

# **MEETING SUMMARY INITIAL STUDY REPORT MEETING**

**CUTLER HYDROELECTRIC PROJECT RELICENSING  
FERC PROJECT NO. 2420**

**VIRTUAL MEETING  
FEBRUARY 23, 2021**

*Submitted by:*

**PACIFICORP  
RENEWABLE RESOURCES  
1407 WEST NORTH TEMPLE, SUITE 210  
SALT LAKE CITY, UT 84116**

**MARCH 8, 2021**

## **LIST OF ATTACHMENTS**

Attachment 1 – Meeting Agenda

Attachment 2 – Meeting Presentation

**INITIAL STUDY REPORT MEETING SUMMARY  
CUTLER HYDROELECTRIC PROJECT RELICENSING  
FERC PROJECT NO. 2420**

**VIRTUAL MEETING  
FEBRUARY 23, 2021**

The Initial Study Report (ISR) meeting was held by PacifiCorp/Rocky Mountain Power in support of Cutler Hydroelectric Project relicensing and in accordance with the Federal Energy Regulatory Commission's (FERC) Integrated Licensing Process per 18 CFR § 5.15(c)(2). Meeting materials, including the presentation slides referenced in Table 1, are available on PacifiCorp's Cutler relicensing webpage, <https://www.pacificorp.com/energy/hydro/cutler.html> and are provided with this meeting summary. The meeting agenda is included in Attachment 1. The presentation is included in Attachment 2.

Twenty stakeholders participated in the meeting, including representatives from federal and state agencies, non-governmental organizations, and interested members of the public. Also participating were FERC staff assigned to the project. The meeting was hosted and staffed by PacifiCorp/Rocky Mountain Power and consultants responsible for implementation of the approved study plans and preparation of the Initial Study Report. A complete list of participants is included in Appendix A.

The purpose of the meeting was as follows:

- Update stakeholders on the Cutler relicensing process
- Describe the proposed future Cutler Operations Plan
- Present study results of the Initial Study Report
- Provide opportunity for questions about the study results described in the Initial Study Report
- Confirm requirements and process for requesting new studies or modifications to existing studies

These informational items are detailed in the meeting presentation (Attachment 2). Table 1 provides a list of questions/comments received from stakeholders during the meeting.

**TABLE 1. QUESTIONS/COMMENTS RECEIVED AT THE INITIAL STUDY REPORT MEETING, FEBRUARY 23, 2021**

<b>STUDY REPORT</b>	<b>QUESTION/COMMENT<sup>1</sup></b>	<b>RESPONSE</b>
FERC Licensing Process (Slides 6–12)	No questions	
Proposed Cutler Future Operations Plan (Slides 14–19)	<b>Brunson, UDWR:</b> Was PacifiCorp able to produce a good quality bathymetry map of the reservoir they would be willing to share for use by a graduate student?	<b>Davies and Baldwin, PacifiCorp:</b> Yes. Management approval is needed for sharing.
	<b>Allred, UDWQ:</b> How is extreme ice defined?	<b>Baldwin, PacifiCorp:</b> It is defined by experienced operators based on the volume of ice present and the risk of creating ice jams and restricted flow downstream. There are no specific criteria he is aware of.  <b>Davies, PacifiCorp:</b> Operators are concerned with bank shearing and erosion in the Bear River, and they do consider this when planning releases from the dam.
	<b>Andrews, USFWS:</b> Have any operational cycles been defined with modeling for the Bear River downstream of Cutler Dam under the proposed reservoir management scenarios? How would Bear River flows be attenuated downstream of the dam?	<b>Baldwin, PacifiCorp:</b> Flows downstream of the dam have not been modeled. However, flows at the Corrine gage can be used to characterize a flow response. As the bank erosion study is finalized, flows at Corrine could be included to empirically quantify the response.
Hydraulic Modeling Study (Slides 22–38)	<b>Andrews, USFWS:</b> Was mass loading of sediment leaving the reservoir modelled for the 1- and 2.5-foot scenario?	<b>Cary, Kleinschmidt:</b> No, it was difficult to calibrate the model because of the lack of continuous inflow data, so results in the ISR are qualitative. Total mass loading was estimated.
Fish and Aquatic Study (Slides 40–57)	<b>Fuller, Adjacent Landowner:</b> Now that you have baseline data, will you continue to study the effects on wildlife over time?	<b>Olson, PacifiCorp:</b> There is typically no requirement to monitor effects over time. There is the potential for mitigation measures to be required for licensing and the effectiveness of any mitigation measures would be monitored.
	<b>Fuller:</b> Concerned about possible cascading effects to wildlife and habitat as reservoir levels continue to fall.	<b>Davies, PacifiCorp:</b> If you have specific concerns, you may request additional study or suggest mitigation measures through the licensing process. FERC will make the decision on whether it is warranted. <b>Brunson, UDWR:</b> UDWR will continue to monitor the mussels and the fishery. <b>Baldwin, PacifiCorp:</b> The 2019 study drawdown was much lower than proposed future operations. Under proposed



STUDY REPORT	QUESTION/COMMENT <sup>1</sup>	RESPONSE
		future operations, water would not have time to drain out of all areas completely, as it did during the 2019 drawdown.
	<b>Fuller:</b> Observed tules [cattails] dying during the 2019 drawdown but this could have been from other causes, including drought. Noted that tules seem to be recovering.	<b>Davies, PacifiCorp:</b> When was this noticed? PacifiCorp has lost shrubs in this specific area because of water inputs/inflows and perhaps that, rather than the drawdown, could be the cause. Do tules seem to be recovering? Please keep us posted.
Water Quality Study (Slides 59–77)	<b>Ann Neville, TNC:</b> Is it possible that nutrients will be remobilized after drawdown, so there may be more nutrients during the fill up after a drawdown rather than before or during?	<b>Davies, PacifiCorp:</b> Proposed future operations won't be a drawdown like the October 2019 drawdown, but more of a cyclic fluctuation. Nutrients may be mobilized but not more than already occurs. <b>Shrier, SWCA:</b> Phosphorus levels are chemically locked in the sediment and not easily driven into suspension.
	<b>Fuller, Adjacent Landowner:</b> Many of our irrigation companies have been switching from flood irrigation to pressurized pipe over the past few years. Have water quality data shown any changes that may be attributable to this?	<b>Davies, PacifiCorp:</b> Biggest changes are likely due to tertiary treatment added at meat packing plants. Logan City is also making headway on tertiary treatment. Agrees flood irrigation can mobilize more pollutants but there is also less groundwater recharge. Also seeing results from TMDL planning efforts. <b>Allred, UDWQ:</b> State monitors and is seeing reduced nutrient loads but there are many potential non-point sources.
	<b>Nielsen, BRCC:</b> The wider agriculture community is working to improve water quality. This includes work in nutrient management practices to reduce loading, moving sources away from waterways, and working with the TMDL group to use funds to reduce loads.	<b>Davies, PacifiCorp:</b> Agreed. <b>Allred, UDWQ:</b> Several millions of dollars have been voluntarily spent by the Ag community to make water quality improvements over the last 20 years.
Sedimentation Study (Slides 80–95)	<b>Andrews, USFWS:</b> Based on differences in bed elevations before and after drawdown, do you know how much sediment was actually released during drawdown?	<b>Cary, Kleinschmidt:</b> Not quantified but could estimate. Limitation is that we would be comparing bathymetry data before and after but would be missing LiDAR data.
	<b>Andrews, USFWS:</b> Could you look at total sedimentation and estimate nutrients and phosphorus downstream of the reservoir?	<b>Davies, PacifiCorp:</b> Drawdown or future ops? <b>Andrews, USFWS:</b> Down to 4405 ft.
	<b>Andrews, USFWS:</b> Where did most scour occur?	<b>Cary, Kleinschmidt:</b> Cutler Canyon.
	<b>Gangemi, Facilitator:</b> Was there a difference in the Cutler Canyon scour from the 2019 drawdown compared to the total extended range?	<b>Cary, Kleinschmidt:</b> Yes, it's much less under total extended range compared to total October 2019 drawdown.

STUDY REPORT	QUESTION/COMMENT <sup>1</sup>	RESPONSE
Shoreline Habitat Characterization Study (Slides 97-119)	<b>Wolcott, FERC:</b> Are there any data on hibernating amphibians? It appears there would be more habitat under proposed operations. Could they be impacted either by drying out or inundation?	<b>Davies, PacifiCorp:</b> Reservoir cycling would actually create more habitat for some species. Concern is for boreal chorus frogs. They hibernate deep, as temperatures get very low in Cache Valley, so we believe there would be no impact to these or other amphibians.
	<b>Dixon, BRLC:</b> Did you not use white faced ibis count data because time of greatest concern is winter? Noted that main rookery has recently moved to the west side of the reservoir.	<b>Davies, PacifiCorp:</b> Correct—ibis migrate in winter. Yes, we looked at nearer (to east shore) and at islands further west where the ibis have been more recently. Both areas have some colonial nesting species.
	<b>Dixon, BRLC:</b> One question regarding land bridges is whether predators can access breeding areas. What about areas where there wasn't a land bridge, but the water separating the mainland and island was just very shallow?	<b>Davies, PacifiCorp:</b> That is why the camera study was undertaken. Cameras were aimed at 19 nests during nesting season. We know that predators are already accessing about half. We can assume they will continue to access these areas. Changes from present are not likely to occur during the breeding season; predators already swim deeper areas, per the photo data.
	<b>Neville, TNC:</b> Is trapping allowed at Cutler? We know at the Wildlife Management Area that nesting success can be much higher when skunks and racoons are trapped.	<b>Davies, PacifiCorp:</b> Yes, trapping of skunks and racoons is allowed by permission.
Land Use Study (Slides 121–136)	No questions	<b>Davies:</b> An updated study report will be prepared for land use and should be available late summer.
Recreation Resources Study (Slides 138–151)	<b>Dixon, BRLC:</b> Was there an assessment of environmental education information and opportunities? Suggests revision and reprinting of Wetland Maze maps and provide printable maps on PacifiCorp's Cutler webpage.	<b>Gangemi, RSI:</b> Environmental education groups were not specifically targeted but education and research entities such as Utah State University were.  <b>Davies, PacifiCorp:</b> Stokes Nature Center was also targeted. PacifiCorp plans to update Wetland Maze maps and is also looking to expand and improve some information at recreation sites, similar to the wildlife art gallery panel at the Little Bear River access site.
	<b>Dixon, BRLC:</b> Technology has changed since last relicensing. A map that displays on cell phones with layers of habitat or other characteristics and shows user location would be useful.	<b>Davies, PacifiCorp:</b> Agrees it would be good to consider. A free app for cell phones, ON-X, is currently available.

STUDY REPORT	QUESTION/COMMENT <sup>1</sup>	RESPONSE
Threatened and Endangered Species Study (Slides 153–162)	<b>Wolcott, FERC:</b> What impact could grazing have on Ute ladies'-tresses? Would it be beneficial to consider fencing in the Draft License Application (DLA) or would that cause undue attention to the population?	<b>Davies, PacifiCorp:</b> Sees Ute ladies'-tresses in a number of places in Utah and most have grazing, so she does not believe grazing is detrimental; for example, this site is currently grazed. Davies asked Dixon to confirm that the nearby Mendon Meadows site was previously grazed. <b>Dixon, BAS:</b> At Mendon Meadows, grazing is present periodically and the meadow is currently hayed [mechanical vegetation removal]. The meadows are hayed outside the plant's flowering period. <b>Davies:</b> Believes seed set is perhaps not the primary method of propagation.
Cultural Resources Study (Slides 164–175)	<b>Winchell, FERC:</b> Were there no aboriginal sites located within the Project Boundary, as stated in the ISR?	<b>Davies, PacifiCorp:</b> The project archaeologist specifically looked for aboriginal sites, including areas where available information suggested they may be present, but did not locate any. This is perhaps because of widespread surface disturbance due to active agriculture in the area.
	<b>Winchell, FERC:</b> Be sure to state that no sites <u>were located</u> , as this is somewhat unusual, especially near a river. Please make it clear in the DLA, "no pre-contact isolated finds were identified in the Area of Potential Effects."	<b>Ellis, Certus:</b> Was not personally involved in the survey, but in regard to prehistoric sites in Cache and Box Elder County, we know indigenous groups were actively using the area, but we typically find very few sites. <b>Davies, PacifiCorp:</b> We will also include an Inadvertent Discovery Protocol for PacifiCorp employees and contractors who will be doing work within the FERC Boundary.
	<b>Winchell, FERC:</b> Will you file a draft HPMP with your draft license application, and a final HPMP with your final license application?	<b>Davies, PacifiCorp:</b> Yes
	<b>Dixon, BRLC:</b> Was there anything discovered about the foundation(s) on the east side of the reservoir? Has heard stories of a "road" of cattails and rushes that supported wagons crossing the valley.	<b>Davies, PacifiCorp:</b> Nothing of historical significance was discovered. We did look.
	<b>Nielsen, BRCC:</b> Would like to have access to historic information and photos of Wheelon and BRCC's two canals.	<b>Davies:</b> Will require management approval and can coordinate with Nielsen individually.

<sup>1</sup> UDWR = Utah Division of Wildlife Resources, UDWQ = Utah Division of Water Quality, USFWS = U.S. Fish and Wildlife Service, TNC = The Nature Conservancy, BRCC = Bear River Canal Company, BRLC = Bear River Land Conservancy.

Additional studies are being carried out for shoreline habitat characterization and land use. Updated study reports (USR) for these two resources are anticipated in late summer 2021. A number of potential mitigation measures were suggested at this meeting. PacifiCorp proposes a voluntary combined USR meeting and additional advisory meeting (to be announced) to discuss proposed protection, mitigation, and enhancement measures.

<b>ACTION ITEMS: INITIAL STUDY REPORT MEETING, FEBRUARY 23, 2021</b>	
<b>DATE</b>	<b>ACTION ITEMS/PROCESS MILESTONES</b>
March 10, 2021	<ul style="list-style-type: none"> <li>• PacifiCorp files ISR meeting summary</li> </ul>
April 9, 2021	<ul style="list-style-type: none"> <li>• Stakeholders comment on meeting summary, recommendations for on-going studies, or request for new studies.</li> </ul>
May 9, 2021	<ul style="list-style-type: none"> <li>• All file comments on any recommendations or requests for studies</li> </ul>
June 2021	<ul style="list-style-type: none"> <li>• FERC accepts ISR/Orders additional studies</li> </ul>
July/August 2021	<ul style="list-style-type: none"> <li>• PacifiCorp files USR and notifies FERC of upcoming DLA</li> </ul>
November 2021	<ul style="list-style-type: none"> <li>• PacifiCorp files DLA</li> </ul>
November 2021 through January 2022	<ul style="list-style-type: none"> <li>• Cutler relicensing stakeholders review/file comments on the DLA</li> </ul>

**APPENDIX A**  
**MEETING PARTICIPANTS**

**APPENDIX A**  
**CUTLER HYDROELECTRIC PROJECT RELICENSING INITIAL STUDY REPORT MEETING**  
**PARTICIPANTS**

STAKEHOLDERS		
Name	Title	Organization
<b>Agencies</b>		
Mike Allred	Environmental Scientist	Utah Division of Water Quality
Jaron Andrews	Hydrologist	US Fish and Wildlife Service
Clint Brunson	Fisheries Biologist	Utah Division of Wildlife Resources
Mary Higgins	Realty Specialist	Bureau of Land Management
Pam Schuller	NEPA Coordinator	Bureau of Land Management
<b>Non-Governmental Organizations</b>		
Jim DeRito	Fisheries Restoration Project Manager	Trout Unlimited
Hilary Shughart	President	Bridgerland Audubon Society
Bryan Dixon	Board Member Emeritus	Bear River Land Conservancy
Nick Halberg	Research and Policy Analyst	Utah Rivers Council
Ann Neville	Northern Utah Regional Director	The Nature Conservancy
Max Malmquist	Saline Lakes Outreach Associate	National Audubon Society
Josh Wood	Executive Director	Wild Utah Project
<b>Irrigators</b>		
Trevor Nielsen	General Manager	Bear River Canal Company
<b>Interested Individuals</b>		
Matt Fuller		
Jon Hardman		
Barb and Jim Watterson		
Ryan Thayne		
Ernesto de la Hoz		

FEDERAL ENERGY REGULATORY COMMISSION		
Khatoon Melick	Environmental Engineer and FERC Coordinator	FERC
Frank Winchell	Archaeologist	FERC
Ben Mann	Fisheries Biologist	FERC
Kelly Wolcott	Environmental Biologist	FERC
Kyle Olcott	Outdoor Recreation Specialist	FERC

PACIFICORP AND CONSULTANT TEAM		
Name	Title	Organization
<b>PacifiCorp/Rocky Mountain Power</b>		
Todd Olson	Director of Licensing and Environmental Compliance	PacifiCorp
Eve Davies	Principal Scientist/Cutler Relicensing Manager	PacifiCorp
Connely Baldwin	Water Resources Engineer	PacifiCorp
Stewart Edwards	Engineer	PacifiCorp
David Holt	Property Manager	PacifiCorp
Steve Liechty	Regional Business Manager	Rocky Mountain Power
David Eskelsen	Senior External Communications Specialist	Rocky Mountain Power
<b>Consultants</b>		
John Gangemi	Facilitator and Technical Lead, Recreation Resources	River Science Institute
Nuria Holmes	Regulatory and Licensing Consultant	Kleinschmidt Associates
Ben Cary	Hydraulic Engineer	Kleinschmidt Associates
Sebastian Ferraro	Hydraulic Engineer	Kleinschmidt Associates
Shannon Luoma	Regulatory and Licensing Consultant	Kleinschmidt Associates
Frank Shrier	Technical Lead, Fisheries Biologist	SWCA
Dave Epstein	Water Quality	SWCA
Neal Artz	Project Manager	Cirrus
Eric Duffin	Technical Lead, Land Use	Cirrus
Matt Westover	Technical Lead, Shoreline Habitat	Cirrus
Justin Barker	Technical Lead, Sedimentation	Cirrus
John Stewart	Technical Lead, Threatened and Endangered Species	Cirrus
Stephanie Trapp	Ecologist	Cirrus
Levia Shoutis	Project Manager/Biologist	ERM
Sheri Ellis	Technical Lead, Cultural Resources	Certus Environmental Solutions
Miriam Hugentobler	Project Coordinator	
Scott Pratt	Principal	PMG Vegetation
Bryan Westerberg	Senior Technical Specialist	PMG Vegetation

