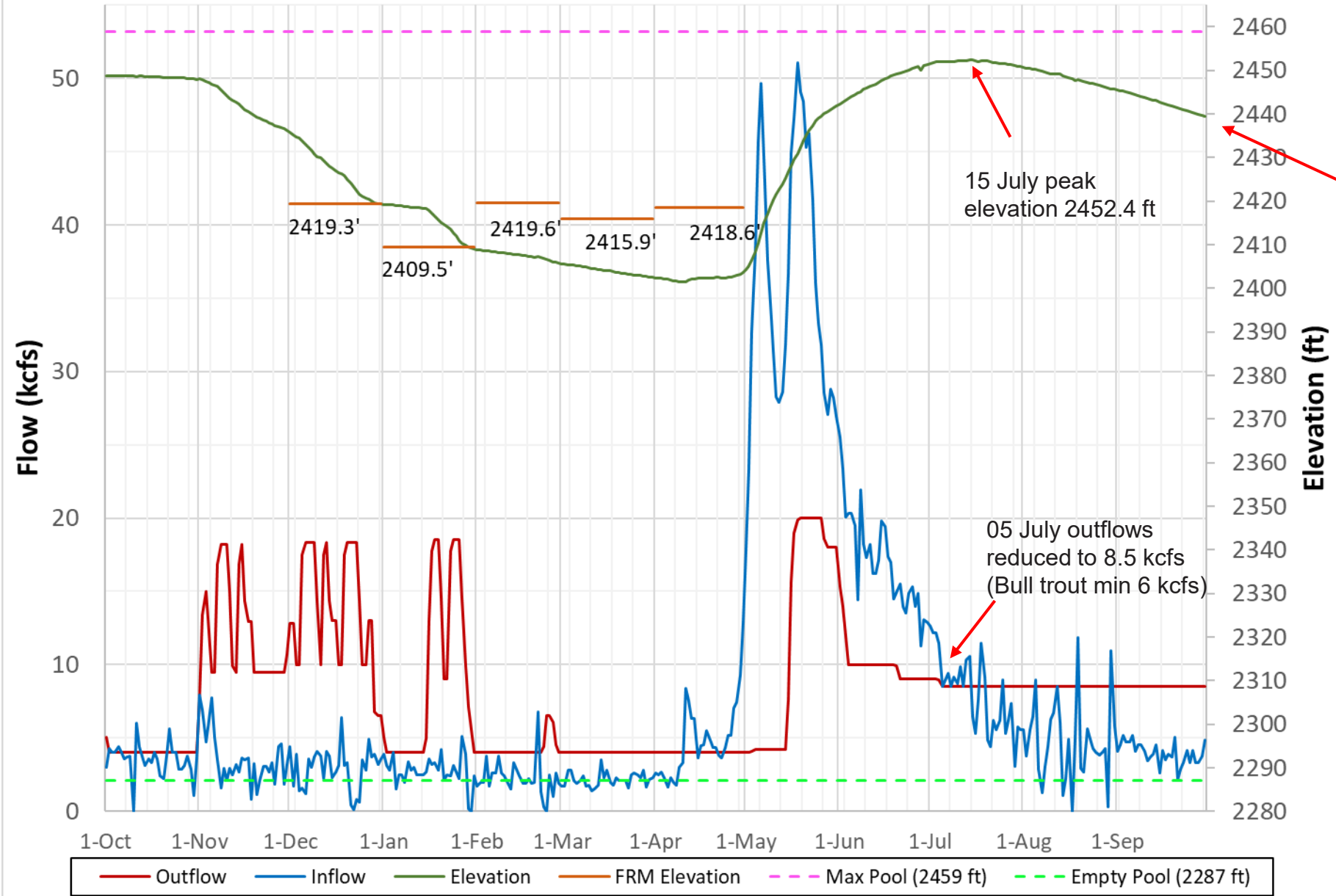
- Meet Lake Koocanusa refill objective of 2454.0 ft; earlier than typical.
- Meet end of September draft requirement of 2439.0 ft.
- Control refill as to not fill too early or too much. Median fill date (2454.0 ft) is July 1 with a peak on July 11 at 2454.71 ft.
  - Capture early runoff.
  - Allow enough time to draft end September and avoid double peaking.
- Shape the volume of water released from 16 May to mid-June to be more hydrologically and ecologically normative.
- Releases are not a sturgeon pulse. The outflow shape simply mimics a more natural runoff hydrograph.
- As with all our plans, we will adjust to real time conditions with more or less water than is currently forecast to best meet the above objectives.



