

NorthWestern[®] Energy

Delivering a Bright Future

PUBLIC MEETING

March 11, 2020

Thompson Falls Hydroelectric Project



AGENDA

- Introductions
- Safety Moment
- Purpose of the Meeting
- Review of the FERC Relicensing Process
- NWE's October 2019 Operational Test
- Observations made during the Operational Test
 - Recreation
 - Water Quality
 - Fisheries and the Fish Ladder
- Proposed Operations
- Q&A



Safety Message & Purpose of the Meeting

- Safety Message:

Move your clocks ahead and check your smoke detectors

- Review the relicensing process and report on observations from the October 2019 Operational Test.



- **1913-1915** original construction
- **1938** - Initial license
- **1979** – Current license
 - Amended in **1990** to allow the addition of a new powerhouse and generating unit
 - Amended in **2009** again for construction of the fish ladder
- **2025** License Expires



Getting Ready for Relicensing

- Initiated an Informal and Voluntary Process to involve stakeholders early and often
 1. Notified FERC informally of our decision to use the ILP process
 2. Hosted a Relicensing 101 Meeting with FERC
 3. Collected existing information on the Project
 4. Consulted with key agency personnel (USFWS, FWPs, GMCD, USFS, DEQ)
 5. Compiled the information into a document that we made available on our website: Baseline Environmental Document (BED)
 6. Held workshops with key stakeholders to discuss the BED
 7. Hosted the October 2019 Stakeholder Meeting in Thompson Falls



Integrated Licensing Process

Default

Pre-filing

Initial Proposal
& PAD

Scoping
Meetings &
Public
Comment

Study Plan
Development

Conduct
Studies &
Prepare
Application

1 year

2-3 years

Post-filing

License
Application

FERC Review &
Public
Comment

FERC
Environmental
Document &
Public
Comment

FERC Decision
(License
Order)

1.5 years



Pre-Application Document (PAD) and Notice of Intent

- NorthWestern is required to file a PAD and the Notice of Intent between 5 and 5.5 years before license expiration
 - July 2020 is target date
- After the PAD is filed, there will be scoping meetings and a site visit
- A Study Plan is developed and implemented
- NorthWestern's license application is due no later than December 2023



Opportunities for Participation in the Relicensing Process – Study Plan

Activity	Date
File PAD. Formal FERC process begins with this filing.	July 1, 2020
Scoping Meetings and On-Site Project Site Visit	September 2020
Comments on PAD and Study Requests	October 2020
NorthWestern Proposed Study Plan	December 2020
Study Plan Meetings	January 2021
Stakeholder Comments on Proposed Study Plan	March 2021
NorthWestern Files Revised Proposed Study	April 2021
Stakeholder Comments on Revised Study Plan	April 2021
FERC Study Plan Determination	May 2021