**ATTACHMENT 1 – MEETING AGENDA**





## **CUTLER HYDROELECTRIC PROJECT**

### **FERC PROJECT No. 2420**

### **INITIAL STUDY REPORT MEETING**

**Date:** February 23, 2021  
**Time:** 9:45 a.m. – 4:00 p.m. (Mountain Standard Time)  
**Location:** Microsoft Teams Virtual Meeting  
[Click on this link to join](#) or dial:  
Audio only: 207-248-8024  
Conference ID: 286 655 050#

#### **Workshop Purpose:**

- Update stakeholders on the Cutler relicensing process
- Describe the updated proposed future Cutler Operations Plan
- Present study results in the Initial Study Report
- Provide opportunity for questions about the study results described in the Initial Study Report
- Confirm requirements and process for requesting new studies or modifications to existing studies

#### **Agenda:**

10:00 a.m. – 10:15 a.m.	Introductions, Purpose of Meeting, and Agenda Review (Slides 1–5) <ul style="list-style-type: none"><li>• Welcome</li><li>• Review workshop purpose, agenda, and virtual meeting tools</li><li>• Announcements and updates</li></ul>
10:15 a.m. – 10:30 a.m.	FERC Licensing Process (Slides 6–12) <ul style="list-style-type: none"><li>• Where are we in the process?</li><li>• ISR milestones</li><li>• Comment timeline for ISR</li><li>• FERC criteria for additional study requests/modifications</li></ul>
10:30 a.m. – 10:50 a.m.	Proposed Cutler Future Operations Plan (Slides 14–19)

10:50 a.m. – 11:20 a.m.	Hydraulic Modeling Study (Slides 22–38)
11:20 a.m. – 11:50 a.m.	Fish and Aquatic Study (Slides 40–57)
11:50 a.m. – 12:20 p.m.	Water Quality Study (Slides 59–77)
12:20 p.m. – 1:00 p.m.	Break
1:00 p.m. – 1:30 p.m.	Sedimentation Study (Slides 80–95)
1:30 p.m. – 2:00 p.m.	Shoreline Habitat Characterization Study (Slides 97–119)
2:00 p.m. – 2:30 p.m.	Land Use Study (Slides 121–136)
2:30 p.m. – 3:00 p.m.	Recreation Resources Study (Slides 138–151)
3:00 p.m.– 3:15 p.m.	Threatened and Endangered Species Study (Slides 153–162)
3:15 p.m. – 3:30 p.m.	Cultural Resources Study (Slides 164–175)
3:30 p.m. – 3:45 p.m.	Next Steps and Action Items (Slides 177–180) <ul style="list-style-type: none"> <li>• ISR comment period</li> <li>• FERC criteria for additional study requests/ modifications</li> <li>• Information posted on the PacifiCorp Cutler Relicensing web page</li> <li>• Review meeting action items</li> <li>• Questions</li> </ul>
3:45 p.m.– 4:00 p.m.	Wrap up and Adjourn (Slide 182)

## **ATTACHMENT 2 – MEETING PRESENTATION**



## Cutler Hydroelectric Project

# Cutler Hydroelectric Project (P-2420) Initial Study Report Meeting February 23, 2021

We appreciate your patience and muting your microphone while we wait.




9:45 – 10:00 a.m.	Sign in and Technology Check
10:00 a.m.	Meeting Begins

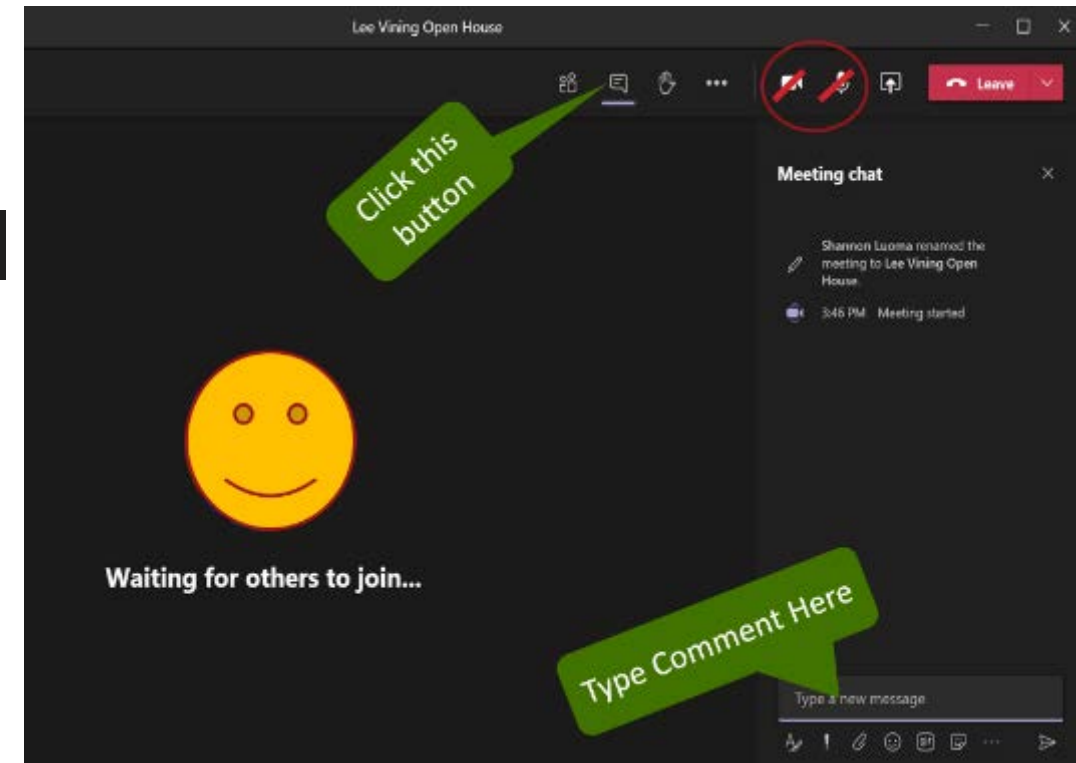
To access materials in advance, please go to:  
<https://www.pacificorp.com/energy/hydro/cutler.html>



# Cutler Hydroelectric Project

## How to Ask a Question

- Please use Chat Box.
- Use the “Raise Hand” button to indicate you would like to ask a question verbally. 
- Please wait to be called on and then unmute your line.  
- State your name/affiliation prior to speaking.
- Please listen, be respectful, and stay on topic.







# Cutler Hydroelectric Project

## Welcome and Introductions



Miriam  
Hugentobler

River Science  
Institute, Inc.



## Cutler Hydroelectric Project

# Meeting Purpose

- Update stakeholders on the relicensing process.
- Present study results in the Initial Study Report (ISR).
- Provide an opportunity for stakeholder questions on the ISR.
- Confirm process for commenting, including requesting new studies or modifications to existing studies.





# Cutler Hydroelectric Project

## ISR Meeting Agenda

10:00 – 10:15 a.m.	Welcome and Introductions
10:15 – 10:30 a.m.	FERC Licensing Process
10:30 – 10:50 a.m.	Cutler Proposed Future Operations Plan
10:50 – 11:20 a.m.	Hydraulic Modeling Study
11:20 – 11:50 a.m.	Fish and Aquatic Study
11:50 – 12:20 p.m.	Water Quality Study
12:20 – 1:00 p.m.	Lunch

1:00 – 1:30 p.m.	Sediment Study
1:30 – 2:00 p.m.	Shoreline Habitat Characterization Study
2:00 – 2:30 p.m.	Land Use Study
2:30 – 3:00 p.m.	Recreation Resources Study
3:00 – 3:15 p.m.	Threatened and Endangered Species Study
3:15 – 3:30 p.m.	Cultural Resources Study
3:30 – 3:45 p.m.	Next Steps and Action Items
3:45 – 4:00 p.m.	Wrap-up and Adjourn



# FERC Licensing Schedule

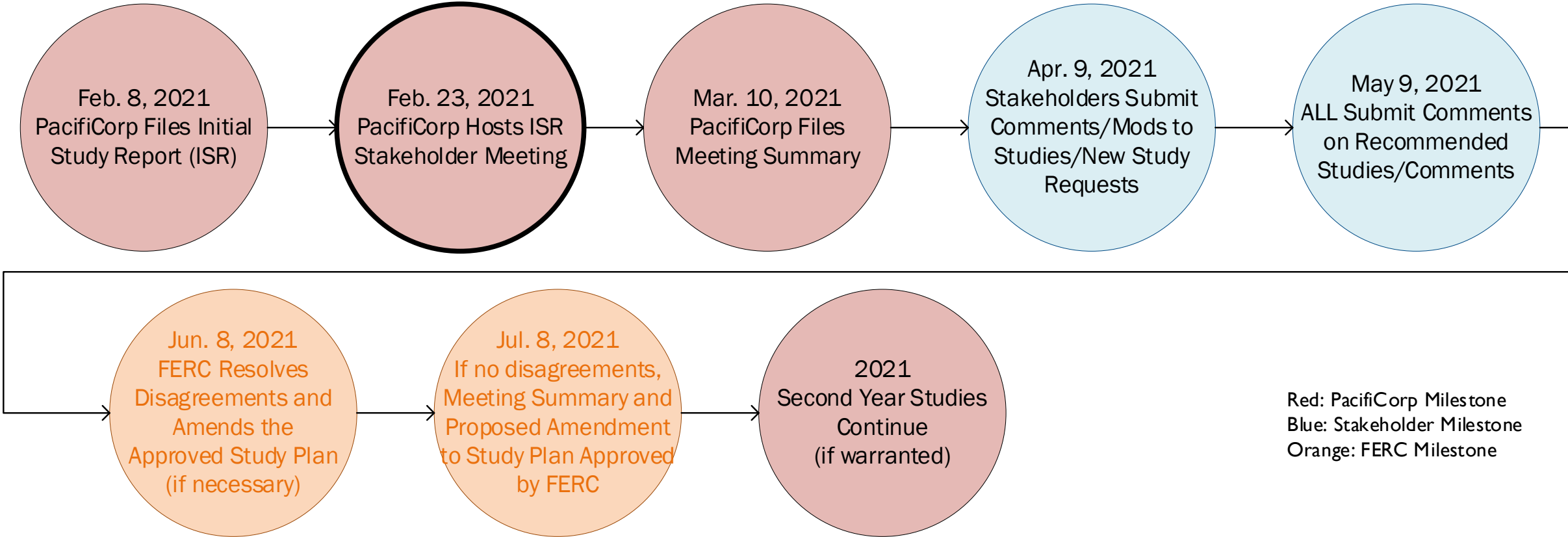
Responsible Party	Pre-Filing Milestone	Date	FERC Regulation
PacifiCorp	Issue Public Notice for NOI/PAD	3/29/19	5.3(d)(2)
PacifiCorp	File NOI/PAD	3/29/19	5.5, 5.6
FERC	Tribal Consultation Meeting	4/28/19	5.7
FERC	Issue Notice of Commencement of Proceeding and SDI	5/28/19	5.8(a)(c)
PacifiCorp	Stakeholder Study Plan Workshop	6/25/19	N/A
FERC	Scoping Meetings and Project Site Visit	6/26/19 – 6/27/19	5.8(b)(viii)
Stakeholders	File Comments on PAD/SDI and Study Requests	7/29/19	5.9(a)(b)
PacifiCorp	Submit Drawdown Notification to FERC	8/29/19	N/A
FERC	Issue SD2 (if necessary)	9/13/19	5.10
PacifiCorp	File Proposed Study Plan	9/11/19	5.11(a)
Stakeholders	Proposed Study Plan Meeting	10/9/19	5.11(e)
Stakeholders	File Comments on Proposed Study Plan	12/10/19	5.12
PacifiCorp	File Revised Study Plan	1/10/20	5.13(a)
Stakeholders	File Comments on Revised Study Plan	1/23/20	5.13(b)
FERC	Issue Director's Study Plan Determination	2/7/20	5.13(c)
PacifiCorp	First Study Season and Study Review	2/7/20 – 1/7/21	5.15(a)
PacifiCorp	File Progress Update Report	8/1/20	5.15(b)
PacifiCorp	File Initial Study Report	2/8/21	5.15(c)(1)

Stakeholders	Initial Study Report (ISR) Meeting	2/23/21	5.15(c)(2)
PacifiCorp	File Initial Study Report meeting summary	3/10/21	5.15(c)(3)
Stakeholders	File comments on meeting summary, recommendations for ongoing studies, or requests for new studies	4/9/21	5.15(c)(4)
PacifiCorp	File comments on recommendations / new study requests	5/9/21	5.15(c)(5)
FERC	FERC resolves any disagreements and amends the approved Study Plan (as appropriate)	6/8/21	5.15(c)(6)
FERC	If applicable, if no disagreements, meeting summary and proposed amendments to Study Plan approved	7/8/21	5.15(c)(7)



# Cutler Hydroelectric Project

## FERC Licensing Schedule: ISR Milestones





# Cutler Hydroelectric Project

## Preliminary Application Document (PAD)

- Informed stakeholders about existing Project information

## Scoping Process

- Scoping Document 1
- Scoping Meeting
- Scoping Comments
- Scoping Document 2

## Studies

- Study Drafts
- Comments on Studies
- Proposed Study Plan
- Study Plan Meeting
- Revised Study Plan
- FERC Study Plan Determination
- Initial & Updated Study Reports

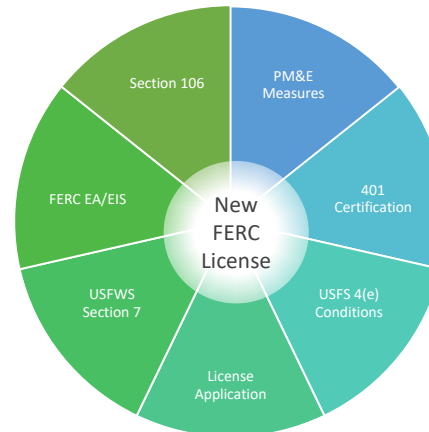
## License Application

- Draft License Application
- Comments on DLA
- Final License Application

## FERC's NEPA Analysis

- Issues from Scoping Process
- Study Results
- License Application
- Public/Stakeholder Comments
- Agency Recommendations

Bigger Picture







## Cutler Hydroelectric Project

# FERC Criteria for Modification of Approved Study

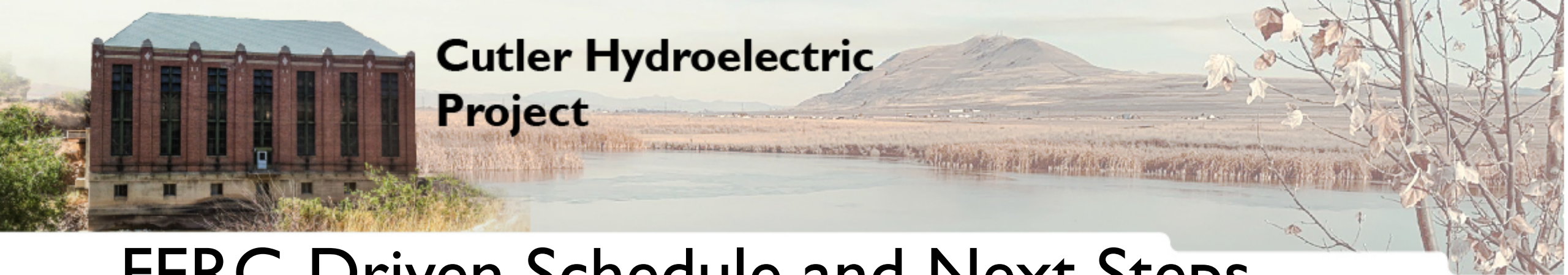
- Show good cause why the modification of an approved study should be approved.
- Include/Demonstrate:
  - Approved studies were not conducted as provided for in the approved study plan; or
  - The study was conducted under anomalous environmental conditions or that environmental conditions have changed in a material way.



## Cutler Hydroelectric Project

# FERC Criteria for New Study Request

- Show good cause why the modification of an approved study should be approved.
- Include a statement demonstrating the following:
  - Any material changes in the law or regulations applicable to the information request
  - Why the goals and objectives of any approved study could not be met with the approved study methodology
  - Why the request was not made earlier
  - Significant changes in the Project proposal or that significant new information material to the study objectives has become available
  - Why the new study request satisfies the study criteria in [18 CFR § 5.9\(b\)](#)



## Cutler Hydroelectric Project

# FERC-Driven Schedule and Next Steps

- Meeting summary no later than 15 days after meeting (March 10, 2021)
- Stakeholder comments within 30 days of meeting summary (by April 9, 2021)
- Dispute resolution pathway if necessary





## Cutler Hydroelectric Project




# Resource Studies

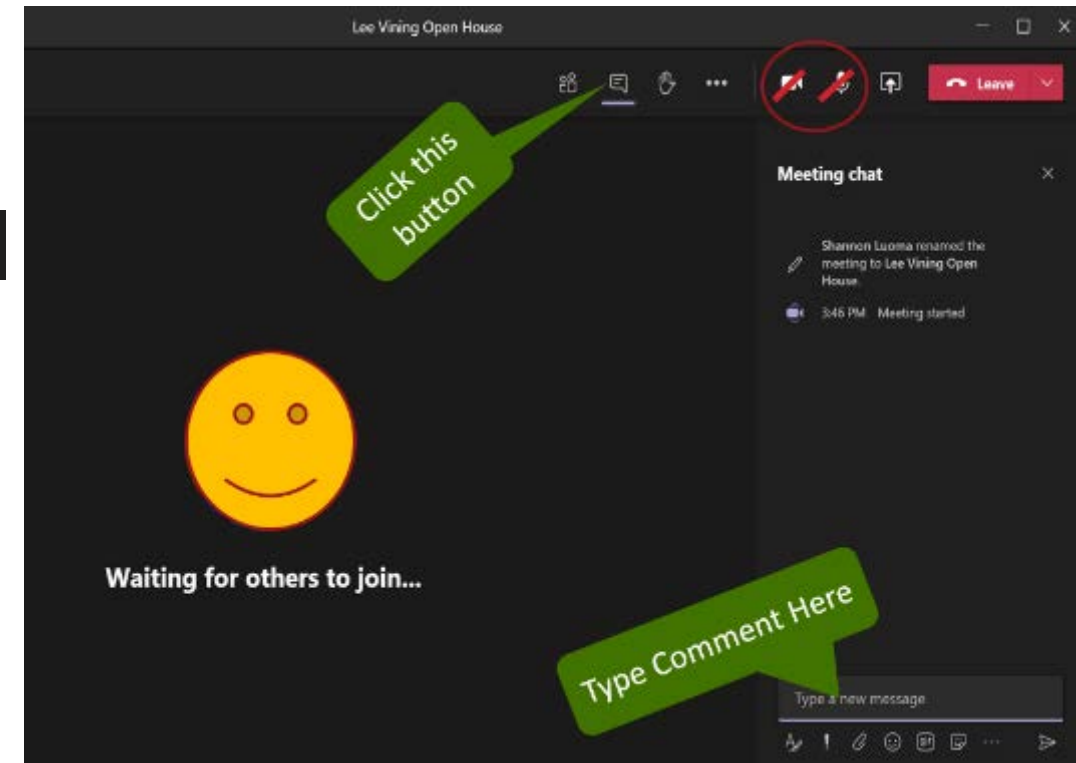
- Hydraulic Modeling
- Fish and Aquatic
- Water Quality
- Sediment
- Shoreline Habitat Characterization
- Land Use
- Recreation
- Threatened and Endangered Species
- Cultural



# Cutler Hydroelectric Project

## Questions?

- Please use Chat Box.
- Use the “Raise Hand” button to indicate you would like to ask a question verbally. 
- Please wait to be called on and then unmute your line.  
- State your name/affiliation prior to speaking.
- Please listen, be respectful, and stay on topic.