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# Koocanusa Reservoir Operations Water Year 2023

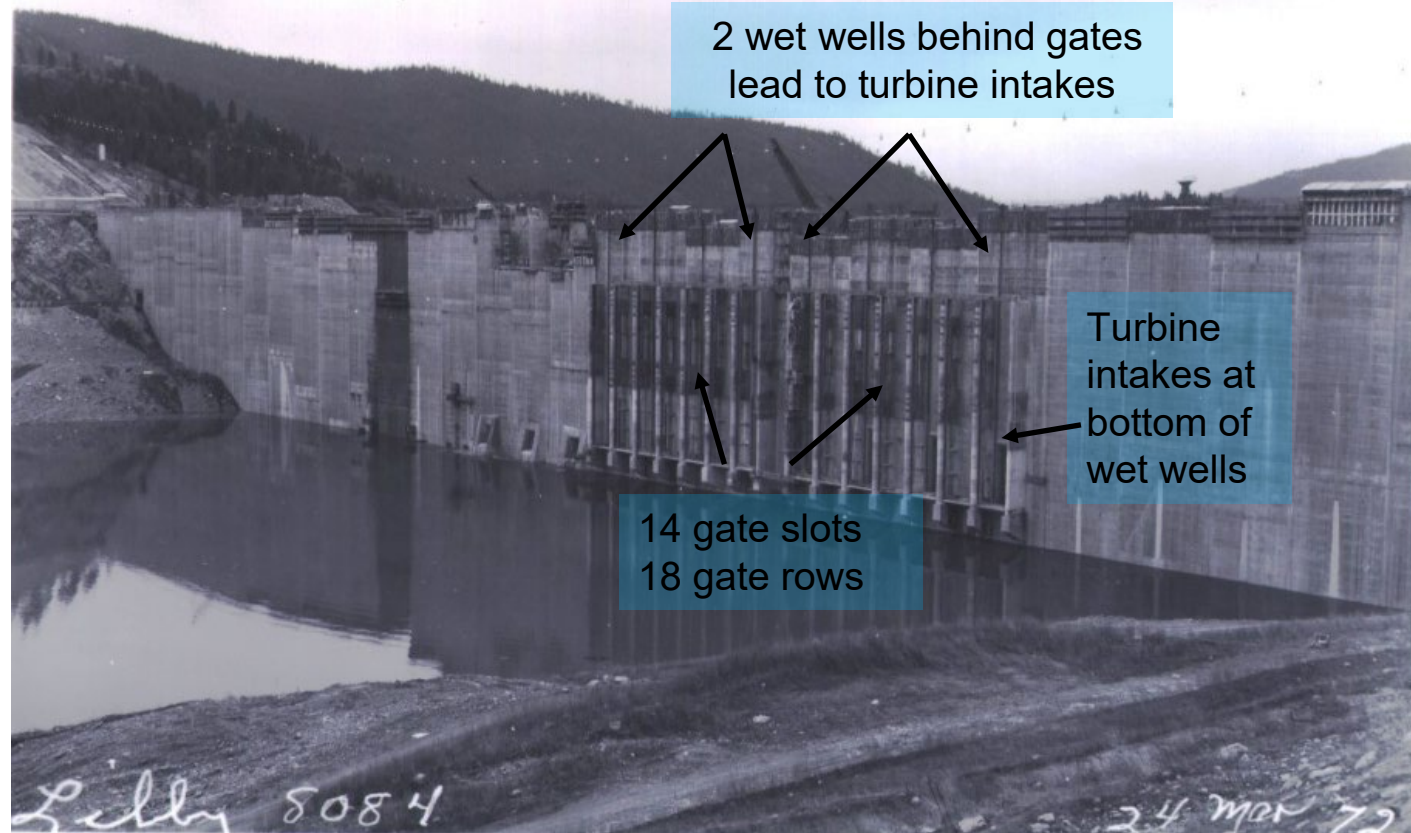




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## Libby Dam Temperature Management System



This 1972 photo of Libby Dam under construction shows various passage routes for water exiting the dam. Sluice ports (bottom left), are at bottom of reservoir where water is coldest. Vertical gate slots hold 252 panels that are stacked such that temperature-stratified water can be drawn over the top of the panels. Water then flows into one of two wet wells behind the panels and down into turbine intakes. Spillway entry (top left) is not useful for temperature management until reservoir fills to 30 feet above that level. Slots 1-7 (right to left) serve turbines 1-4. Slots 8-14 now serve only turbine 5 but would serve turbine 6 if added.