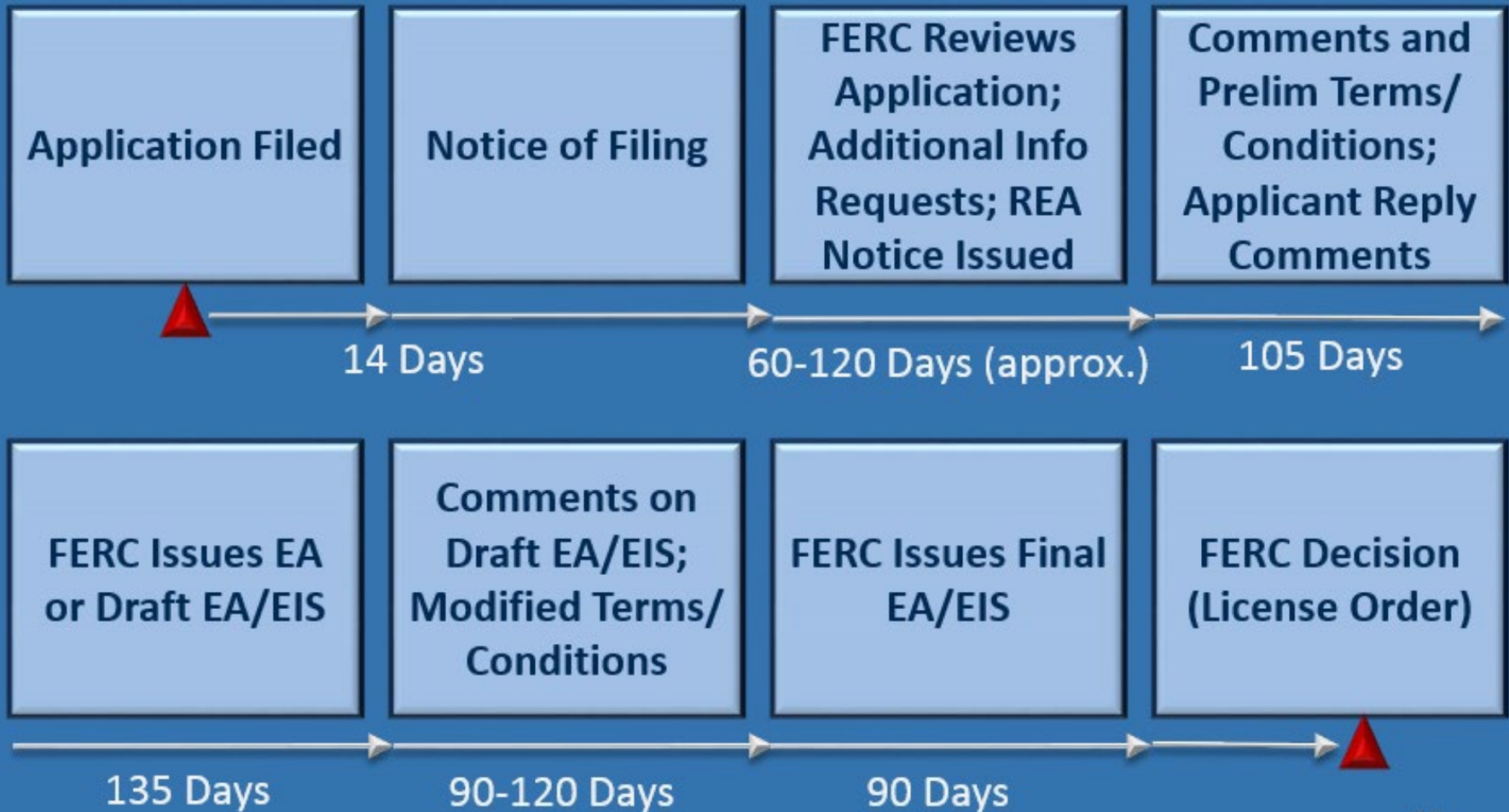


Opportunities for Participation in the Relicensing Process- Development of License Application

Activity	Date
Initial Study Season	Spring/Summer 2021
Initial Study Season Report	May 2022
Initial Study Report Meeting	May 2022
Second Study Season, if needed	Spring/Summer 2022
Updated Study Report, if needed	May 2023
Updated Study Report Meeting	May 2023
Draft License Application	Jul 2023
Comment period on Draft License Application	October 2023
Final License Application	Dec 31, 2023



ILP Post-Filing Process





Opportunities for Participation in the Relicensing Process-FERC's Environmental Review

Activity	Date
FERC issues Ready for Environmental Analysis Notice (REA)	Feb 2024
Comments, Interventions, Recommendations	April 2024
FERC Issues a Draft Environmental Analysis (EA) or Environmental Impact Statement (EIS)	Dec 2024
Comment Period on EA	Feb 2025
FERC Issues a Final EA or EIS	Jul 2025
FERC Licensing Decision	Oct 2025
Thompson Falls FERC License Expires	Dec 2025



- What is “flexible capacity”?
- Why do a test?
- How did we test?
- Operational observations



Operations Test Monitoring



- Single test over a very short period of time
- Based on one flow condition in a single season
- Observations limited to this snap shot
- Effects of 4 foot draft influenced observed effects at the 2 foot draft
- Reservoir conditions would transition to a new state after implementing a new operational regime



- Monitoring Goal
 - Observe and document reservoir and river resource conditions during and after operations testing