## Cutler Hydroelectric Project

# Proposed Project Operations

- Normal range similar to current operations
- Extend range to allow for seasonal operational flexibility
- No change in upper elevation limit



## Cutler Hydroelectric Project

# Existing and Proposed Operations

- Existing Operation Range
  - 4407.5–4406.5/4406.0 feet (1–1.5 feet, seasonally)
- Proposed Normal Operation Range (85% of the time)
  - 4407.5–4406.5 feet (1 foot)
- Proposed Extended Operation Range (15% of the time)
  - 4406.5–4405.0 feet (additional 1.5 feet)
  - Will not occur during irrigation, high water, or extreme ice
- Elevations listed in NGVD29 are **based on reservoir elevation at Cutler Dam**



# Cutler Hydroelectric Project

## Existing and Proposed Operations

Current Cutler License Operations Regime

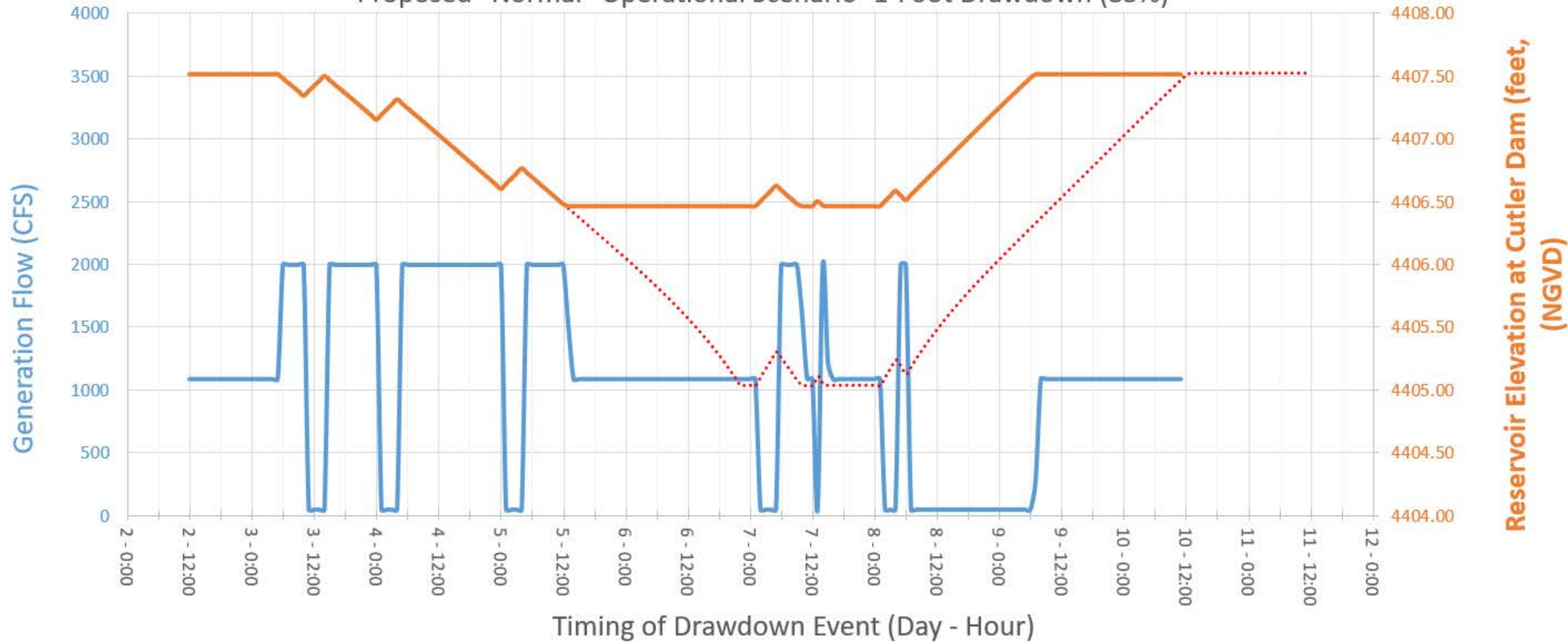
Period	Operating Range Elevation (feet)	Tolerance (feet)	Percent Time within Tolerance
March 1 – Dec. 1	4,407.5–4,406.5	± 0.25	95%
Dec. 2 – Feb. 28	4,407.5–4,406.0	± 0.25 to 0.5	90%

Proposed Future Cutler Operations Regime

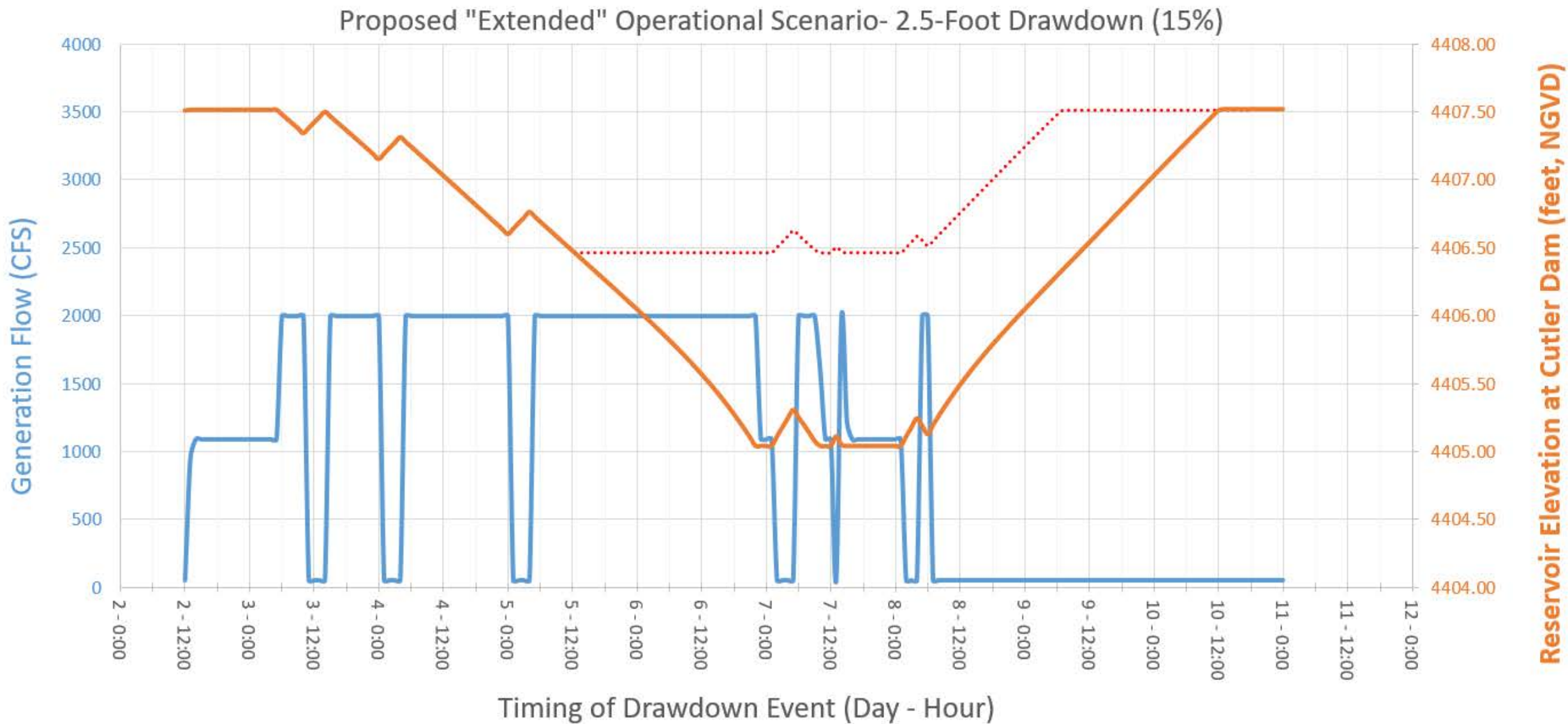
Range Type	Operating Range Elevation (feet)	Tolerance (feet)	Percent Time within Tolerance	Percentage of Calendar Days for Range Type
Normal	4,407.5–4,406.5	+0.5 @ 4,408.0	95%	At least 85% (~310 days)
Extended	4,406.5–4,405.0	-0.5 @ 4,404.5	95%	15% (~55 days) or less



Proposed "Normal" Operational Scenario- 1-Foot Drawdown (85%)



..... Proposed "Extended" Operational Scenario



..... Proposed "Normal" Operational Scenario



## Cutler Hydroelectric Project

# Proposed Operations




- Not possible to operate in the extended range during the irrigation season nor when inflows approach and exceed hydraulic capacity, such as during normal-to-high spring runoff years.
  - Reason 1: The bathymetry forces the water level higher as flows increase.
  - Reason 2: There is no room for decreases in power flows when inflows are above hydraulic capacity.
- The extended range would typically only be utilized during the November-to-March time period and would further exclude periods of extreme low temperature (typically sometime between mid-December and end of January) when downstream ice-damming concerns are present.

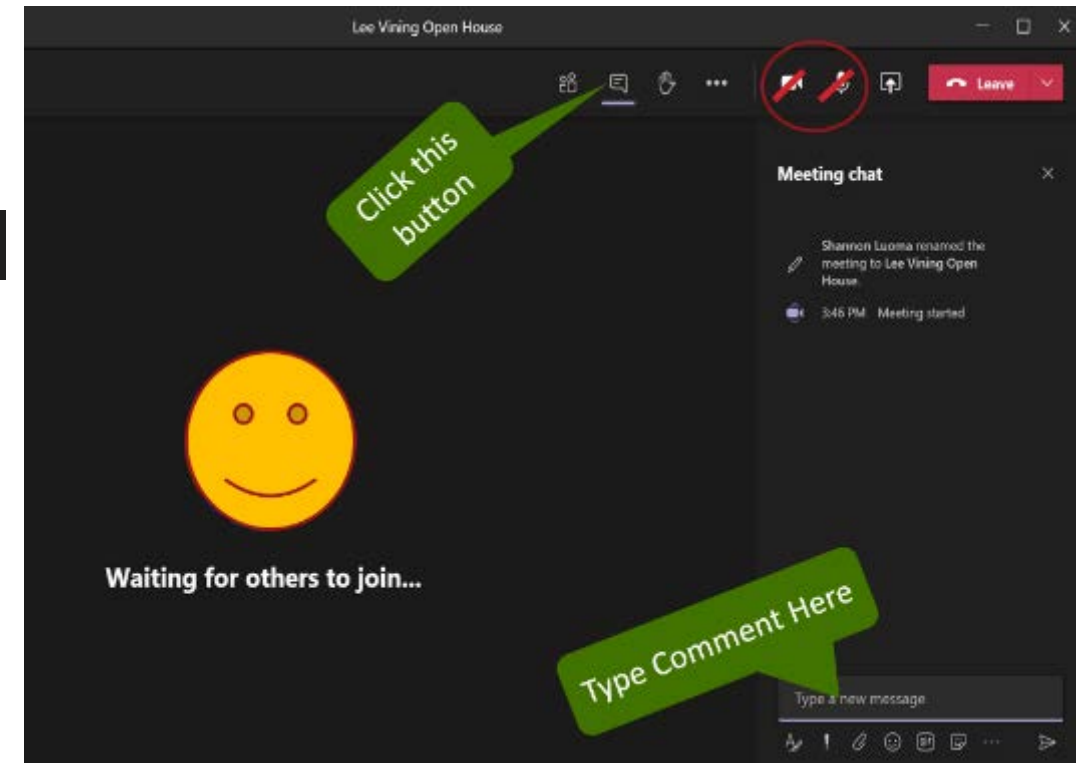




# Cutler Hydroelectric Project

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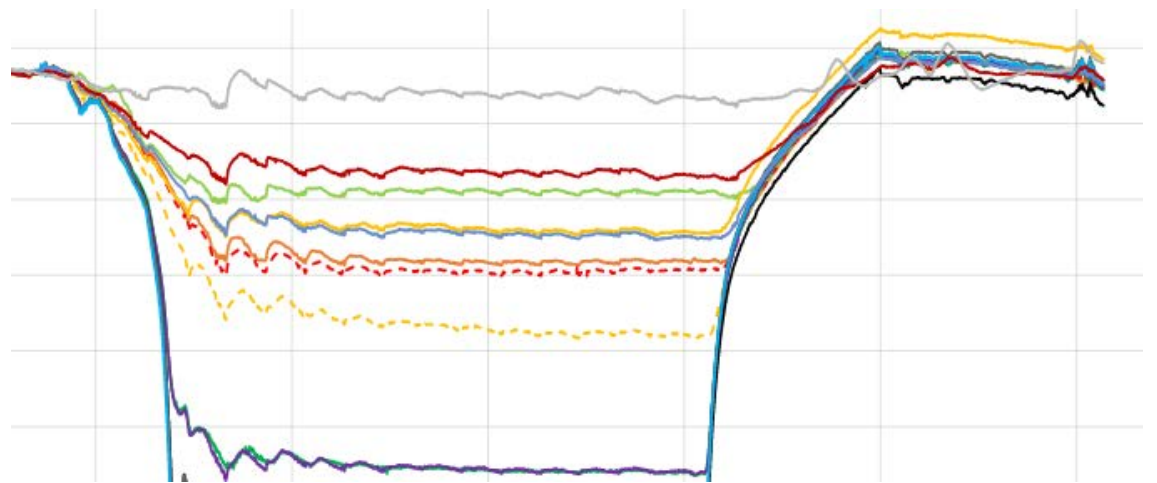
# Initial Study Reports







## 1D and 2D Hydraulic Modeling



# Hydraulic Model Goals & Objectives

## **Study Goals**

- Evaluate existing hydraulic conditions.
- Assess feasibility and impacts of potential changes in future operations.
- Predict impacts to the hydraulics and sediment transport under different operating scenarios in order to inform potential changes to Project operations.

## **Study Objectives**

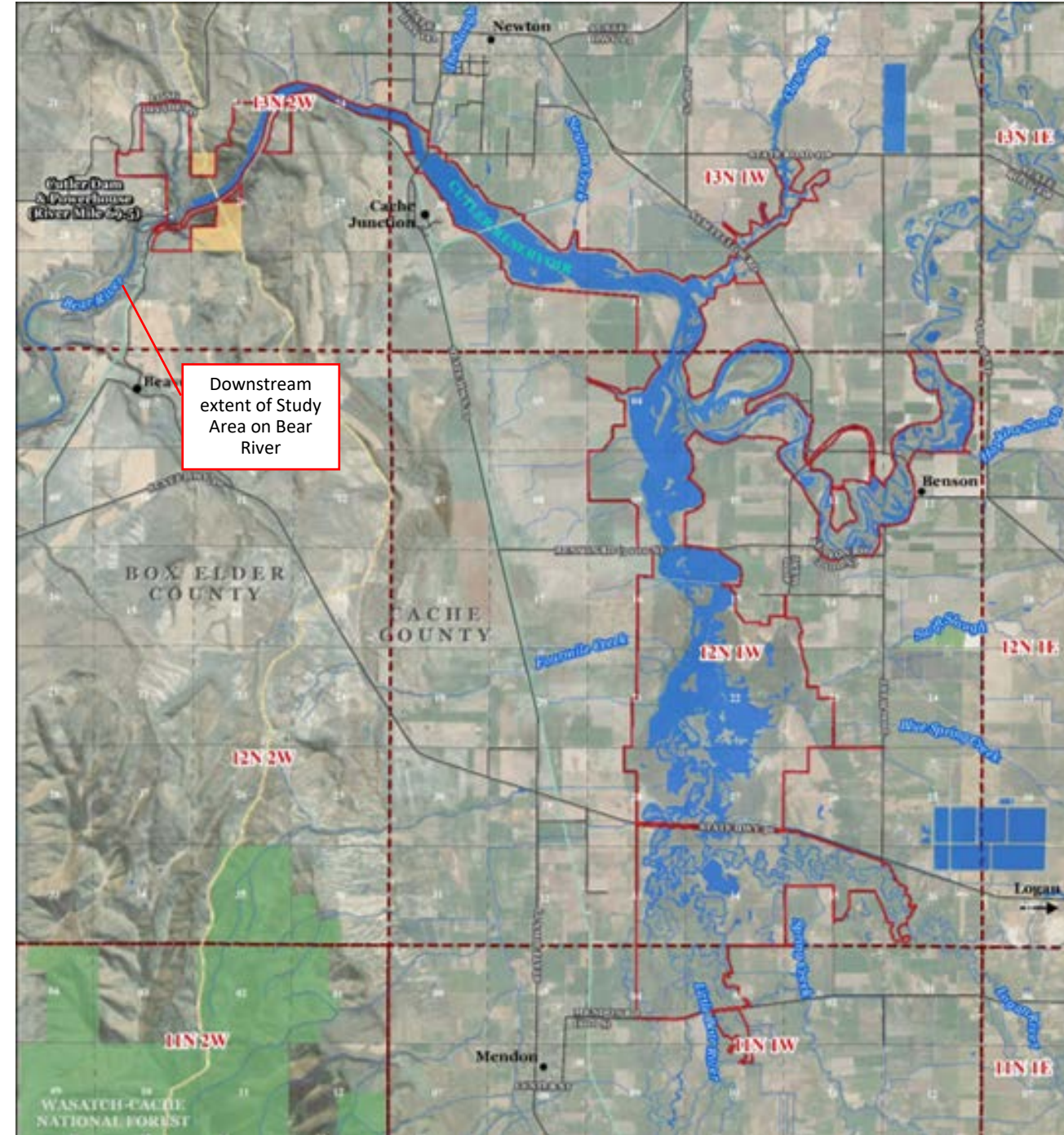
- Develop and collect data for calibration of 1D and 2D hydraulic HEC-RAS models for modeling sediment transport.
- Compile structural, spatial, terrain, and hydrologic data sets.