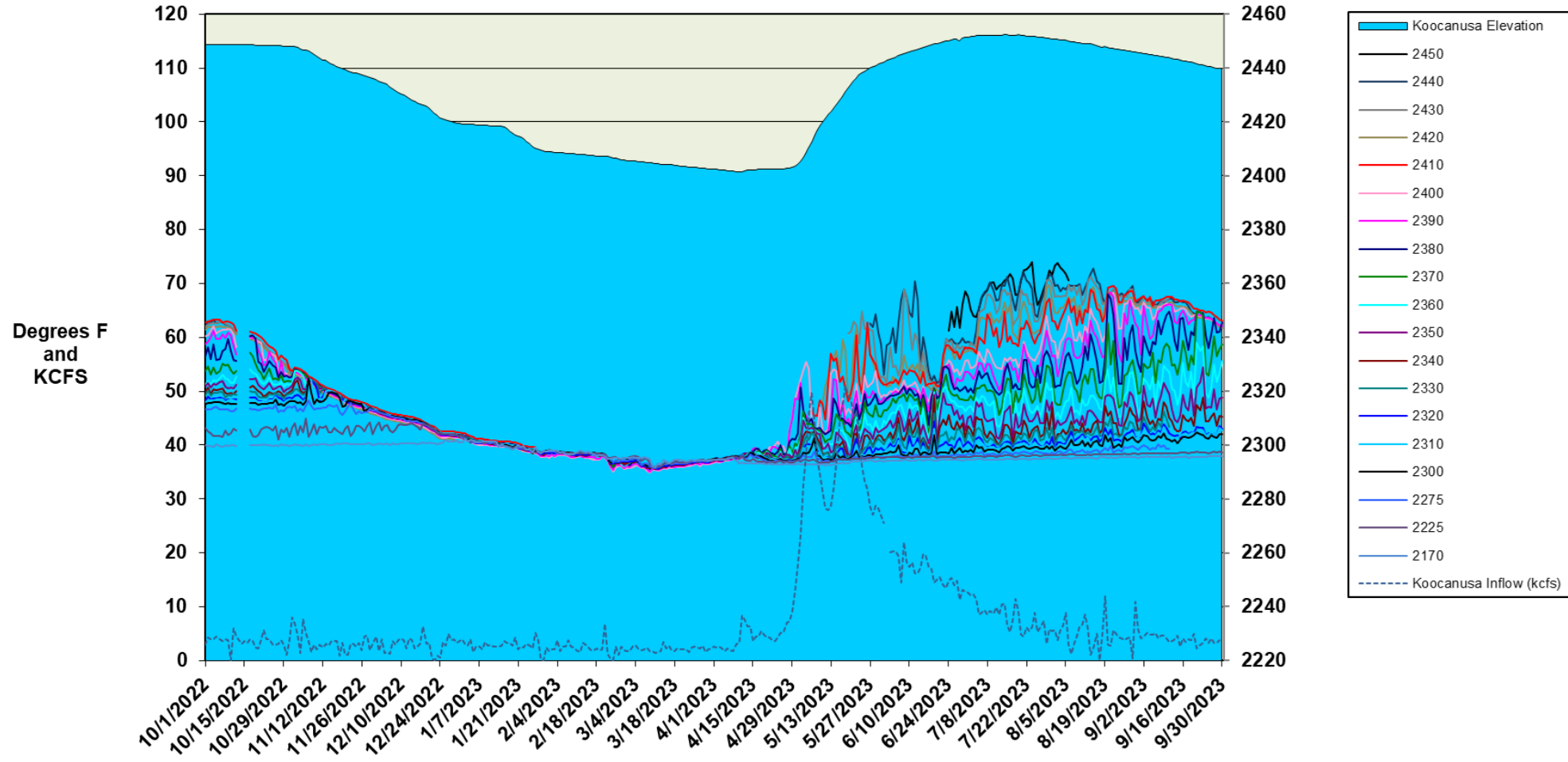




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### Koocanusa Reservoir Temperatures Water Year 2023