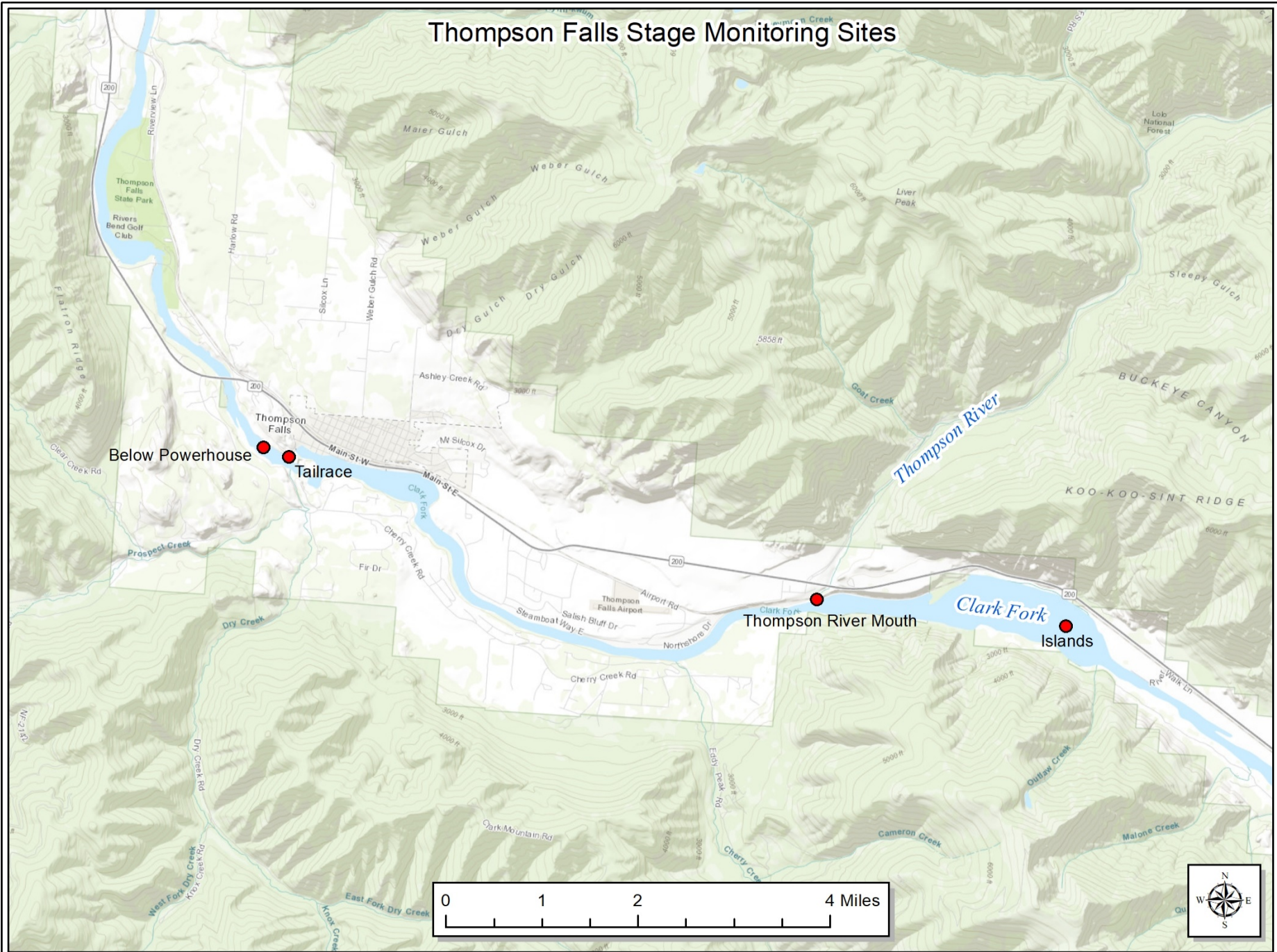




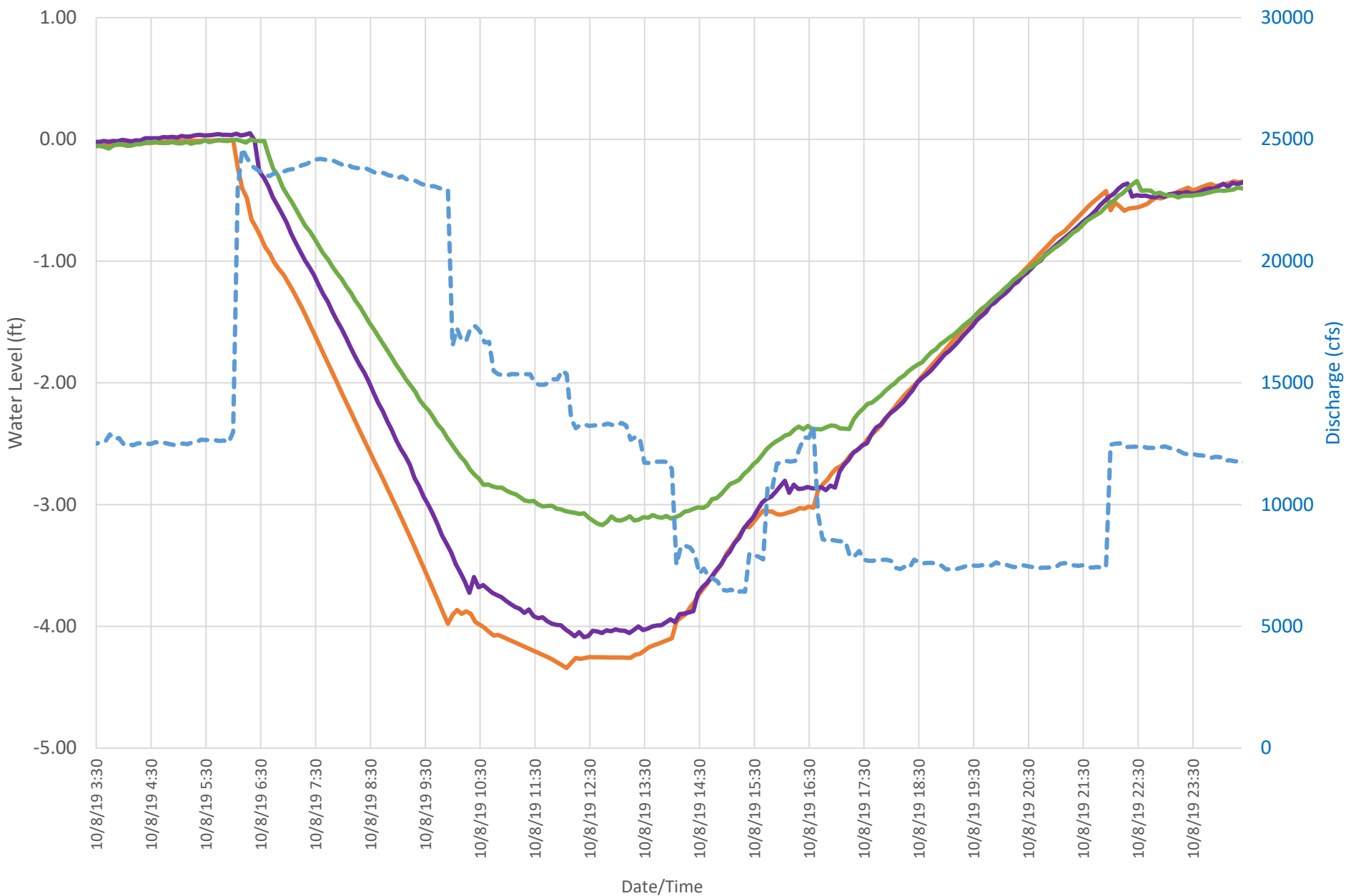
- Monitoring Strategy

- Deploy stage logging instruments in and below reservoir to record water elevation
- Deploy time lapse camera at the mouth of the Thompson River
- Employ resource professionals from NWE, private consultants, and state agencies to observe conditions during test.