# Hydraulic Model Study Area

## Study area included the following:

- 1.5-mile reach of Bear River downstream of Project Boundary beginning at the powerhouse
  - Preliminary estimate of 2 miles
  - 1.5 mile consistent with LiDAR/bathymetry coverage
- All hydraulic control structures within the Project Boundary
- Boundary conditions at Bear River, Logan River, Little Bear River, Spring Creek, Clay Slough, and Cutler Dam



# Modeling Software and Data Sources

## **Software Utilized**

- USACE HEC-RAS 1D and 2D hydraulic modeling
- 1D model analyzed sediment transport within reservoir
- 2D model analyzed flow behavior, inundation boundaries, and other hydraulic characteristics

## **Creation of Terrain Surface of Reservoir Bed**

- LiDAR data collected during fall 2019 drawdown
- Bathymetric survey completed during pre- and post-drawdown

## **Model Calibration**

- 15 datalogging pressure transducers placed within the reservoir to collect water surface elevation (WSE) data before and during drawdown
- Sediment core samples
- Suspended sediment concentrations
- Depth to bedrock data

## **Development of Inflow Hydrographs and Groundwater Contributions**

- Single discharge measurements taken from 6 surface water inflow locations within boundary
- Hydrologic data gathered from existing USGS and PacifiCorp stream gages and evaluated

# Model Construction and Calibration

## **1D and 2D model constructed using LiDAR and bathymetry data**

- Model included boundary conditions at Bear River, Logan River, Little Bear River, Spring Creek, Cutler Dam, and downstream end of model

## **Model calibration**

- Data collected during fall 2019 reservoir drawdown
  - WSEs within the reservoir
- Model calibrated by comparing observed elevation and inundation data to computed results of hydraulic model
- Reservoir bed elevations within reservoir

## **Model Implementation**

- For existing and proposed Cutler Dam operations, the model was used to do the following:
  - Provide WSE, depths, velocities, and inundation boundaries for study area
  - Qualitatively compare total bed sediment mobilization between existing and proposed operations
  - Evaluate potential changes resulting from proposed Project operations



# Study Modifications

Aerial imagery collected in 2019 was not useable to verify hydraulic modeling results.

On-the-ground site photos taken at 1-minute intervals at 13 sites were used in lieu of aerial imagery.



# Hydraulic Modeling Results

---

The ISR includes the following maps for existing and proposed operation scenarios:

- Inundation boundaries
- Peak velocities
- Minimum depths
- Minimum reservoir elevations

The ISR also includes tabulated modeled reservoir levels during existing and proposed operations (used throughout other study reports).



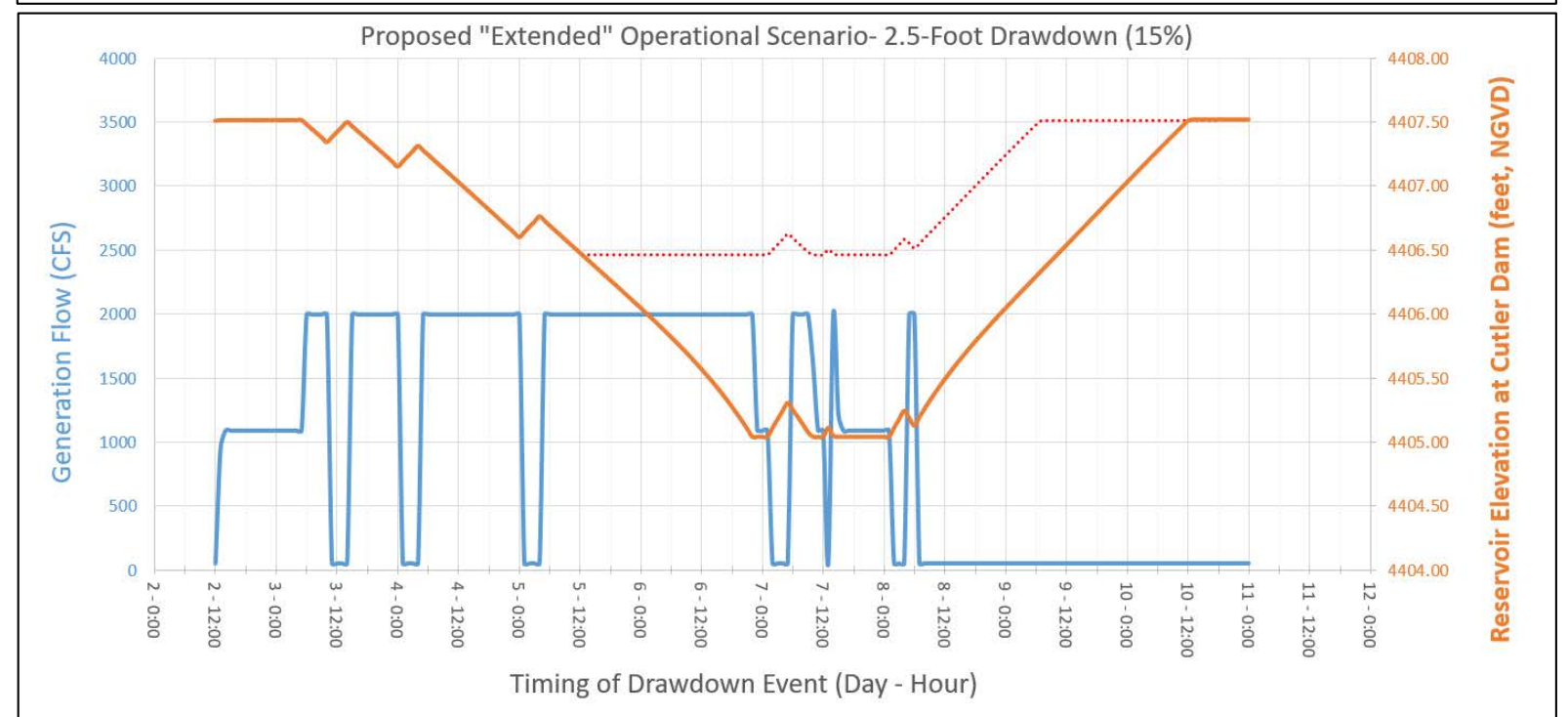
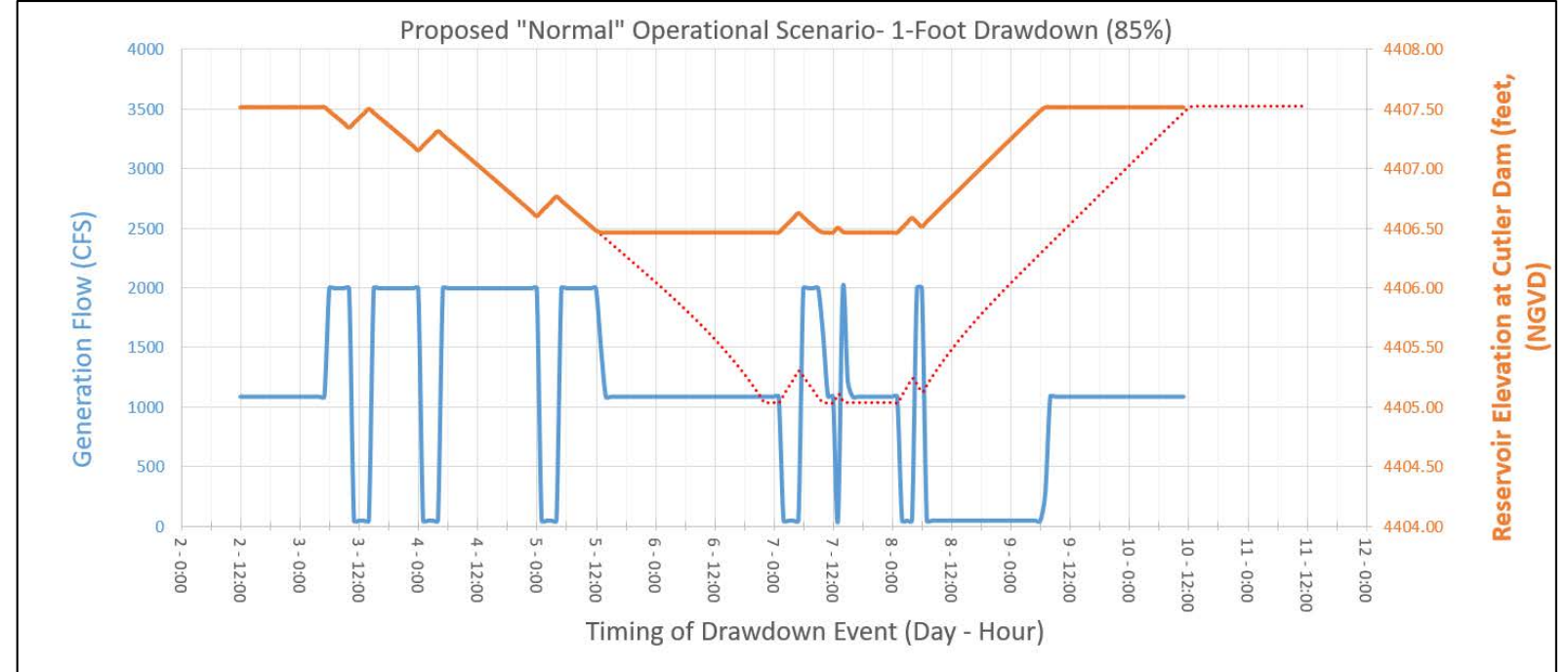




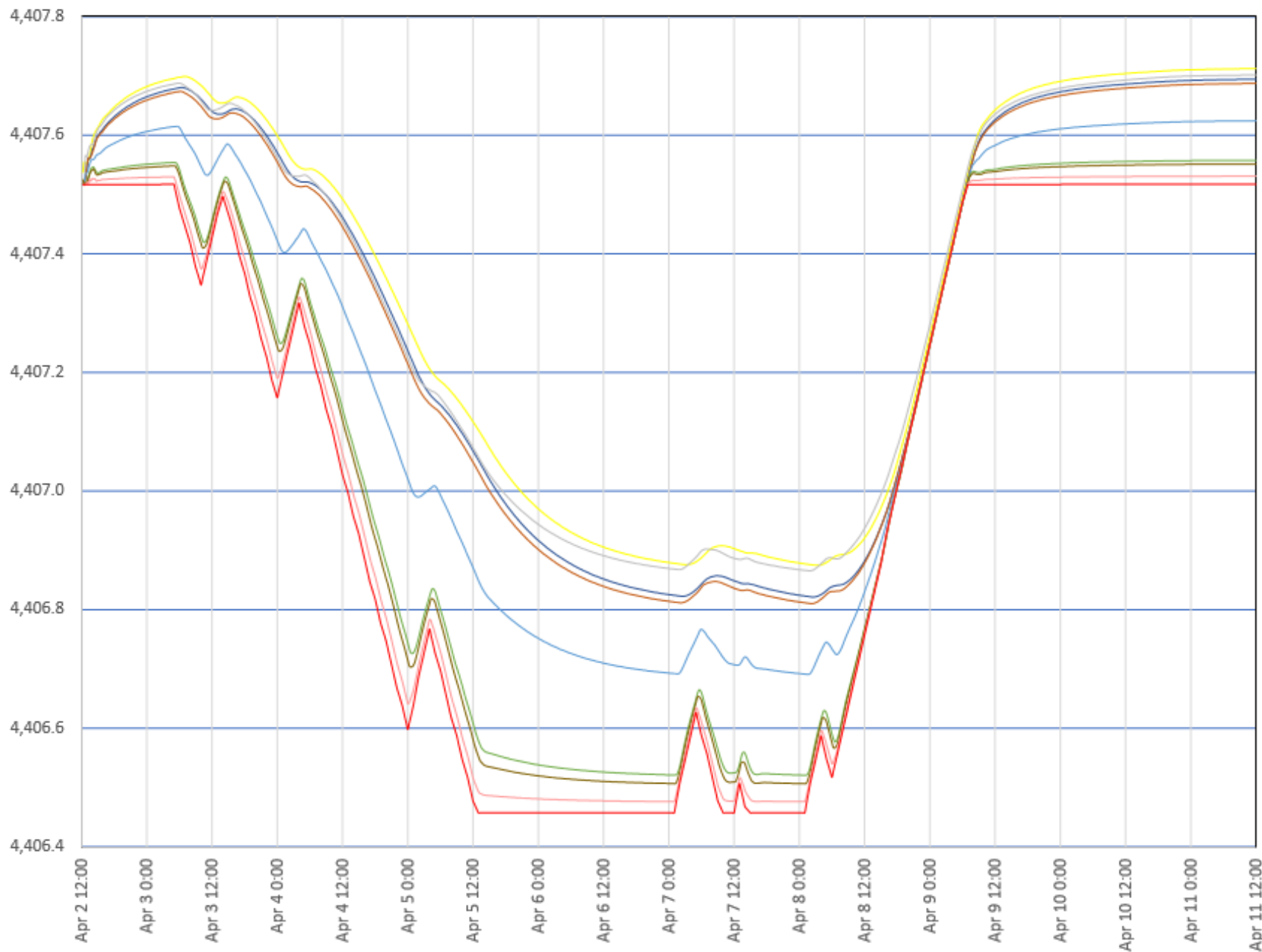
# 2019 F Drawd Dynam Velocit Map (Zoom



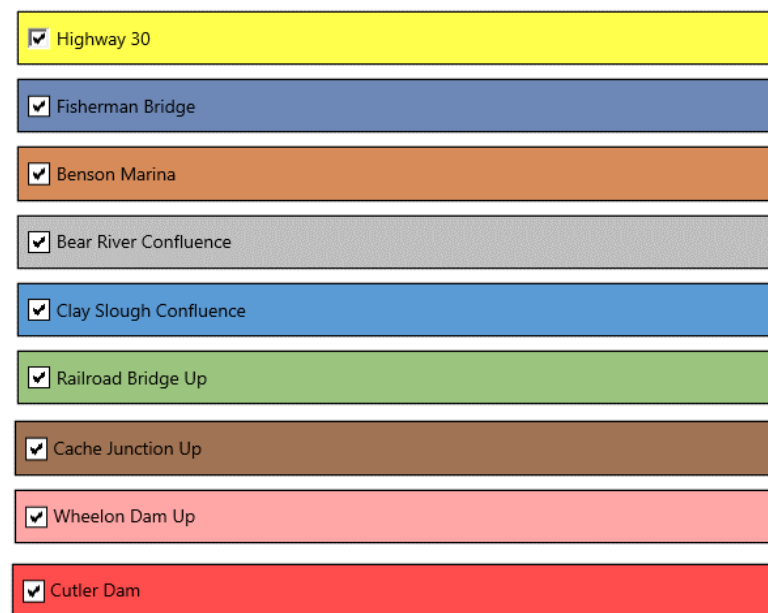
# Hydraulic Modeling Results



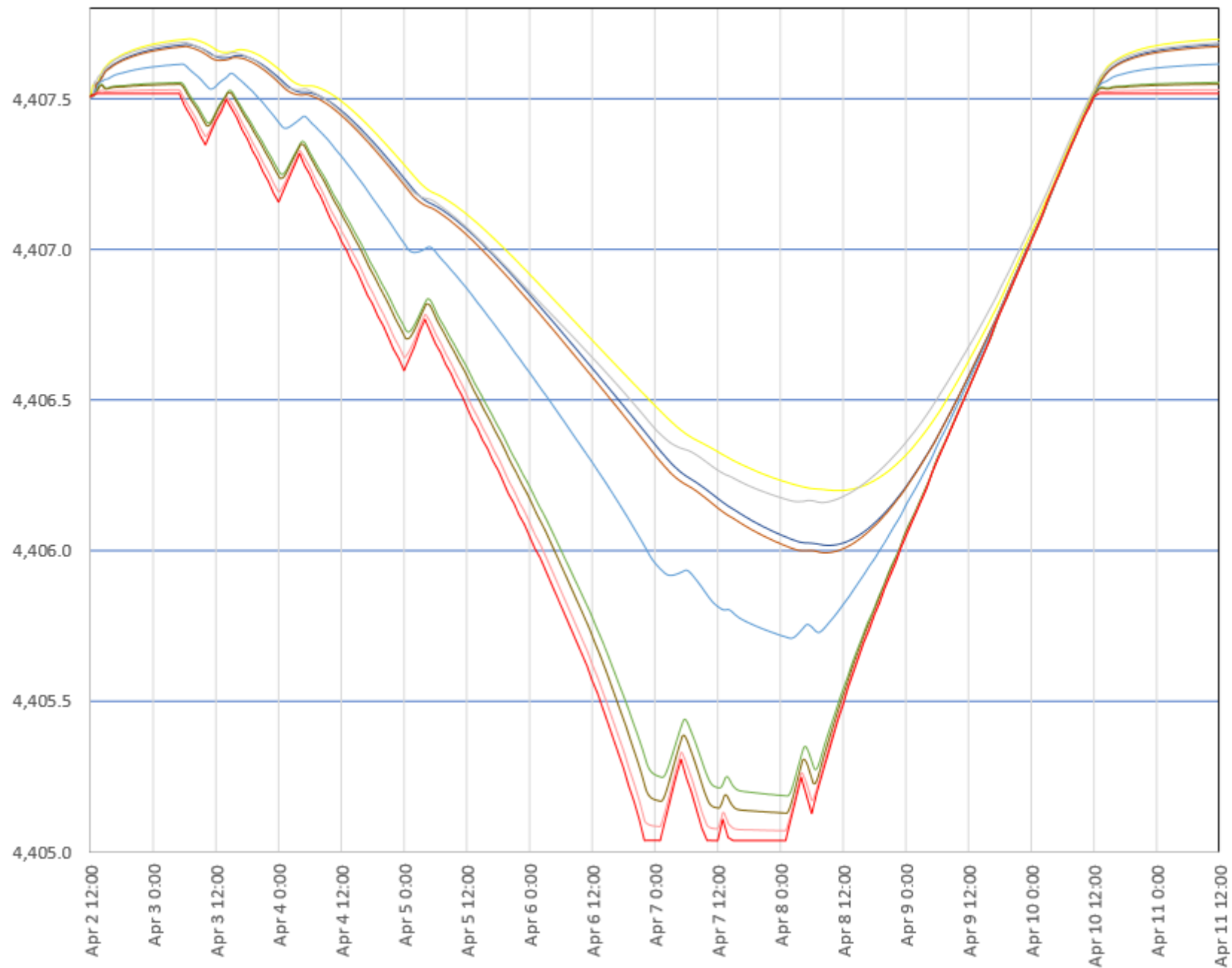
Water Elevation (NGVD 29, Feet)