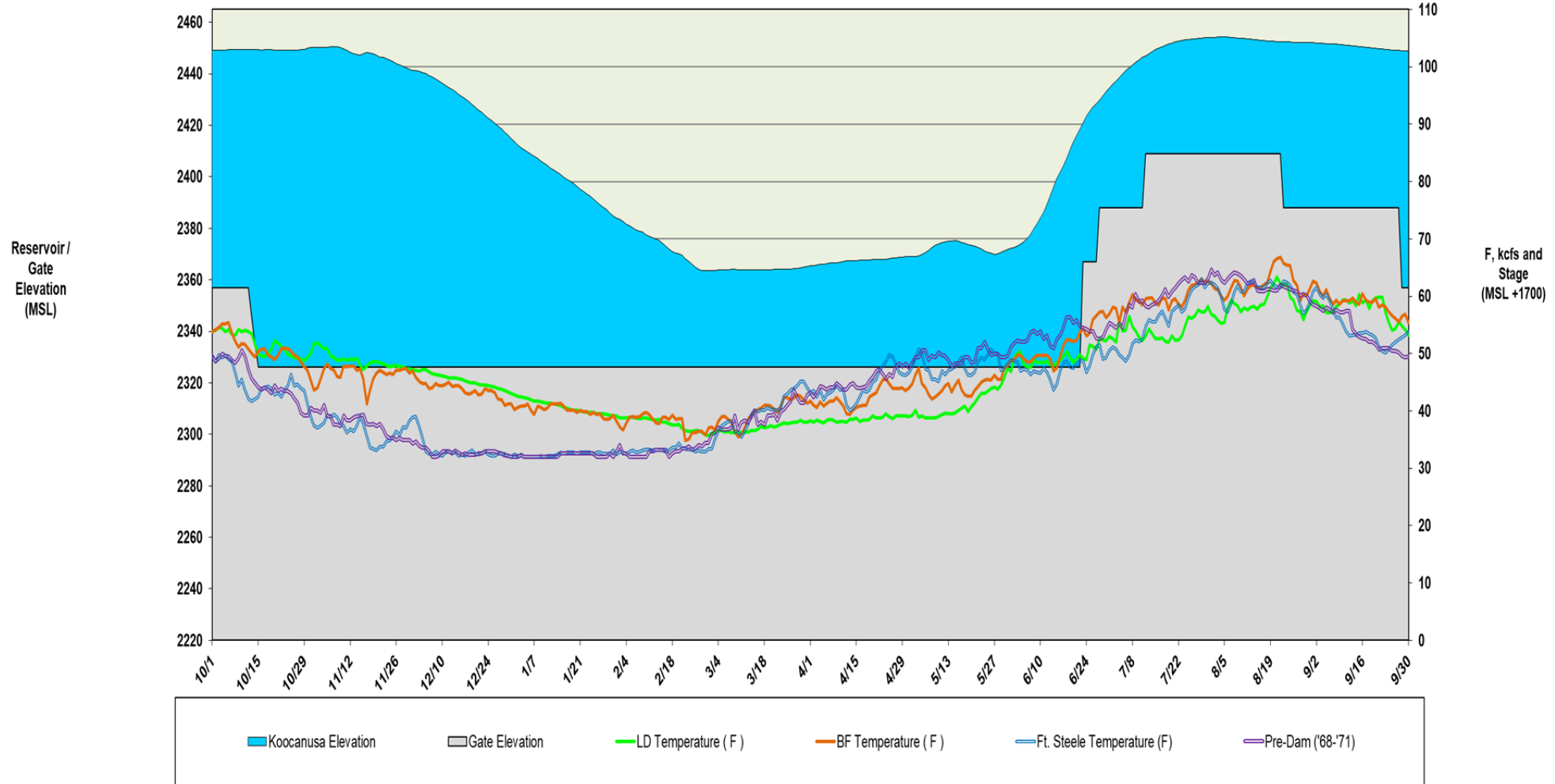




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### Kootenai River and Koocanusa Reservoir Temperatures WY 2022