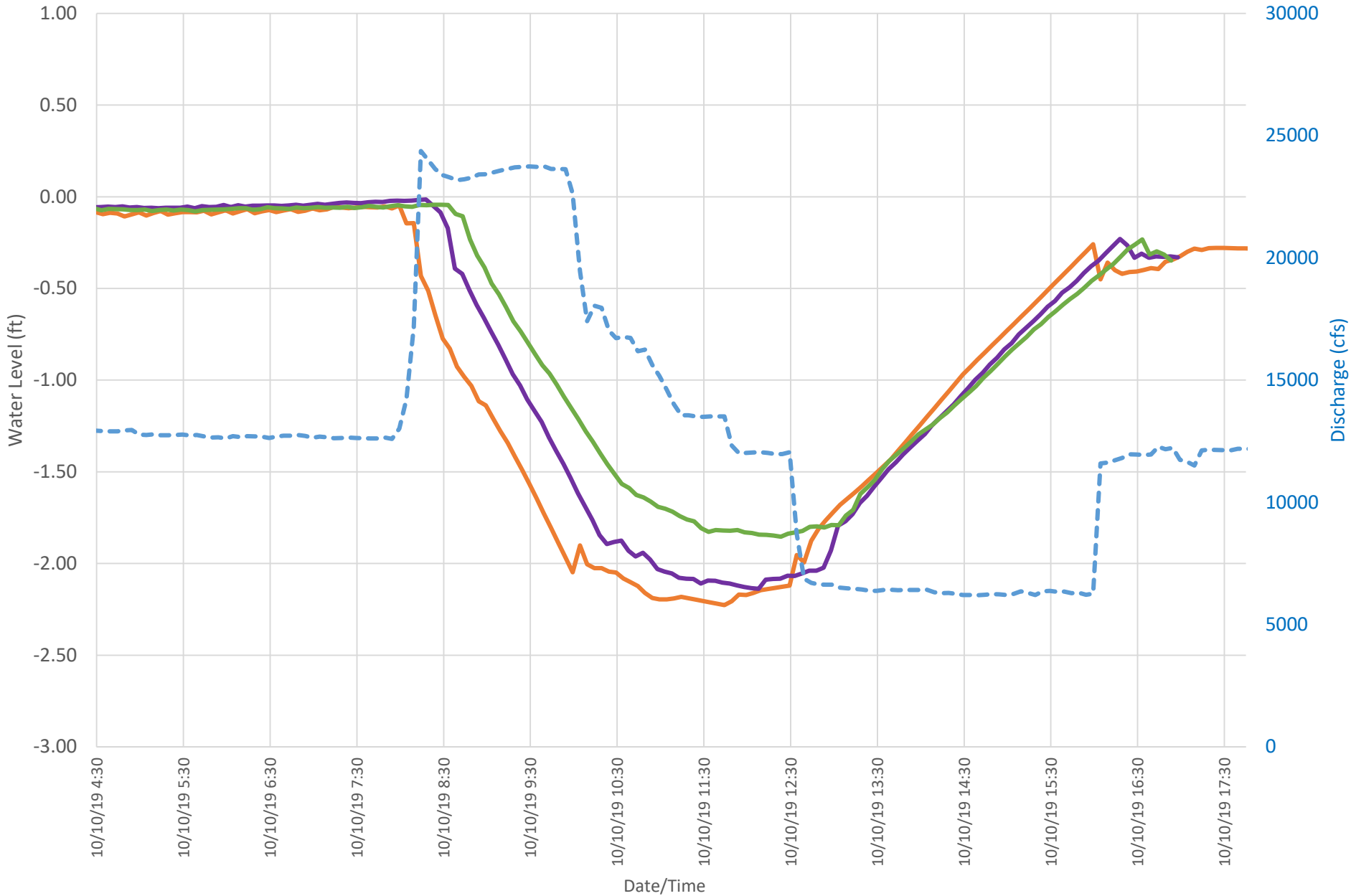
Thompson Falls Stage Monitoring Sites



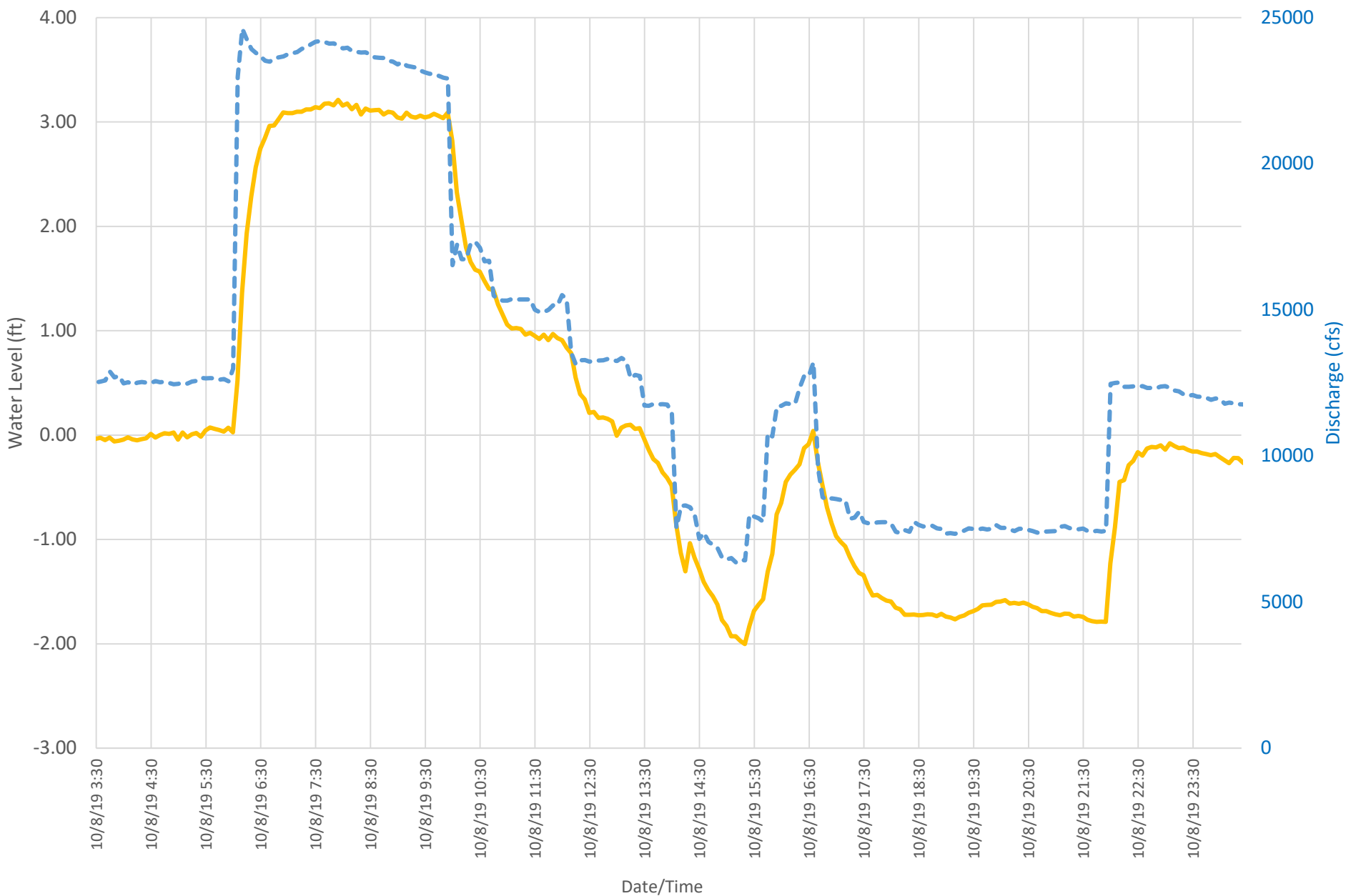
4 Foot Test Reservoir Level Change



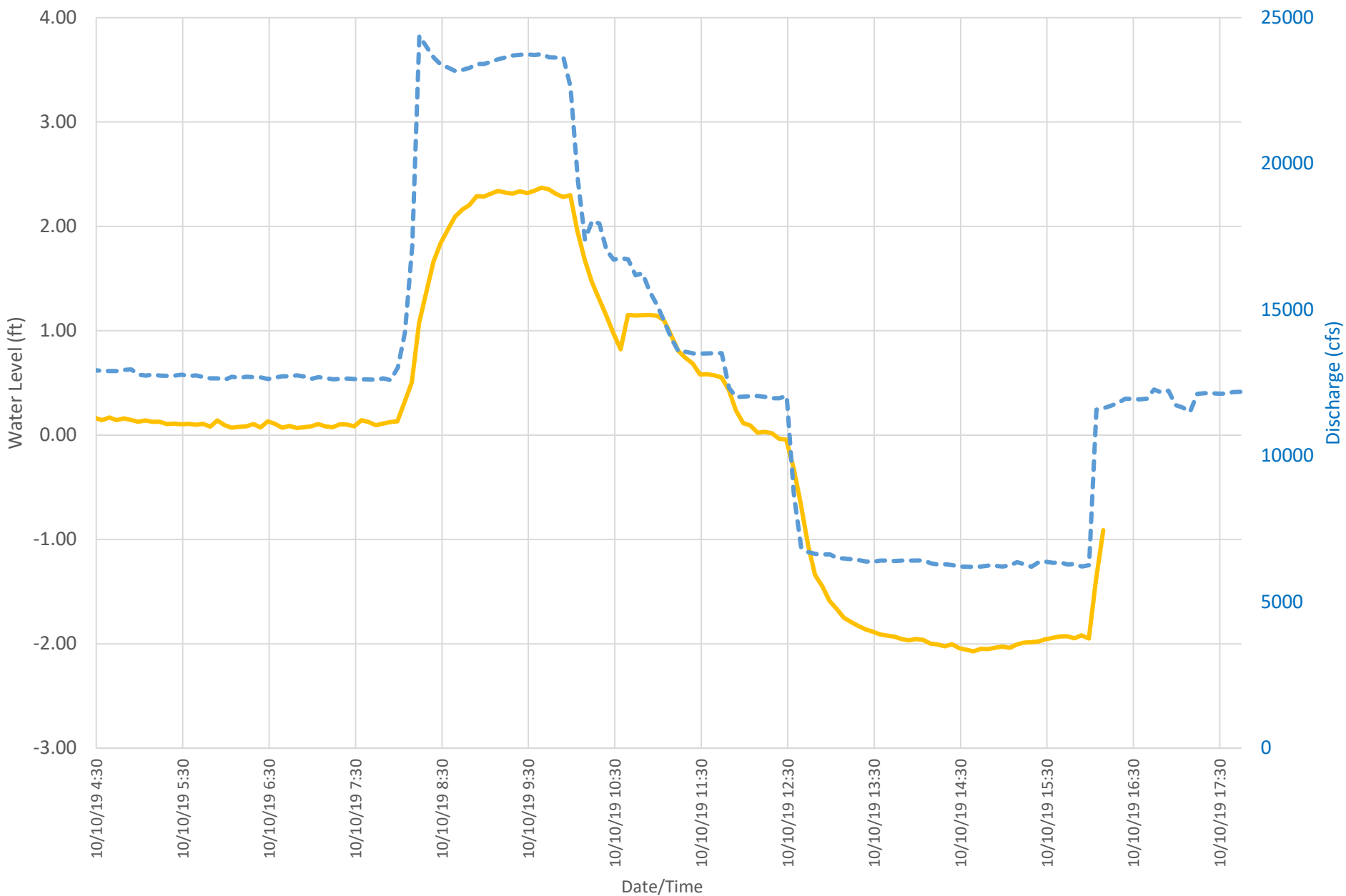
2 Foot Test Reservoir Level Change



4 Foot Test Below Dam Water Level Change



2 Foot Test Below Dam Water Level Change





Recreation and Aesthetics

Observations at Four-Foot Draft

October 8, 2019

Cherry Creek Boat Launch at Four-Foot Draft



Cherry Creek Boat Launch at Four-Foot Draft



Wild Goose Landing Boat Launch at Four-Foot Draft



Wild Goose Landing Boat Launch at Four-Foot Draft



North Shoreline Homes at Four-Foot Draft



South Shoreline Homes at Four-Foot Draft





Mid-Reservoir at Four-Foot Draft



Steamboat Island South Channel at Four-Foot Draft





South Shoreline at Four-Foot Draft



North Shoreline Community Launch at Four-Foot Draft





Recreation and Aesthetics

Observations at Two-Foot Draft

October 10, 2019

Cherry Creek Boat Launch at Two-Foot Draft





Mid-Reservoir at Two-Foot Draft





North Shoreline Community Launch



North Shoreline at Two-Foot Draft



North Shoreline at Two-Foot Draft



North Shoreline at Two-Foot Draft





North Shoreline at Two-Foot Draft



South Shoreline at Two-Foot Draft





Water Quality

- **Shoreline Stability**
 - **Turbidity**
- **Water chemistry**

- Areas that had good root-binding vegetation and shoreline management practices were relatively un-impacted



- When the reservoir drops four feet in elevation, unstable shorelines and exposed sediment deposits start to erode



- Since the two foot reservoir test followed the four foot reservoir test, we were not able to quantify the shoreline stability impacts from the two foot reservoir test at the time
- Native trees and shrubs along the shoreline increase shoreline resiliency