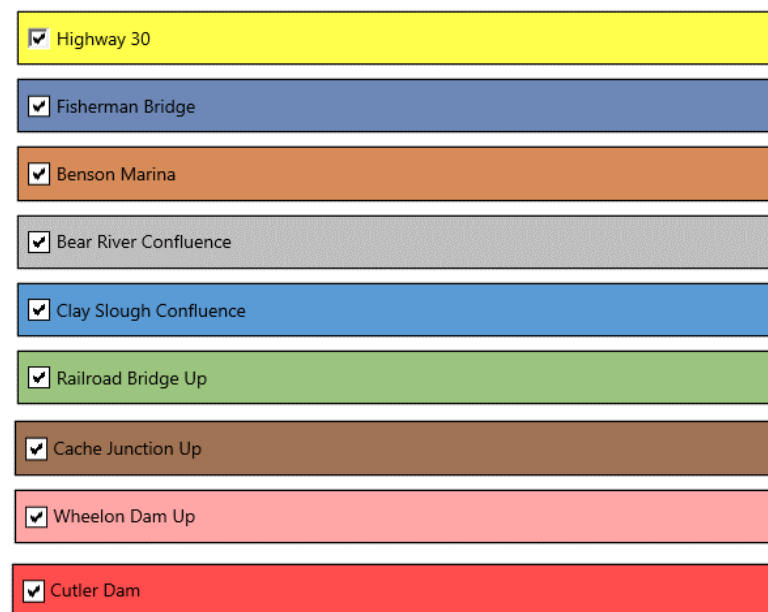
## Cutler Reservoir Water Surface Elevations – Existing 1-foot Operations



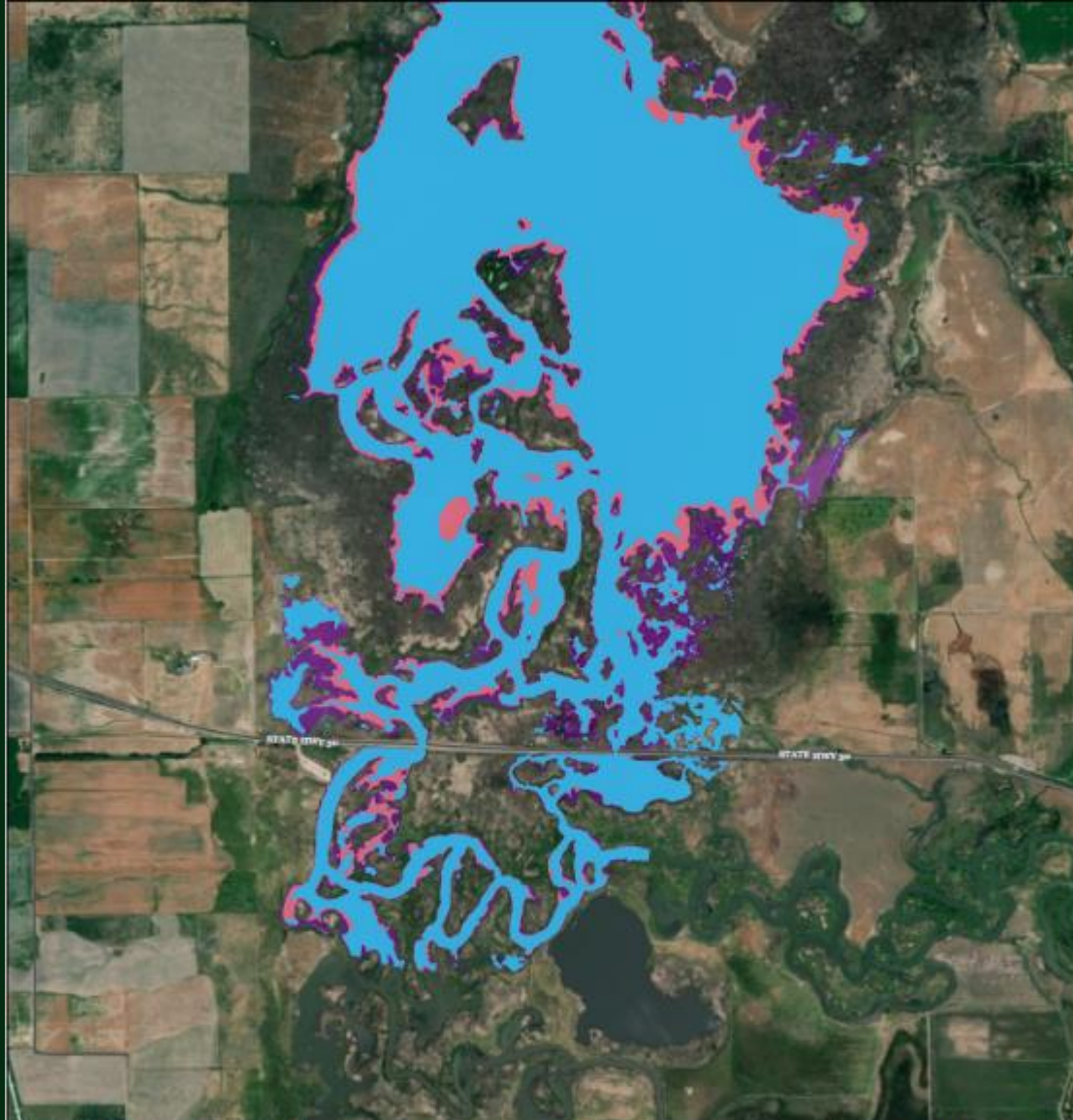
Water Elevation (NGVD 29, Feet)



## Cutler Reservoir Water Surface Elevations – Proposed 2.5-foot Operations







**Proposed Extended Operating Range**  
(4406.5-4405.0 feet 15% of the time)  
**Proposed Normal Operating Range**  
(4407.5-4406.5 feet 85% of the time)  
**Normal Maximum Pool Elevation**

#### Notes

- Assumed duration of the event: 9 days or 216 hours.  
- Assumed tributary inflow of 1,046.5 cfs and ground water inflow of 285.5 cfs.

Coordinates System: NAD 83 UTM Zone 18N  
Datum: North American 1983  
Scale: 0 500 1,000 Feet

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#### Inundation Boundaries of Proposed Operations

Sheet 1 of 6

CUTLER  
HYDROELECTRIC PROJECT  
FERC PROJECT NO. 2420



**Proposed Extended Operating Range**  
(4406.5-4405.0 feet 15% of the time)  
**Proposed Normal Operating Range**  
(4407.5-4406.5 feet 85% of the time)  
**Normal Maximum Pool Elevation**

#### Notes

- Assumed duration of the event: 9 days or 216 hours.  
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#### Inundation Boundaries of Proposed Operations

Sheet 4 of 6

CUTLER  
HYDROELECTRIC PROJECT  
FERC PROJECT NO. 2420







# Sediment Transport Results

ISR includes the following results for existing and proposed operation scenarios:

- Final bed minimum elevations
- Qualitative comparison of average Total Suspended Solids (TSS) concentrations



# Hydraulic Modeling Findings

## Hydraulic Modeling

- A 2D hydraulic HEC-RAS model was constructed and calibrated.
  - The model produced inundation boundaries, velocities, and depths within the model area for proposed operational scenarios.
- The model can be used as a tool moving forward for alternatives analysis.
- Key takeaways:
  - A 2.5-foot drawdown at Cutler Dam does not result in a 2.5-foot drawdown throughout the reservoir.
    - The hydraulic effects of a drawdown lessen as you move further upstream.
  - Neither of the proposed operation scenarios produce high velocities or shear stresses in the reservoir.
  - Model results are dependent on timing of drawdown and assumed inflow values.





# Sediment Transport Model Findings

## Sediment Transport Modeling

- A 1D sediment transport HEC-RAS model was constructed and calibrated.
  - The model produced minimum reservoir bed elevations and average TSS within the model area for proposed operational scenarios.
- The model can be used as a tool to qualitatively compare potential operational alternatives.
- Key takeaways:
  - The effect to the reservoir bed elevations (scour) of a 2.5-foot drawdown compared to a 1-foot drawdown is negligible.
  - TSS average concentrations within the reservoir increase under the 2.5-foot drawdown compared to the 1-foot drawdown.
    - The increase in TSS is more concentrated in Cutler Canyon where velocities are higher.

# Summary – Hydraulic Modeling






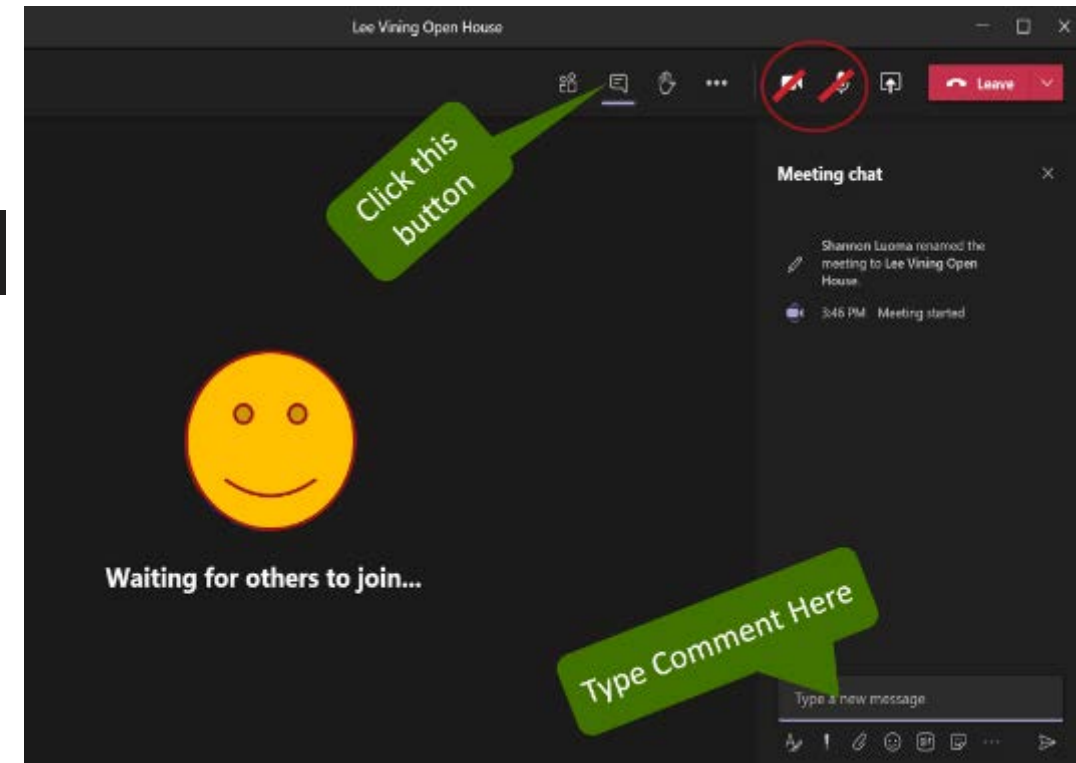
Study Objectives	Study Objectives Satisfied?
<b>Study Objective 1:</b> Compile structural, spatial, terrain, and hydrologic data sets for development of a 1D and 2D hydraulic model.	Yes All data required for model development were collected.
<b>Study Objective 2:</b> Develop and calibrate 1D and 2D hydraulic models that can be used for hydraulic and sediment transport analysis.	Yes Models were developed and calibrated.
<b>Study Objective 3:</b> Use model to analyze impacts to the hydraulics and sediment transport under different operating scenarios in order to inform potential changes to Project operations.	Yes Model was used to analyze existing and proposed operational scenarios (1-foot and 2.5-foot drawdown events).
<b>Study Objective 4:</b> Summarize model results for operational scenarios in both tabular and graphical form for other study plan authors.	Yes Model results including inundation boundaries, water surface elevations, velocities, and depths were summarized in tables and figures.



# Cutler Hydroelectric Project

## Questions?

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# Fish and Aquatic Resources Study

# Fish and Aquatic Study Goals

- Determine status and characterize aquatic organisms and habitat (fish, benthic macroinvertebrates, mollusks).
- Evaluate the effects of the fall 2019 reservoir drawdown on the aquatic community, the relate potential Project operational changes, and the resultant effects to the aquatic community within the reservoir.





# Fish and Aquatic Study Objectives

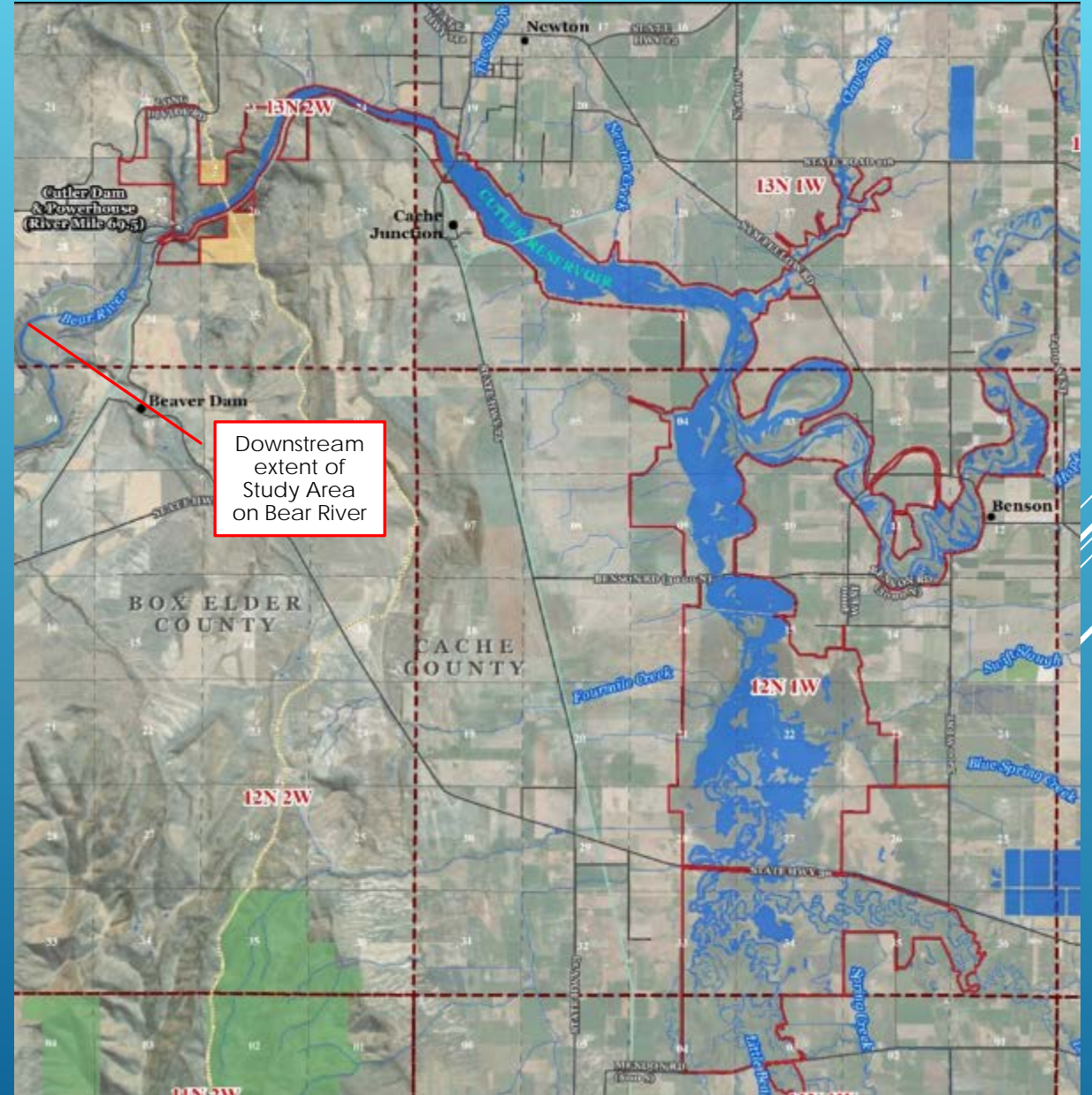
1. Summarize existing information on the aquatic organisms and their habitat residing in the Cutler Reservoir, its tributaries, and the Bear River up to 2 miles downstream of Cutler Dam.
2. Determine potential effects of the fall 2019 reservoir drawdown on fish, mollusks, and macroinvertebrates and their habitat in Cutler Reservoir (e.g., potential stranding/displacement).
3. Based on observations during the fall 2019 reservoir drawdown, determine potential effects of future Project operations on resident fish, macroinvertebrate, and mollusk habitat in Cutler Reservoir.