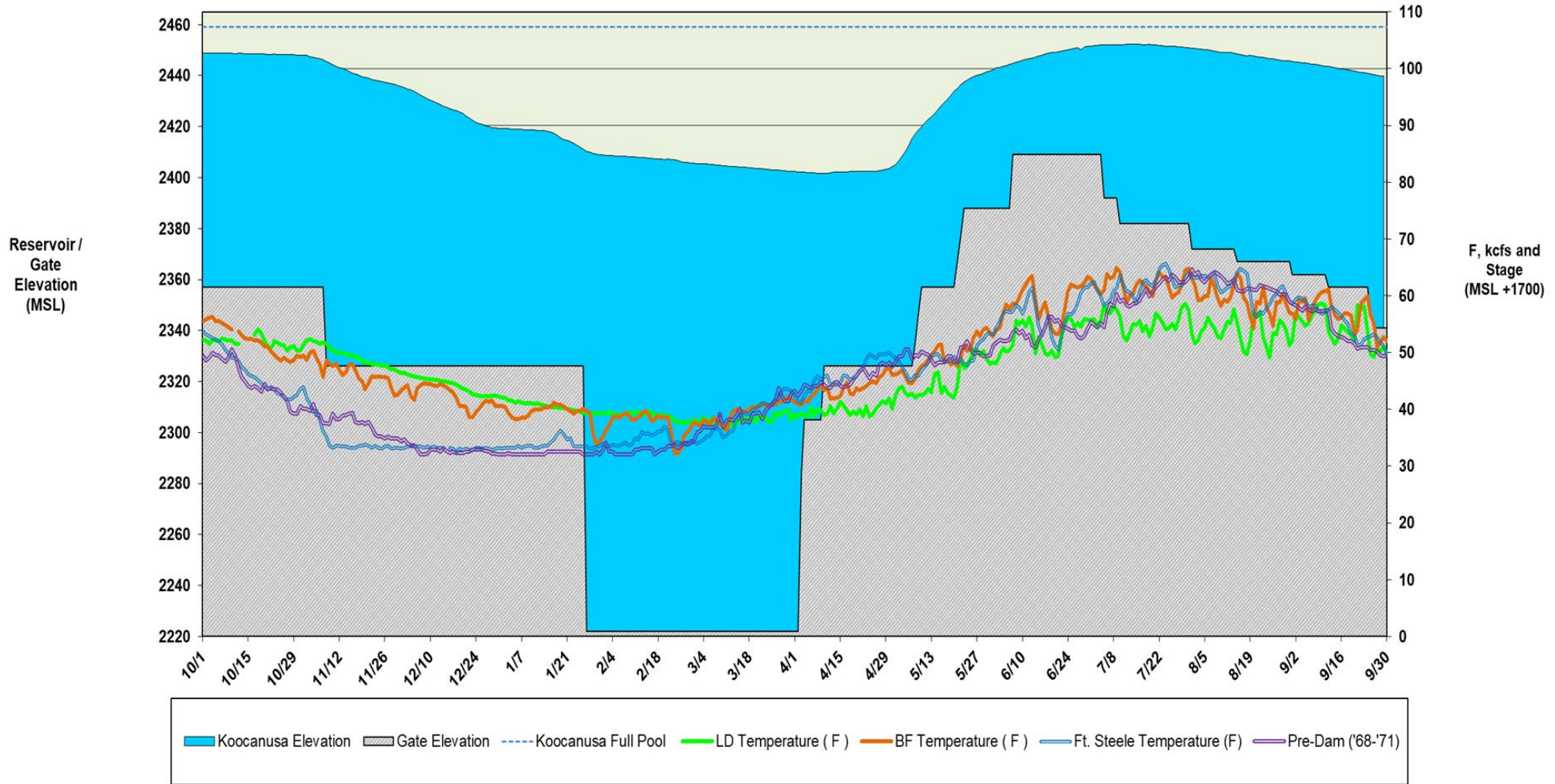




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### Kootenai River and