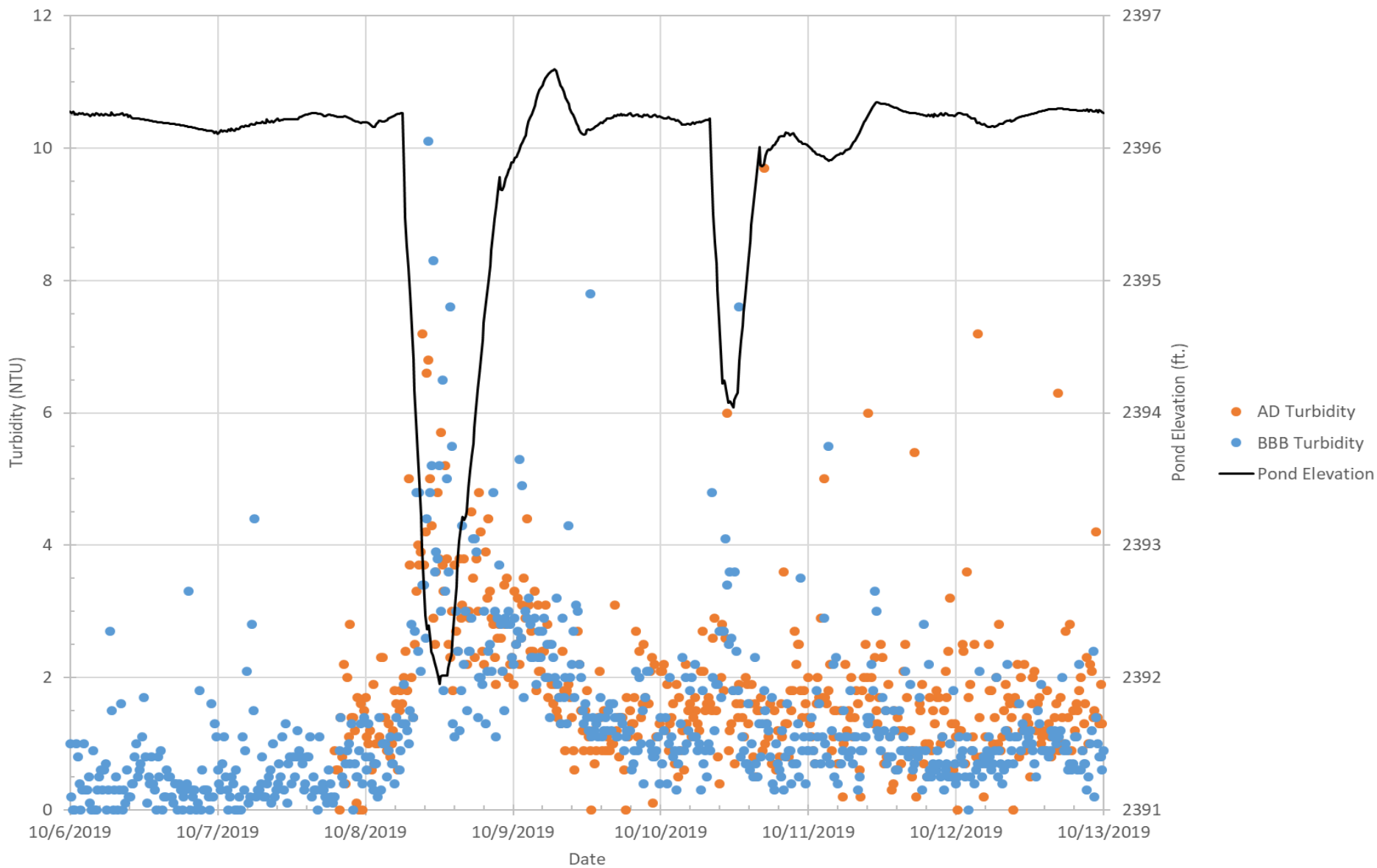


- Although some turbidity was generated during the testing, it was very minor:
- Natural turbidity during spring runoff: >100 NTU
- Turbidity during operations testing: <10 NTU





Water Quality – Turbidity





- Water chemistry samples were collected from the Gallatin Street bridge (Site CF2) during the operational testing, and six days after the testing was done



- No significant change in water chemistry during operational testing
- All sample results were below State water quality standards

Site	Analyte (Total Recoverable [TR] or Dissolved Fraction [D])	10/8/2019 Result	10/16/2019 Result	Units
CF2	Arsenic (TR)	0.001	ND	mg/L
CF2	Cadmium (TR)	ND	ND	mg/L
CF2	Copper (TR)	0.002	0.002	mg/L
CF2	Iron (TR)	0.1	ND	mg/L
CF2	Lead (TR)	ND	ND	mg/L
CF2	Nitrogen, Nitrate+Nitrite as N	0.02	0.03	mg/L
CF2	Nitrogen, Total	0.12	0.11	mg/L