# FISH AND AQUATIC STUDY AREA

Area within FERC Project Boundary

Bear River from Cutler Dam to 2 miles downstream of the dam





# Fish and Aquatic Study Methods Overview

## Review and Summarize Existing Information

- Cutler Reservoir: Existing aquatic resources studies (Utah State University [USU] classes, other research) and PacifiCorp monitoring
- Bear River: Utah Division of Wildlife Resources (UDWR) fish survey

## Aquatic Community Sampling During Fall 2019 Reservoir Drawdown

- Fish isolation study (PacifiCorp)
- Benthic macroinvertebrate sampling (PacifiCorp)
- Mollusk survey (UDWR)

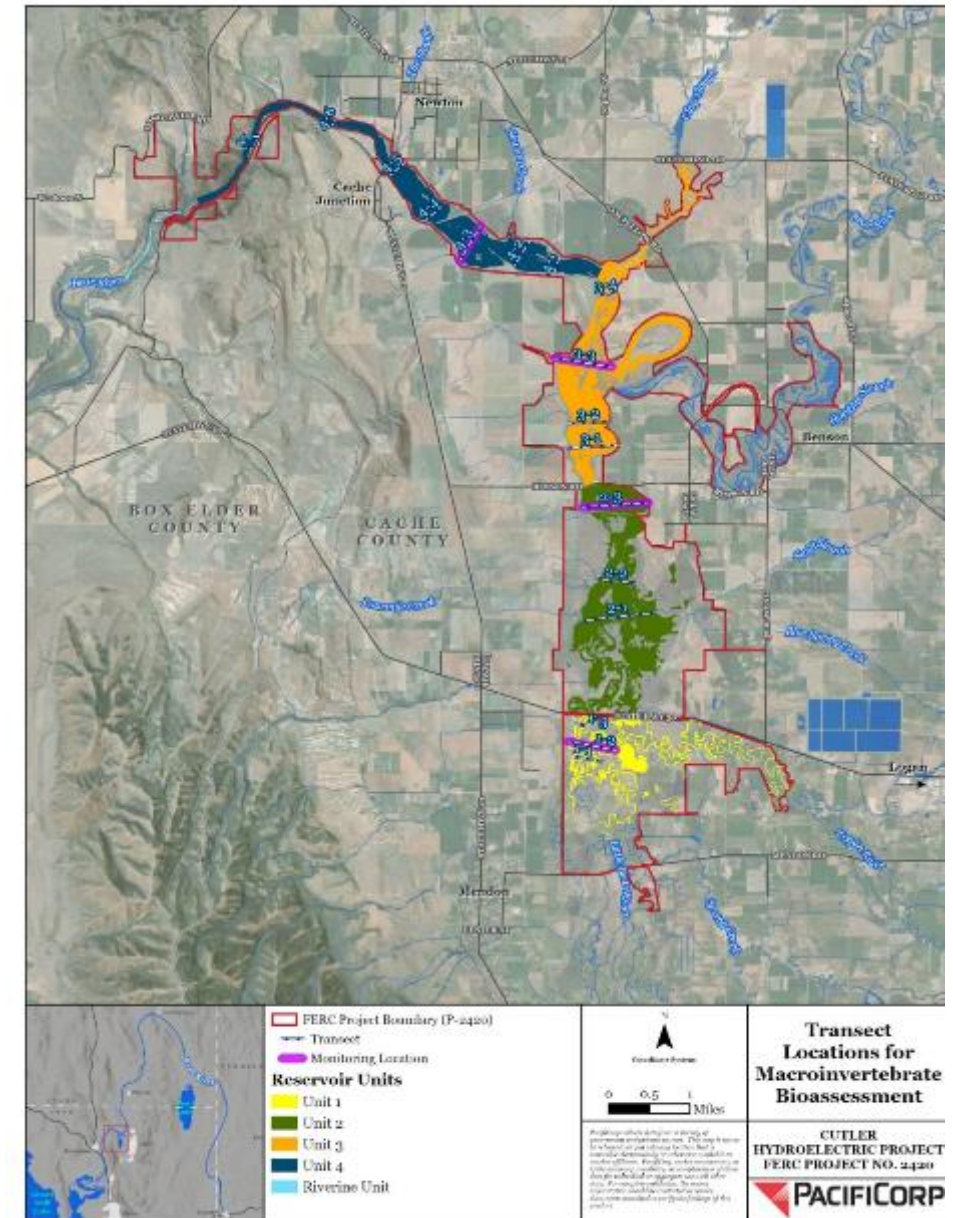
# Aquatic Community Sampling Methods – Fish Isolation

- Conducted during full 2019 drawdown in the reservoir and tributaries only (drawdown did not create potential stranding areas downstream of the dam)
- Used Marsh Master and drone to survey isolated pools along reservoir perimeter
- Documented: Pool location, number of fish (or lack of fish), species, and specimen size where possible



# Aquatic Community Sampling Methods – Benthic Macroinvertebrates

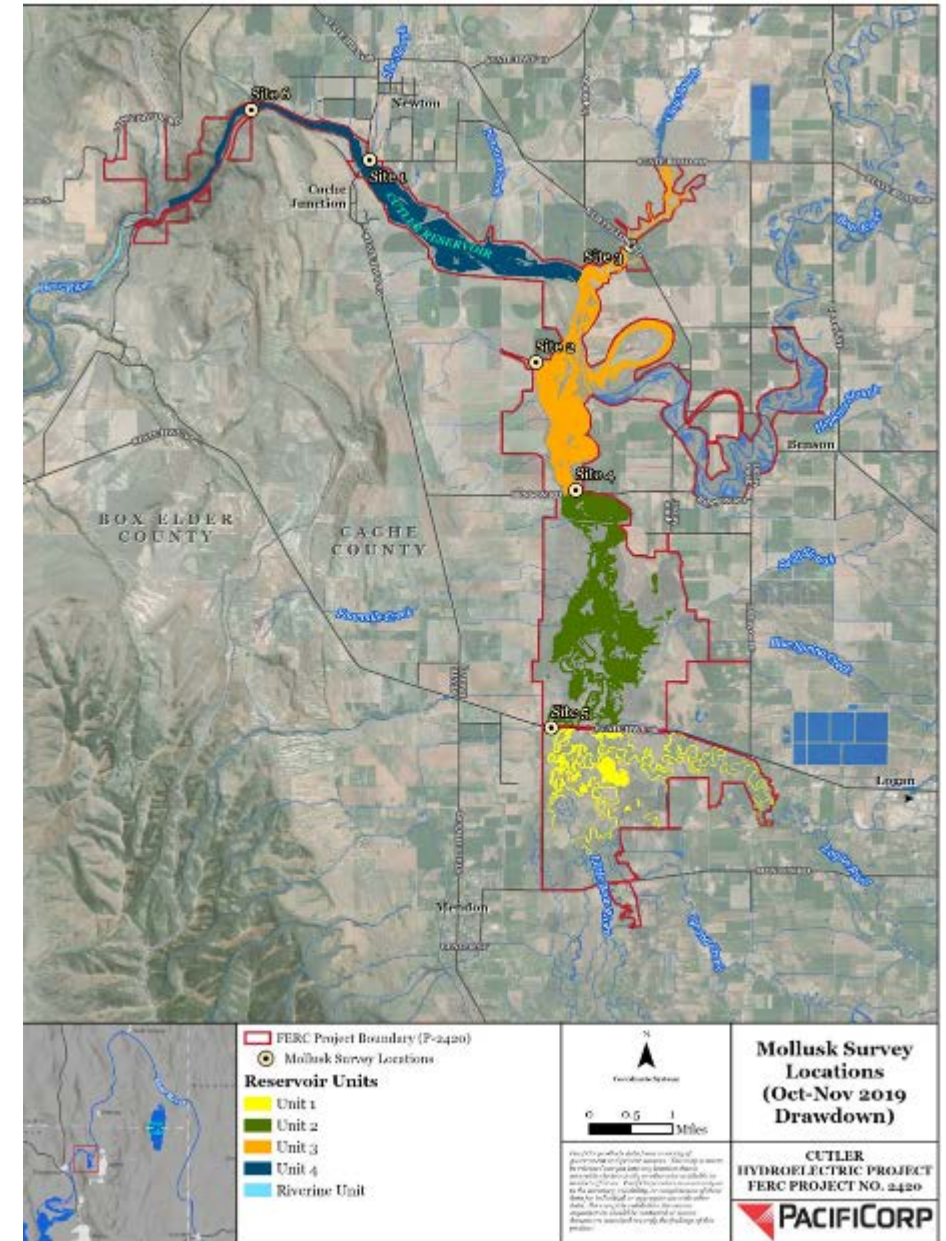
- Sampled pre-drawdown (mid-October) and during drawdown (early November)
- 16 sample sites, across 4 transects (1 transect randomly selected per reservoir unit); 4 sites sampled on each selected transect (transects 1-2, 2-3, 3-3, and 4-3)
- Used Rapid Bioassessment protocols





# Aquatic Community Sampling Methods – Mollusks

- Conducted in reservoir by UDWR during 2019 drawdown
- Freshwater mussel specimens collected by raking in areas of pooled water at 6 sites
- Targeted natives (e.g., California floater), and non-natives (e.g., paper pondshell)





# Study Modifications

## **Fish Isolation Study**

Due to deep mud, fish isolation sites were surveyed either from a Marsh Master (semi-floating tracked vehicle) or using an aerial drone (rather than on foot).

## **Benthic Macroinvertebrate Study**

Macroinvertebrates were identified to an Operational Taxonomic Unit (per Bureau of Land Management / USU protocol), rather than to genus.





# Fish and Aquatic Resources Study Results



# Existing Information Review – Fisheries



## Fish Community in Cutler Reservoir and Bear River

- Reservoir Fishery

- Reviewed: Utah reference books, USU class data for Cutler Reservoir surveys
- Most common species (*all non-native*): bluegill sunfish, fathead minnow, common carp
- Additional species: spottail shiner, **Utah sucker**, black bullhead, brown bullhead, channel catfish, green sunfish, smallmouth bass, largemouth bass, black crappie, yellow perch, and walleye

- Bear River Fishery

- Reviewed: UDWR 2019 electrofishing survey downstream of Cutler Dam (*all non-native*)
- Channel catfish, common carp, smallmouth bass, green sunfish, bluegill sunfish, black crappie, common logperch, walleye, brown trout, fathead minnow
- UDWR confirmed there is no native fishery extant in the Bear River below Cutler Dam

# Existing Information Review — Benthic Macroinvertebrates and Mussels

## **Reservoir**

- Reviewed USU Cutler Reservoir survey data (academic studies and class data)
- Benthic macroinvertebrate biomass was low compared to other lakes reviewed in the study
- Dominated by aquatic worms and chironomids (non-biting midges); both are tolerant of eutrophic conditions
- One USU study found mayflies, stoneflies, and caddisflies in reservoir fish diet samples, but study noted that additional data are needed to confirm

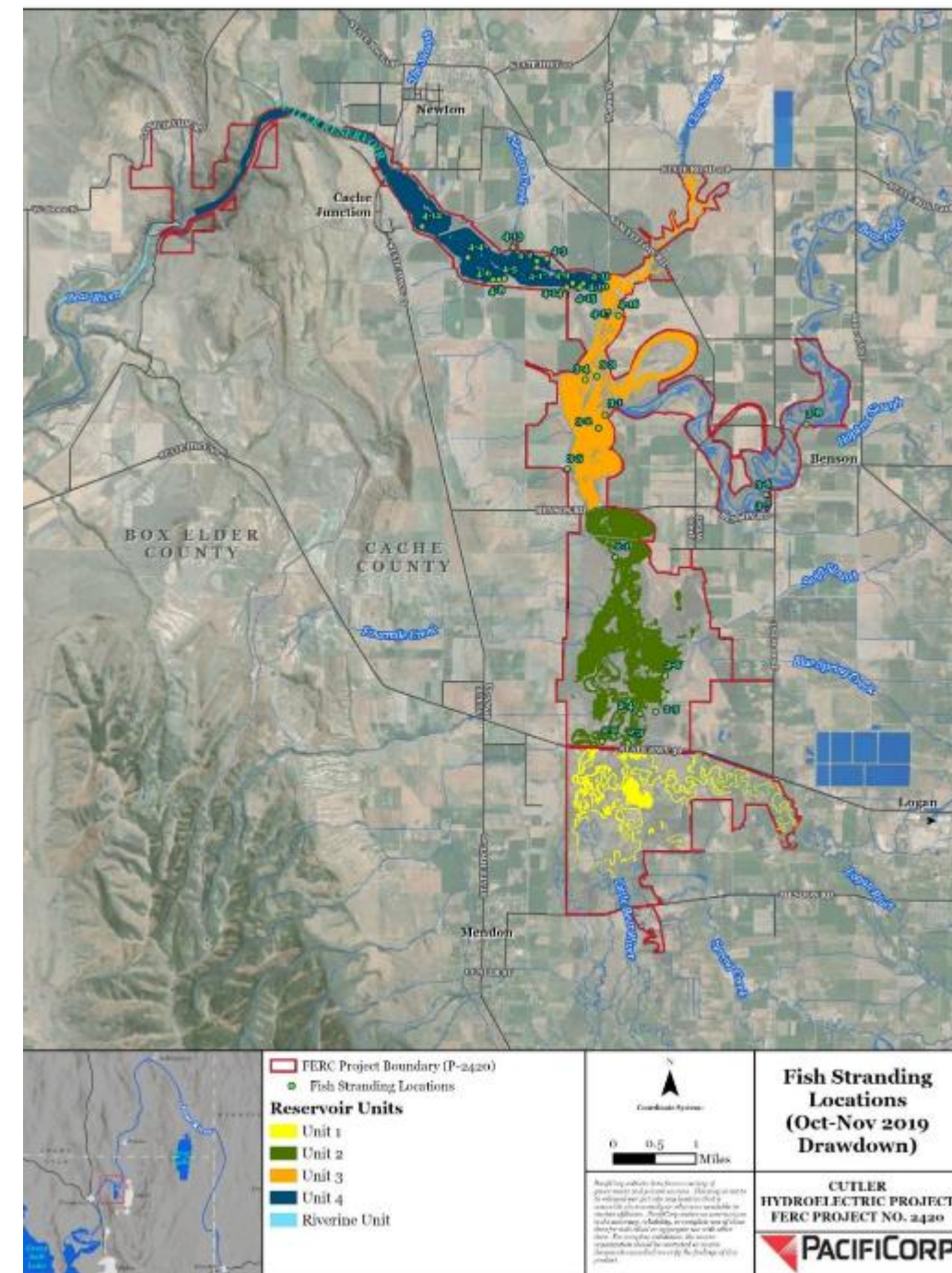
## **Bear River**

- No existing information was available for macroinvertebrates or mussels in the Bear River downstream of the dam



# Fish Isolation Study

- Sampled in reservoir only (no stranding locations expected in Bear River) given ongoing Project operation
- 31 pools sampled during drawdown
- Fish were documented in 22 of the pools; 1 to 15 fish observed per pool, most were alive
- Fish presence could not be determined at remaining 9 pools





# Fish Isolation Study

The fish isolation study occurred at water elevations of 4,390 to 4,392 feet (approximately 15.5 to 16.5 feet lower than proposed operating range respectively).

## **Proposed Reservoir Levels for Comparison**

- Proposed operations: 4,407.5 to 4,406.5 (black to blue lines)
- Extended operating ranges: 4,406.5 to 4,405.0 (pink to black lines)

# Benthic Macroinvertebrate Study

## **Pre-drawdown BMI Community**

- Primarily aquatic worms and chironomids (non-biting midges)
- Other macroinvertebrate groups: nematode worms, water mites, butterflies/moths, beetles, biting midges, mayflies, freshwater isopod

## **Drawdown BMI Community**

- Conducted at reservoir elevations substantially lower than proposed operating levels
- Higher number of macroinvertebrates collected overall during drawdown, but densities were only significantly greater for transects 2 and 3
- Increased density was primarily aquatic worms and non-biting midges, as expected
- Other macroinvertebrate groups: nematode worms, water mites, beetles, biting midges, mayflies, water boatman, caddisfly, freshwater shrimp, freshwater mollusk

# Mollusk Survey

## Drawdown Presence / Absence Surveys

- Completed by UDWR
- Sampled 6 sites in the reservoir in late October and early November 2019
- Paper pondshells (non-native): Documented at 5 of the 6 sites; many were dead
- California floater (native): Documented Sites 1 and 5; all were dead
- UDWR Conclusions: Although some stranding and mortality of mussels was observed, these observations occurred at reservoir elevations that are much lower than the proposed operating range and are not considered detrimental to the mussel community



# Summary – Findings



## Status of Aquatic Organisms

- Completely non-native fish community in the Bear River below Cutler; almost completely in reservoir (mostly common carp, bluegill sunfish, fathead minnow)
- Benthic macroinvertebrates in reservoir dominated by aquatic worms and non-biting midges, tolerant of eutrophic conditions

## Potential Changes from Proposed Project Operations

- The study identified minimal and temporary changes to aquatic habitat for fish and macroinvertebrates (including aquatic mussels) in Cutler Reservoir in relation to proposed Project operations.
- Study results will inform the Draft License Application (DLA) analysis of potential effects of proposed Project operations on aquatic organisms and habitat in Cutler Reservoir.

No additional studies proposed for Year 2.

# Summary – Fish/AQ Study Objectives






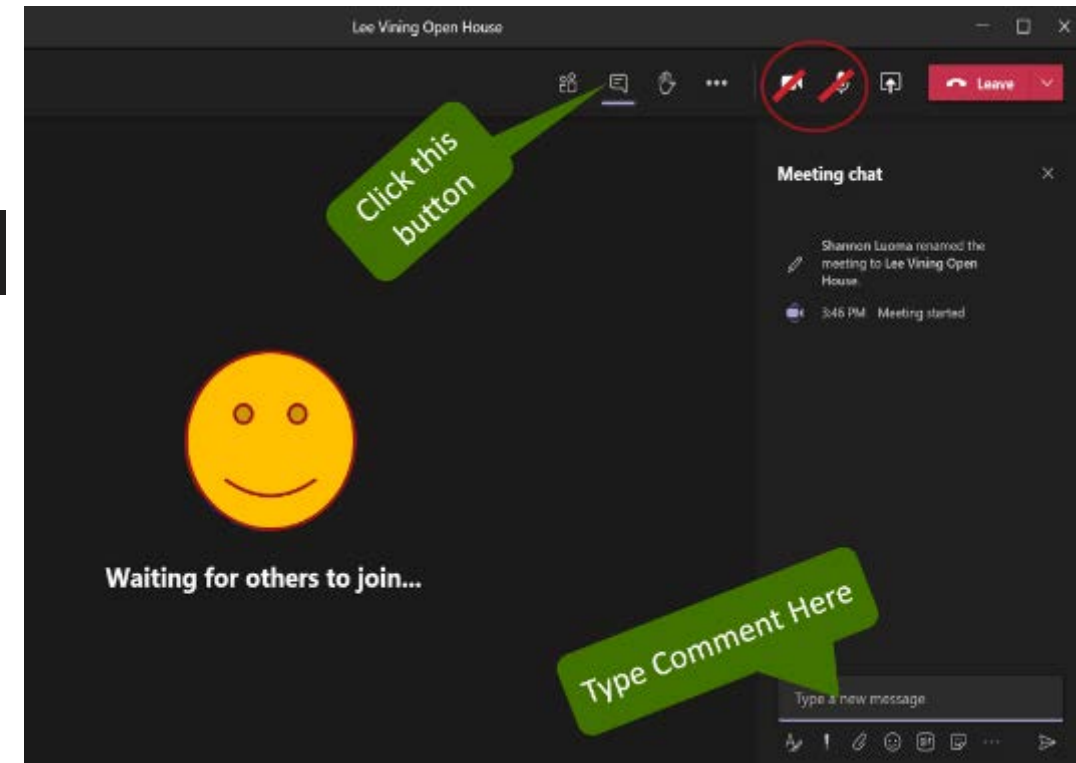
Study Objectives	Study Objectives Satisfied?
<b>Study Objective 1:</b> Summarize existing information on the aquatic organisms and their habitat residing in the Cutler Reservoir and its tributaries and the Bear River up to 2 miles downstream of Cutler Dam.	Yes No information found for macroinvertebrates or mollusks in Bear River downstream of dam.
<b>Study Objective 2:</b> Determine potential effects of the fall 2019 reservoir drawdown on fish, mollusks, and macroinvertebrates and their habitat in Cutler Reservoir (e.g., stranding/displacement).	Yes Conducted surveys during reservoir drawdown.
<b>Study Objective 3:</b> Based on observations during the fall 2019 reservoir drawdown, determine potential effects of future Project operations on resident fish, macroinvertebrate, and mollusk habitat in Cutler Reservoir.	Will be completed in DLA using results from study.