Koocanusa Reservoir Temperatures WY 2023

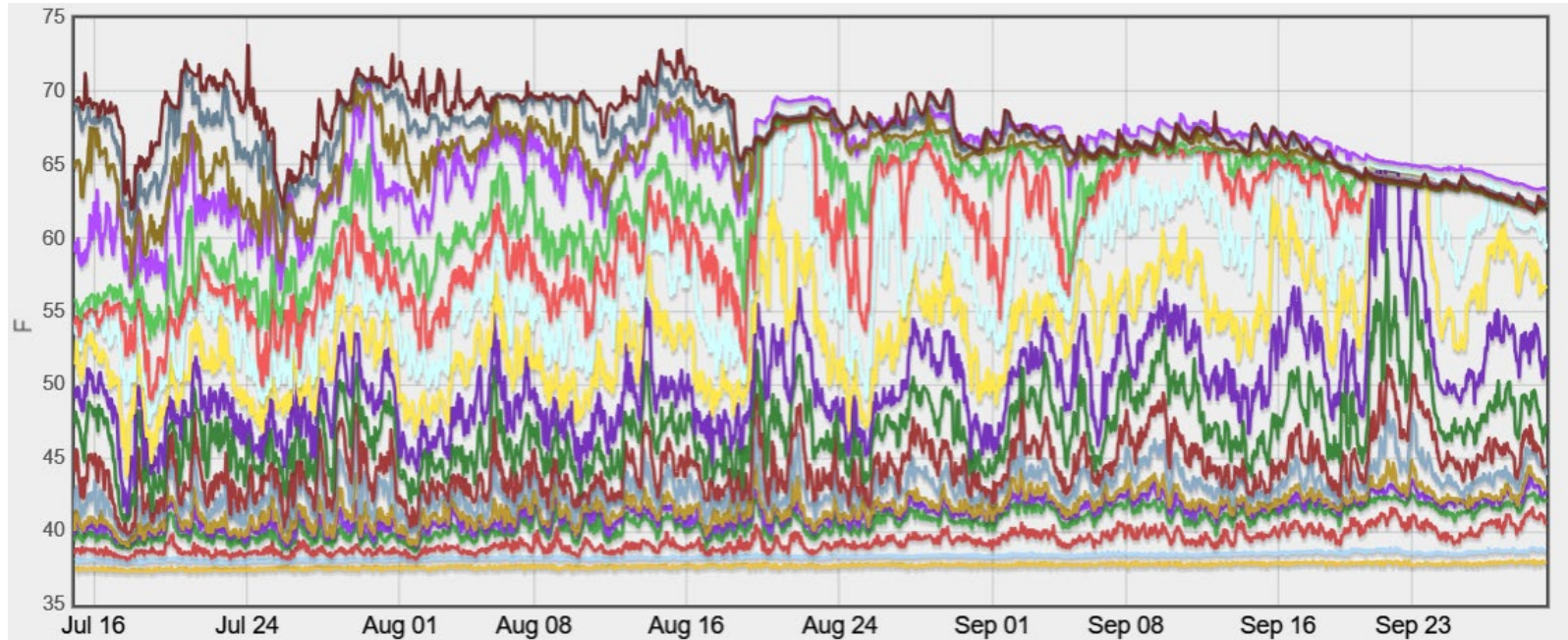
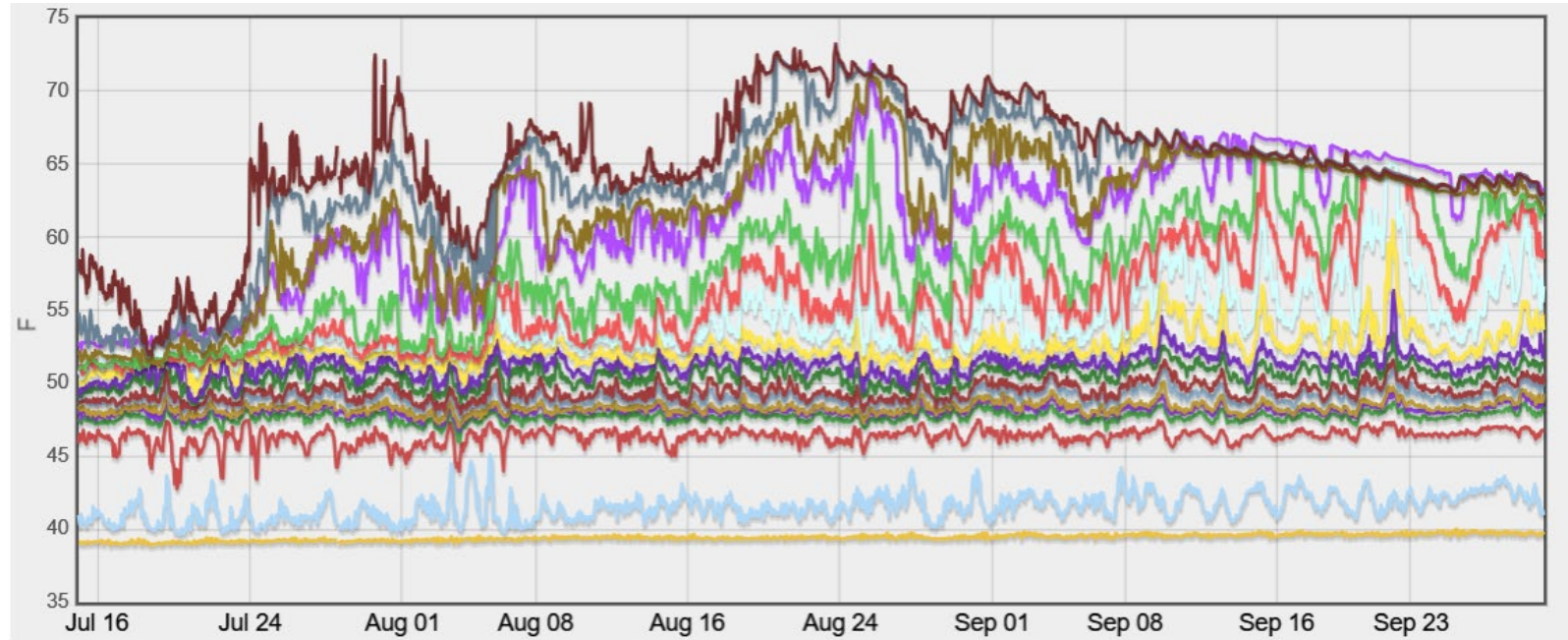