CF2	Phosphorus, Total as P	0.011	ND	mg/L
CF2	Solids, Total Dissolved TDS @ 180 C	117	116	mg/L
CF2	Solids, Total Suspended TSS @ 105 C	10	ND	mg/L
CF2	Zinc (TR)	ND	ND	mg/L



Fisheries

- **Major Tributary Confluences**
- **Fish Ladder Operation**
- **Fish Stranding**



Question- Are there changes to connectivity at Thompson River and Cherry Creek confluences?

Why- Tributaries support spawning and rearing areas for trout. Important to ensure fish have the ability to migrate into and out of these habitats.

Methods- Observations and stage loggers to measure water elevation



Tributary Confluence Results



Cherry Creek



Thompson River

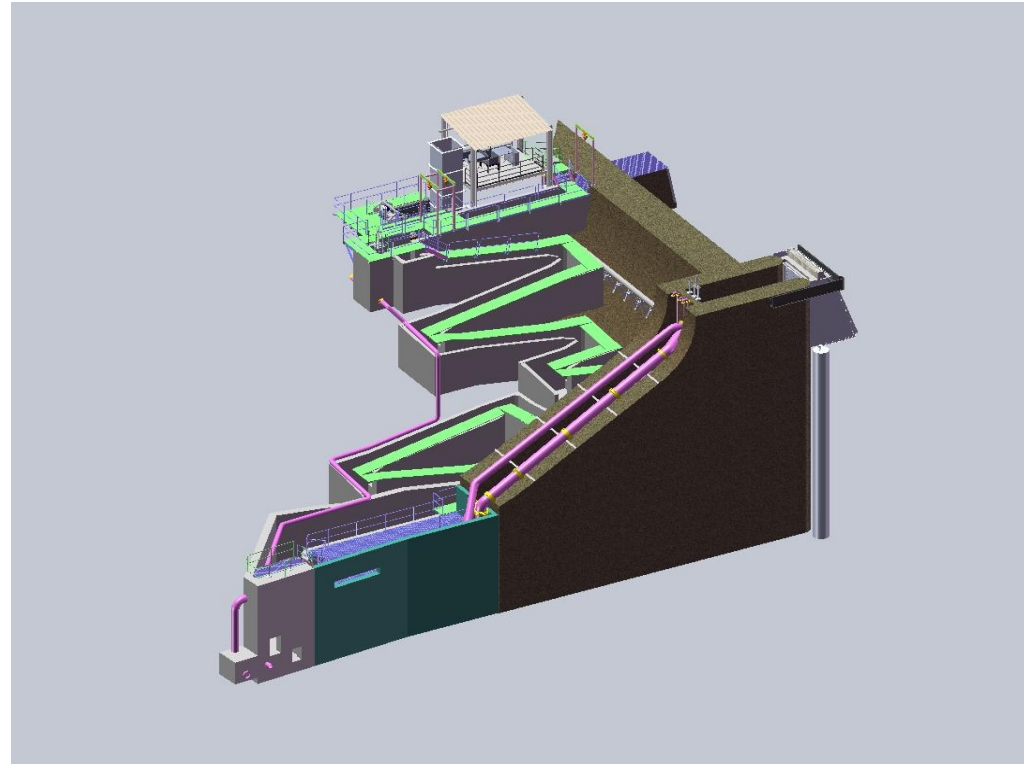
- Accessible for fish at all reservoir levels
- Minor habitat changes at the mouths of tributaries



Question- Is operation of the fish ladder effected by reservoir pool elevations?