# Cutler Hydroelectric Project

## Questions?

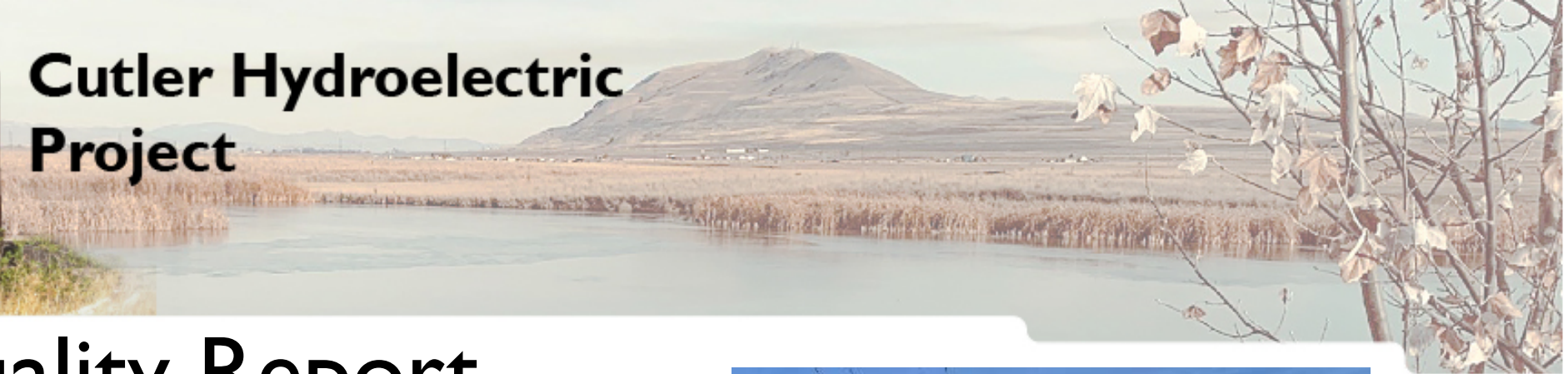
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# Cutler Hydroelectric Project



## Water Quality Report



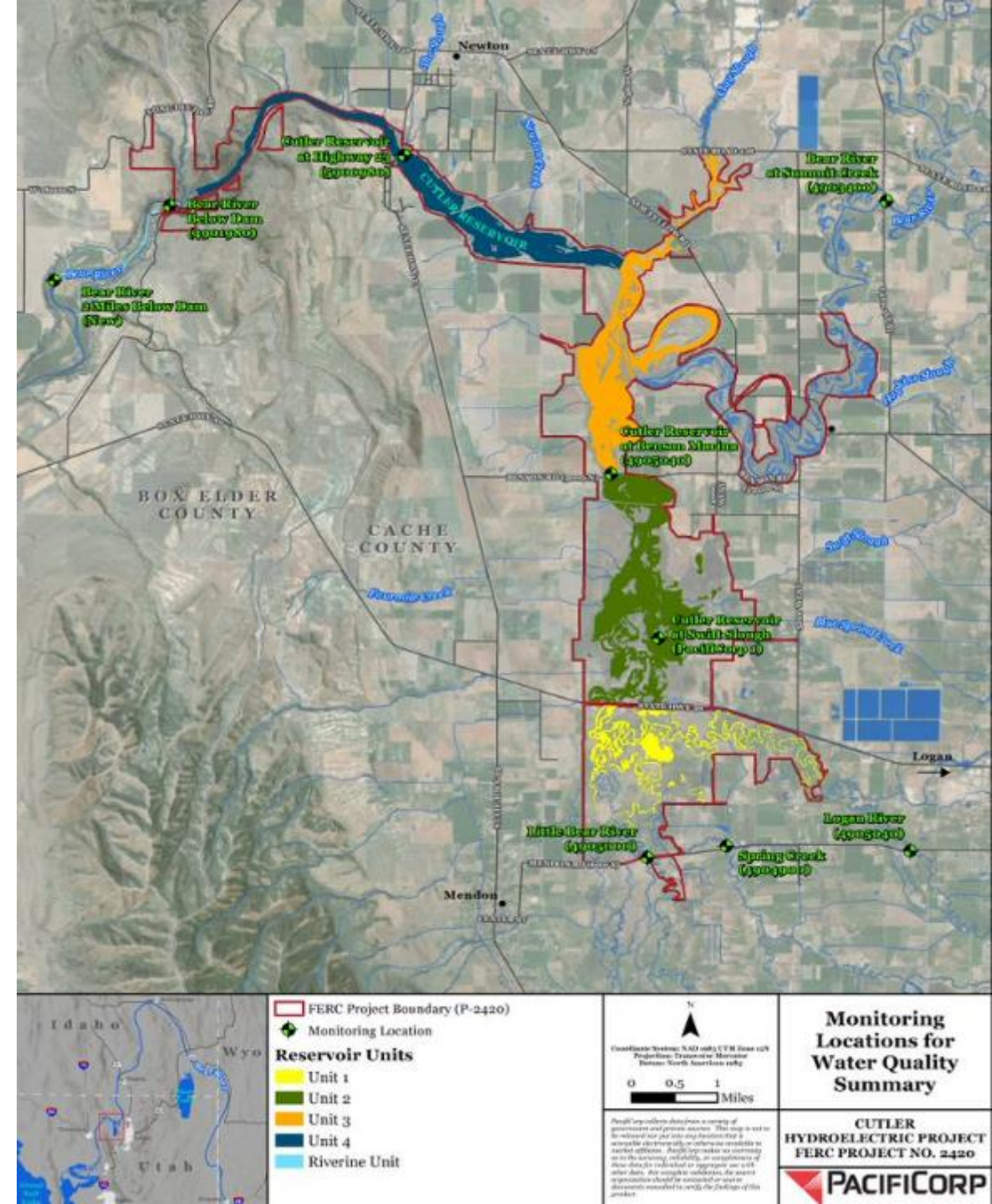
# Water Quality Study Objectives

- Characterize water quality within Cutler Reservoir and each of the main tributaries within the Project Boundary (the zone of influence of the reservoir).
- Evaluate potential effects of continued and future Project operations on water quality of Cutler Reservoir and the Bear River downstream of Cutler Dam.
- Determine the effects of the fall 2019 drawdown on water quality in the reservoir and downstream of Cutler Dam and relate those effects to future operations as appropriate.
- Synthesize existing water quality information to characterize the overall Cutler Reservoir water quality environment.
- Describe the relationship between nutrients and aquatic weed growth.
- Provide recommendations to address identified potential water quality issues.



# Water Quality Study Area

- Includes all Project features encompassed by the Project Boundary
- Extends from edge of Project Boundary up each major tributary within reservoir zone of influence
- Includes Bear River up to 2 miles downstream of dam





# Methods – Phosphorus and Dissolved Oxygen (DO) Samples

- Sampling transects same as those used for Fish and Aquatics Study benthic macroinvertebrate sampling plus 2 sites downstream of Cutler Dam
- Criteria of sampling transects:
  - Represent the unit where they were established
  - Accessible during drawdown
  - Not dewatered during drawdown
- Random number generator used to select for primary and secondary sampling sites

# Methods – Synthesize Existing Water Quality Data

Data from the following water quality sampling programs was reviewed as part of the synthesis:

- PacifiCorp water quality sampling in Cutler Reservoir and four tributaries
  - Quarterly every year for 3 years, and then quarterly at 5-year intervals since 1996
- UDWQ water quality monitoring in Bear River and Cutler Reservoir at various intervals since 1979
- TMDL study (SWCA 2010)
  - Evaluated point and non-point sources and nutrient loading into Cutler Reservoir, and allocated nutrient load limits
- Ecosystems Research, Inc. (2005 to 2007) DO data series
- Existing literature regarding phosphorus concentrations in waterbodies was also evaluated to determine its relationship to aquatic vegetation production

# Study Modifications

No modifications were made to the study methods.



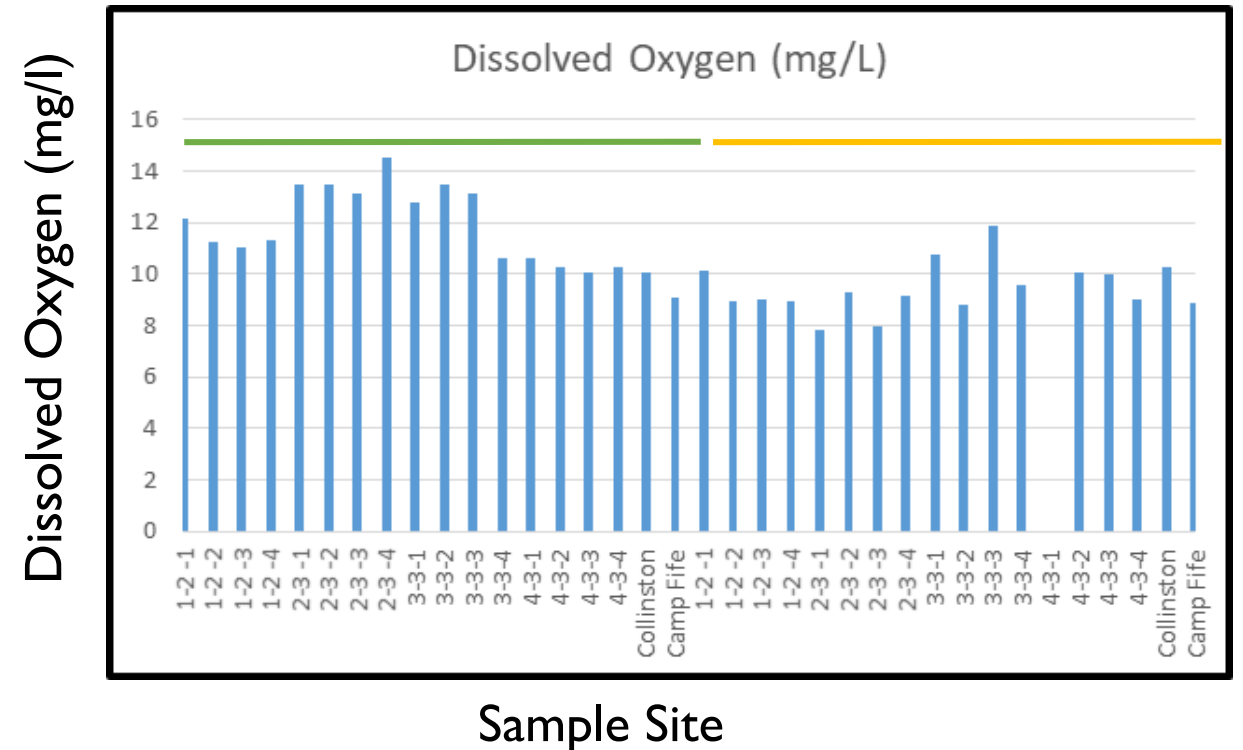
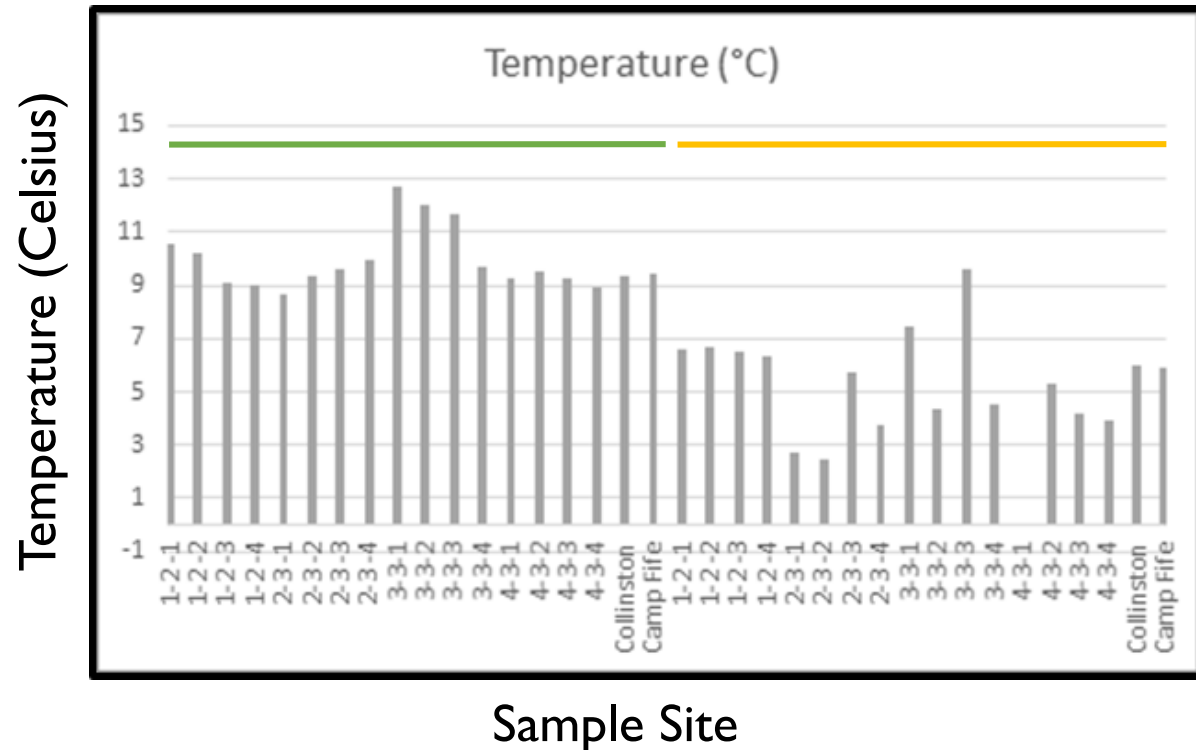
A scenic landscape featuring a calm river in the foreground, reflecting the surrounding environment. The riverbanks are lined with trees in vibrant autumn colors, including shades of yellow, orange, and brown. On the left side, a large, cylindrical metal water tower is visible, partially obscured by some vegetation. The sky is a clear, bright blue. The overall scene is peaceful and picturesque, capturing the beauty of the fall season.

# Water Quality Study Results



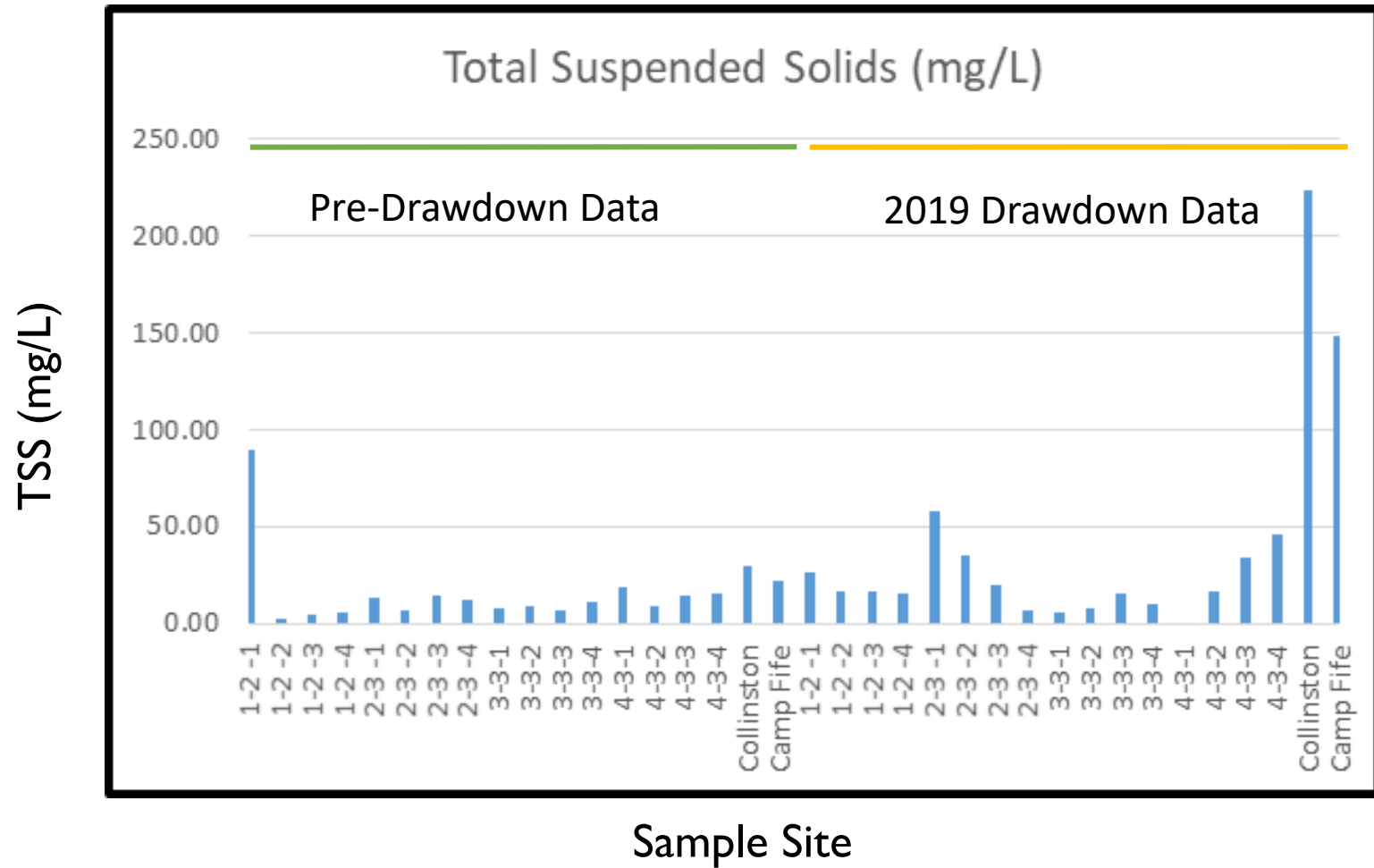
# Results – Phosphorus and DO Samples

- Phosphorus and DO samples collected during the 2019 drawdown
- Total Phosphorus (TP), Dissolved TP (DTP), and Orthophosphate samples collected sub-surface
- Temperature and DO measured in-situ
- Samples collected 1 week prior to drawdown and repeated at lowest reservoir elevation