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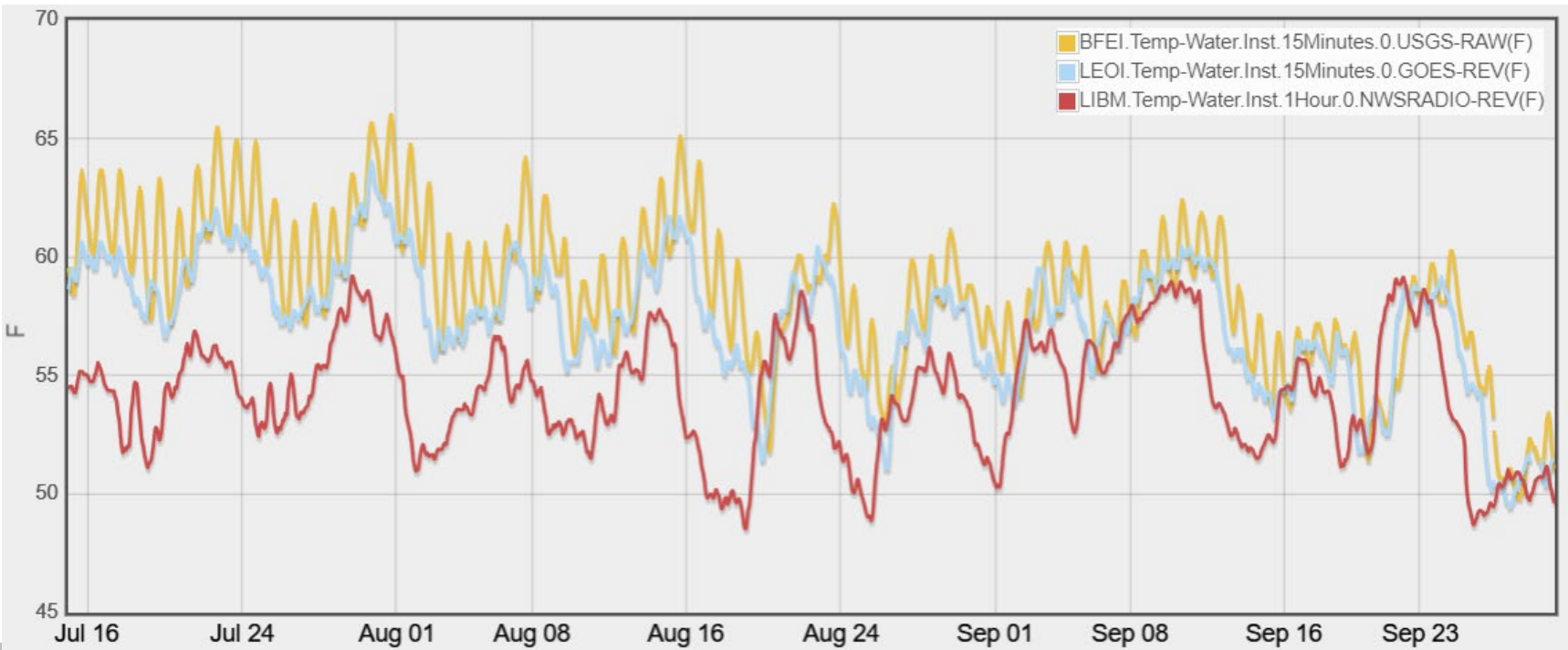
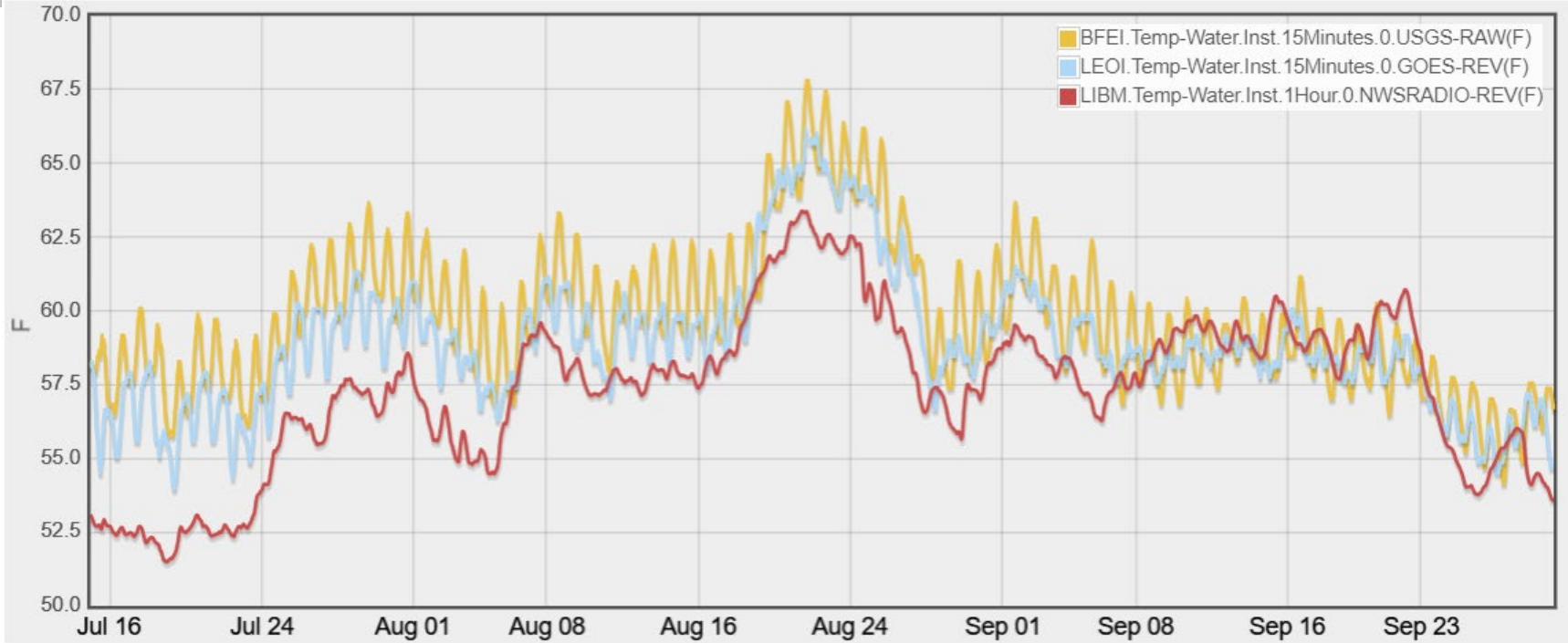
- LBTM\_S1-E2170ft.Temp-  
■ Water.Inst.1Hour.0.NWSRADIO-REV(F)
- LBTM\_S1-E2225ft.Temp-  
■ Water.Inst.1Hour.0.NWSRADIO-REV(F)
- LBTM\_S1-E2275ft.Temp-  
■ Water.Inst.1Hour.0.NWSRADIO-REV(F)
- LBTM\_S1-E2300ft.Temp-  
■ Water.Inst.1Hour.0.NWSRADIO-REV(F)
- LBTM\_S1-E2310ft.Temp-  
■ Water.Inst.1Hour.0.NWSRADIO-REV(F)
- LBTM\_S1-E2320ft.Temp-  
■ Water.Inst.1Hour.0.NWSRADIO-REV(F)
- LBTM\_S1-E2330ft.Temp-  
■ Water.Inst.1Hour.0.NWSRADIO-REV(F)
- LBTM\_S1-E2340ft.Temp-  
■ Water.Inst.1Hour.0.NWSRADIO-REV(F)
- LBTM\_S1-E2350ft.Temp-  
■ Water.Inst.1Hour.0.NWSRADIO-REV(F)
- LBTM\_S1-E2360ft.Temp-  
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- LBTM\_S1-E2370ft.Temp-  
■ Water.Inst.1Hour.0.NWSRADIO-REV(F)
- LBTM\_S1-E2380ft.Temp-  
■ Water.Inst.1Hour.0.NWSRADIO-REV(F)
- LBTM\_S1-E2390ft.Temp-  
■ Water.Inst.1Hour.0.NWSRADIO-REV(F)
- LBTM\_S1-E2400ft.Temp-  
■ Water.Inst.1Hour.0.NWSRADIO-REV(F)
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■ Water.Inst.1Hour.0.NWSRADIO-REV(F)
- LBTM\_S1-E2430ft.Temp-  
■ Water.Inst.1Hour.0.NWSRADIO-REV(F)