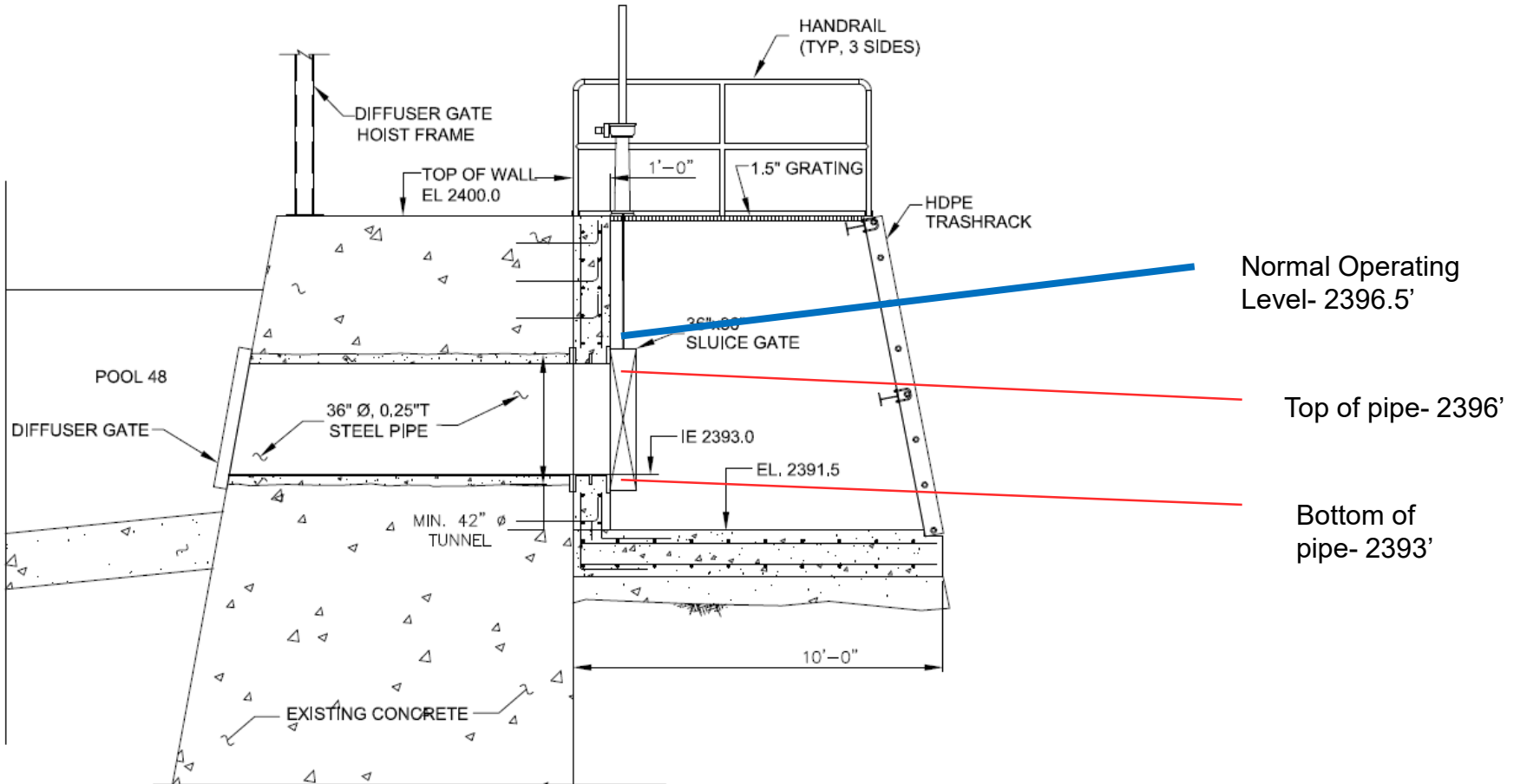
Why- Upstream fish passage is a key component of maintaining and enhancing fisheries in the Lower Clark Fork River system.

Methods- Water quantity and levels through the ladder, operations of various ladder components.





Fish Ladder Operation



Ladder exit into reservoir



Question- Did fish stranding occur during operational test? If so at what reservoir levels and at what scale?

Why- Survival of fishes in the reservoir.

Methods- Observations (NWE & FWP)





Area above Thompson River

- Level of drawdown effects quantity of exposed habitat
 - 4' down exposed a considerable amount of shallow water habitat and stranded fish were found throughout these locations.
 - 2' down less habitat exposed. Fewer contiguous dry areas.



- Stranding of fish observed throughout the reservoir at the 4 foot level
- Considerably less at 2 feet, but challenging to fully assess given short time (1 day) between the two tests



Fisheries Summary

- No observed impacts to fish access into or out of spawning tributaries
- Fish ladder may require modification to operate below 1 foot normal full pool elevation
- Stranding of juvenile fish and exposed habitat was observed at 4 foot draft
- Stranding of juvenile fish and exposed habitat was less at 2 foot draft
- Additional evaluation needed to better understand short or long term effects





During normal operations, Thompson Falls will provide baseflow generation and flexible capacity needs.

- Flexible capacity increases or decreases generation from the baseflow, raising or lowering the reservoir elevation as the flow through the units is changed to support flexible capacity needs.
- Normal operations will maintain the reservoir between the normal full pool elevation of 2,396.5 and 2,394 feet (2.5 feet below normal full pool elevation).

Proposed future operations will drive the associated studies



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