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# QUESTIONS

For emails regarding release changes and lake level updates email

- [UpperColumbiaWM@usace.army.mil](mailto:UpperColumbiaWM@usace.army.mil)
- [Leon.Basdekas@usace.army.mil](mailto:Leon.Basdekas@usace.army.mil)

General Queries call 206-764-6702

Seattle District water management data website :

<http://www.nwd-wc.usace.army.mil/nws/hh/www/index.html#>

**Reservoir Control Center** SEATTLE DISTRICT  
US Army Corps of Engineers  
Water Management Section

HOME ABOUT MEDIA AND CONTACTS LINKS GLOSSARY

**Basins and Projects**

- Chehalis River Basin
- Eastern Washington Rivers (Chief Joseph Dam)
- Flathead and Clark Fork Rivers
- Green River Basin (Howard Hanson Dam)
- Kootenai River Basin (Libby Dam)**
- Lake Washington (Lake Washington Ship Canals)
- Pend Oreille River Basin (Albent Falls Dam)
- Puyallup River Basin (Mud Mountain Dam)
- Skagit River Basin
- Water Quality Data

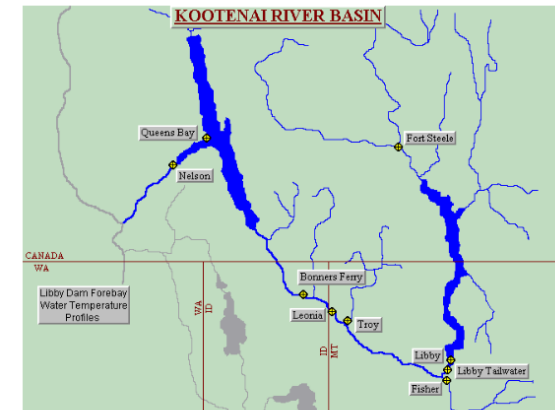
**Water Management**

The Water Management Section of the Seattle District Corps of Engineers is responsible for monitoring and/or regulating several rivers in the Puget Sound region. This has required the implementation of a complex computer network to collect data from multiple locations and gages every hour. The Water Management Section compiles data from several of its water control projects. The data that are provided here come from those projects and a variety of other sources including:

- National Weather Service (NWS)
- U. S. Geological Survey (USGS)
- U. S. Bureau of Reclamation (USBR)
- Seattle City Light (SCL)
- Tacoma Public Utilities (TPU)
- Puget Sound Energy (PSE)

**Basins and Projects**

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  - Bonners Ferry
  - Moyie River Eastport
  - Below Moyie Nr Bonners
  - Fisher
  - Fort Steele
  - Leonia
  - Libby
  - Libby Tailwater
  - Nelson
  - Queen's Bay
  - Troy
  - Libby Water Temp Profiles
  - Lake Kooocanusa Summary Hydrograph
  - ESP
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- Puyallup River Basin (Mud Mountain Dam)



### Stations

- Bonners Ferry
- Moyie River Eastport
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# RESERVOIR OPERATIONS 2022