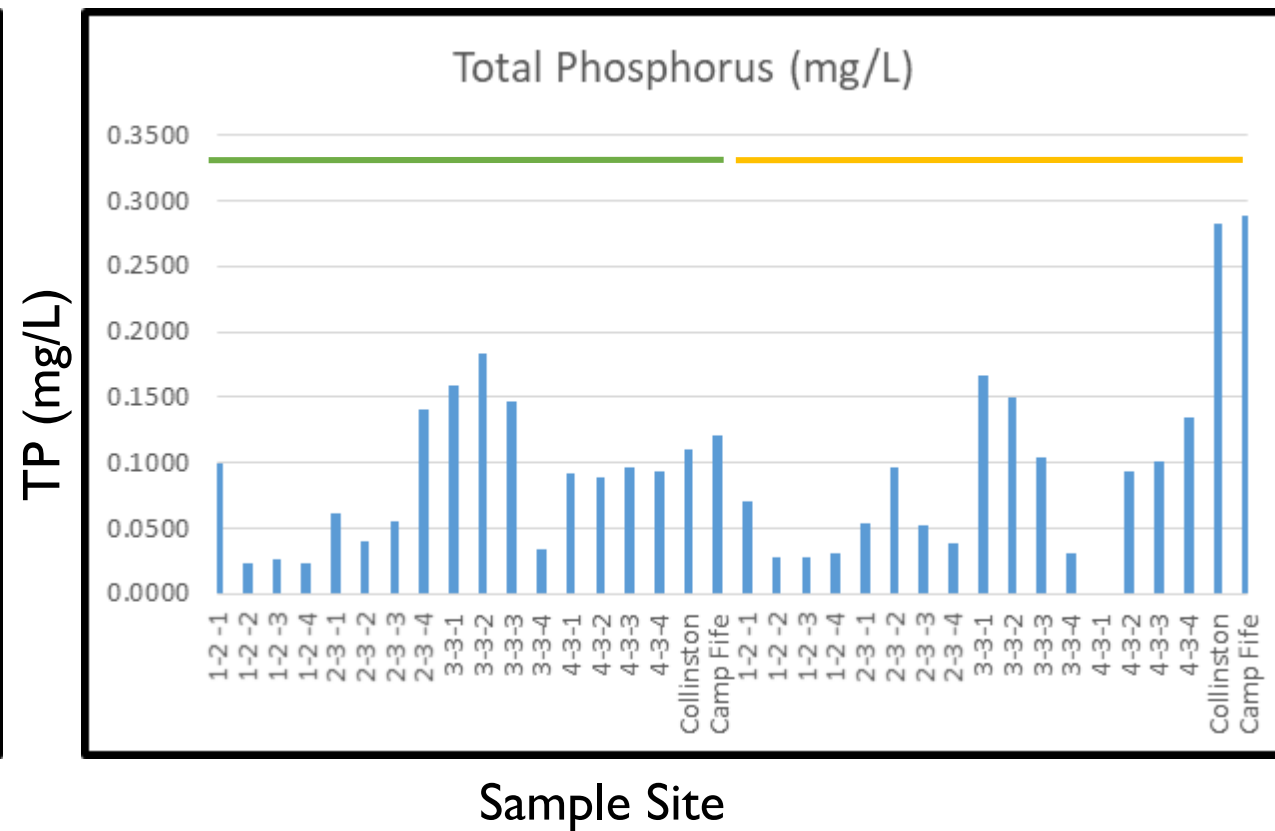
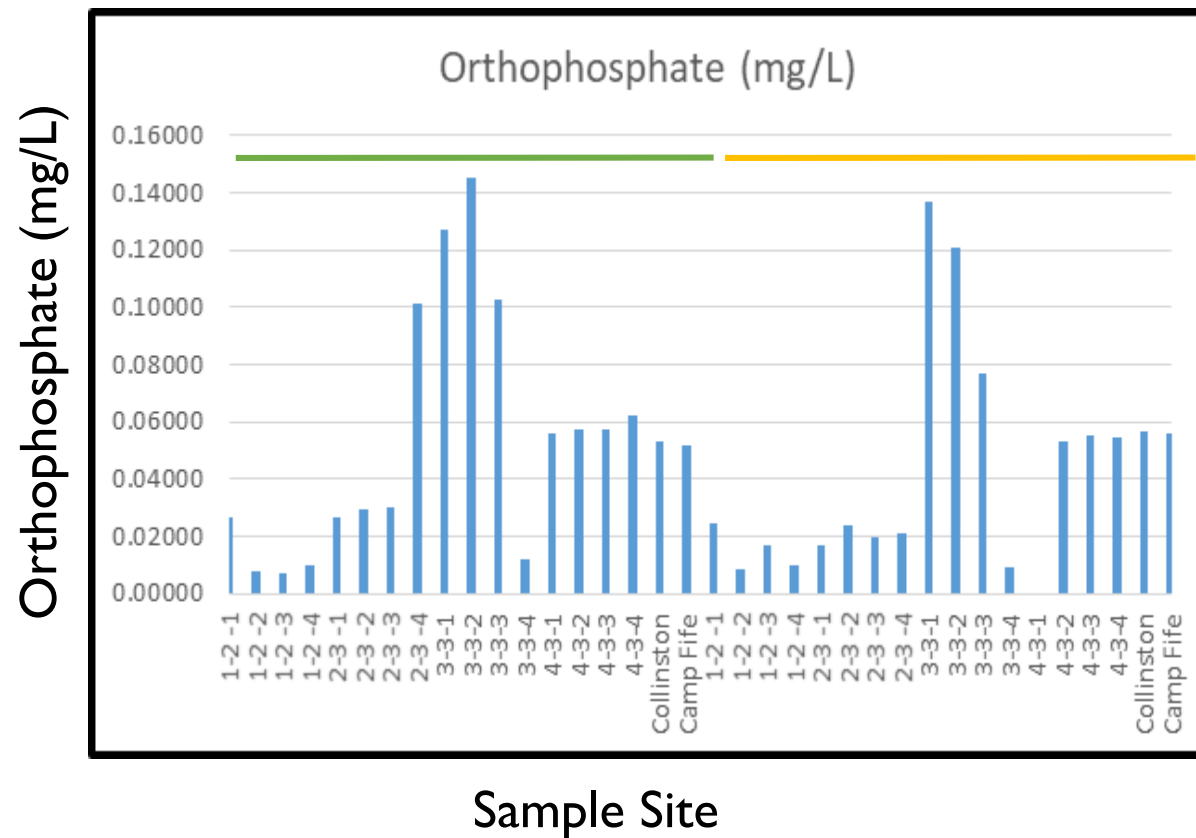


DO and water temperature at Cutler Reservoir sites before and during drawdown





TSS at Cutler Reservoir sites before and during drawdown



Orthophosphate and TP at Cutler Reservoir sites before and during drawdown

# Results - Synthesis of Existing Water Quality Data

- Information sources:
  - PacifiCorp
  - USU research (Budy et al.)
  - USU aquatic classes fieldwork
  - UDWQ
  - City of Logan
  - ERI
- Existing data organized by sampling area corresponding to those used by UDWQ for direct comparison
- Tributaries drive water quality conditions in Cutler Reservoir



# Average Water Temperature

ENTITY	LOCATIONS (°C)								
	Southern Inflow	Southern Inflow	Southern Inflow	Southern Reservoir	Northern Reservoir	Northern Reservoir	Northern Inflow	Reservoir Outflow	Reservoir Outflow
UDWQ 1983–2006			12.70						
UDWQ 2009–2019					27.10	16.68	10.18		
PacifiCorp	8.48	9.92	9.76	12.30	12.14	13.03	10.80	11.74	
USU—research (Budy et al.)			14.28	16.41	18.31	18.26	18.23		
USU—aquatic classes fieldwork	14.00			12.00	16.35	16.10	16.40		
PacifiCorp—pre-drawdown			9.73	9.39		11.52	9.26	9.37	9.48
PacifiCorp—during drawdown			6.52	4.68		6.49	4.46	5.95	5.92

# Average Nitrate-Nitrogen

ENTITY	LOCATIONS (MG/L)								
	Southern Inflow	Southern Inflow	Southern Inflow	Southern Reservoir	Northern Reservoir	Northern Reservoir	Northern Inflow	Reservoir Outflow	Reservoir Outflow
UDWQ 2009–2019					0.740	0.080	0.809		
PacifiCorp	0.353	0.847	3.792	0.451	0.543	0.395	0.636		

mg/L = milligrams per liter

# Average Total Kjeldahl Nitrogen

ENTITY	LOCATIONS (MG/L)								
	Southern Inflow	Southern Inflow	Southern Inflow	Southern Reservoir	Northern Reservoir	Northern Reservoir	Northern Inflow	Reservoir Outflow	Reservoir Outflow
UDWQ 1983–2006	3.180				11.630				
PacifiCorp	0.292	0.536	0.549	0.644	0.876	0.622	0.422	0.737	
USU—Aquatic Classes Fieldwork				1.540	0.850	0.698			

mg/L = milligrams per liter

# Average Total Phosphorus

ENTITY	LOCATIONS (MG/L)								
	Southern Inflow TMDL – 0.09 mg/L	Southern Inflow TMDL – 0.09 mg/L	Southern Inflow TMDL – 0.09 mg/L	Southern Reservoir TMDL – 0.09 mg/L	Northern Reservoir TMDL – 0.07 mg/L	Northern Reservoir TMDL – 0.07 mg/L	Northern Inflow TMDL – 0.07 mg/L	Reservoir Outflow TMDL – 0.075 mg/L	Reservoir Outflow TMDL – 0.075 mg/L
UDWQ 1983–2006			0.2500	0.3300		0.1300	0.0400		
UDWQ 2009–2019					0.1560	0.1120	0.0750		
PacifiCorp 1996–2018	0.0266	0.083	0.0946	0.0713	0.1500	0.0899	0.0619	0.0989	
USU—research (Budy et al.) 2007–2011			0.1617	0.1141	0.2313	0.1822	0.1747		
USU—aquatic classes fieldwork 2008	0.0010			0.4600	0.2500	0.1810	0.0940		
City of Logan 2007–2012	2.0–6.5								
ERI 2005–2007	0.71	0.234	0.2940	0.1890					
PacifiCorp—pre-drawdown 2019			0.0400	0.0700	0.1300		0.0900	0.1110	
PacifiCorp—during 2019 drawdown			0.1600	0.0600	0.1100		0.1300	0.2830	

mg/L = milligrams per liter



# Average Dissolved Oxygen

ENTITY	LOCATIONS (MG/L) – ACTION LIMIT: MIN. 1-DAY OF 3.0 MG/L								
	Southern Inflow	Southern Inflow	Southern Inflow	Southern Reservoir	Northern Reservoir	Northern Reservoir	Northern Inflow	Reservoir Outflow	Reservoir Outflow
UDWQ 1983–2006							8.70		
UDWQ 2009–2019					9.01	8.44	9.50		
PacifiCorp	9.32	8.74	8.38	9.93	9.12	9.30	8.88	9.70	
USU—research (Budy et al.)			7.39	8.11	8.05	7.23	6.90		
USU—aquatic classes fieldwork	11.50			8.90	8.90	7.40			
ERI	7.9–8.42	2.9–10.7	4.65–13.12	0.12–9.13					
PacifiCorp—pre-drawdown			11.42	16.66		10.31	12.50	6.62	6.67
PacifiCorp—during drawdown			9.26	8.57		9.69	10.26	10.25	8.89

mg/L = milligrams per liter

## Average Total Coliform

ENTITY	LOCATIONS (ORGANISMS/100 ML)								
	Southern Inflow	Southern Inflow	Southern Inflow	Southern Reservoir	Northern Reservoir	Northern Reservoir	Northern Inflow	Reservoir Outflow	Reservoir Outflow
UDWQ 1983–2006					1241.0				
UDWQ 2009–2019					1480.5				
PacifiCorp	987.8	1195.8	1772.0	1395.3	1119.2	1415.3	964.6	1056.2	

mg/L = milligrams per liter

## Average Turbidity

ENTITY	LOCATIONS (NTU/FNU)								
	Southern Inflow	Southern Inflow	Southern Inflow	Southern Reservoir	Northern Reservoir	Northern Reservoir	Northern Inflow	Reservoir Outflow	Reservoir Outflow
UDWQ 2009–2019				18.200		28.57			
PacifiCorp	9.625	27.230	25.75	32.800	38.08	38.46	83.22	39.3	
ERI	12.735	18.029	15.90	17.595					

mg/L = milligrams per liter

## Average Total Suspended Solids

ENTITY	LOCATIONS (MG/L)								
	Southern Inflow	Southern Inflow	Southern Inflow	Southern Reservoir	Northern Reservoir	Northern Reservoir	Northern Inflow	Reservoir outflow	Reservoir outflow
UDWQ 1983–2006			25.80	31.40		36.70	60.10		
UDWQ 2009–2019					42.24		50.85		
PacifiCorp	6.77	24.39	33.73	65.92	30.09	31.76	24.19	31.86	
ERI	35.37	38.28	43.46	42.51					
PacifiCorp—pre-drawdown			25.52	11.87		8.66	14.62	29.30	22.5
PacifiCorp—during drawdown			18.83	29.99		32.30	9.74	224.00	148.0

mg/L = milligrams per liter

# Summary – Water Quality Study

Study Objectives	Study Objectives Satisfied?
<b>Study Objective 1:</b> Characterize water quality within the reservoir and zone of influence in the main tributaries.	Yes
<b>Study Objective 2:</b> Determine potential effects of continued and future Project operations on water quality of Cutler Reservoir and the Bear River downstream of Cutler Dam.	Yes / DLA
<b>Study Objective 3:</b> Determine the effects of the fall 2019 drawdown on water quality in the reservoir and downstream of Cutler Dam and relate those effects to future operations.	Yes Conducted surveys before and during reservoir drawdown.
<b>Study Objective 4:</b> Describe the relationship between nutrients and aquatic weed growth.	Yes
<b>Study Objective 5:</b> Provide recommendations to address identified water quality issues.	Yes / DLA

# Summary – Water Quality Study




- Further study of water quality is not warranted to address potential effects of future Project operations.
- PacifiCorp plans to repeat final water quality monitoring in 2023.
- TP values for 2013 were anomalous. UDWQ monitoring in 2020 combined with most recent 2018 PacifiCorp monitoring (and next in 2023) will include nutrient parameters such as TP.
- Water quality study results and data synthesis are sufficient to conduct effects analysis for a DLA.

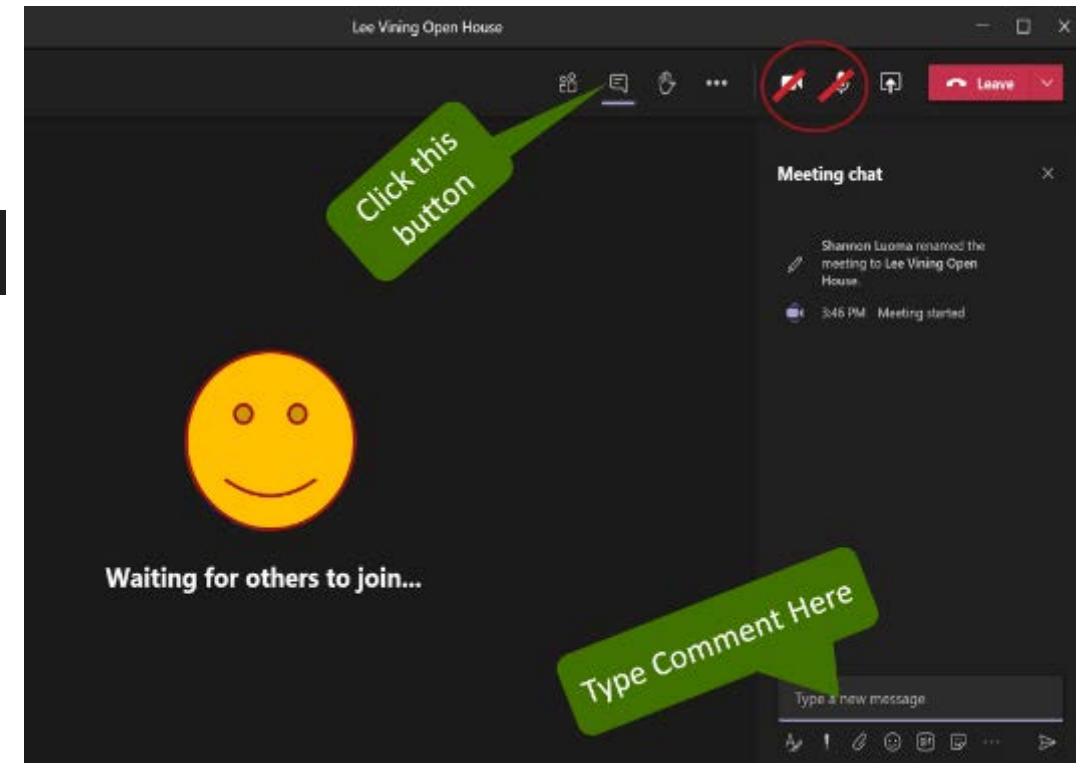




# Cutler Hydroelectric Project

## Questions?

- Please use Chat Box.
- Use the “Raise Hand” button to indicate you would like to ask a question verbally. 
- Please wait to be called on and then unmute your line.  
- State your name/affiliation prior to speaking.
- Please listen, be respectful, and stay on topic.





# Cutler Hydroelectric Project

## Cutler Hydroelectric Project (P-2420) Initial Study Report Meeting February 23, 2021

**Meeting is currently on break until 1:00 p.m. (Mountain Time)**

We appreciate your patience and muting your microphone while we wait.

To access materials in advance, please go to:

<https://www.pacificorp.com/energy/hydro/cutler.html>





# Sediment Study



# Sediment Study Goals

- Improve understanding of existing reservoir sediment conditions.
- Identify spatial and temporal extent of potential re-suspension and mobilization of bed sediments, with associated water quality effects.
- Address practicality and environmental effects of dredging and removal of Wheelon Dam as a sediment management measure.

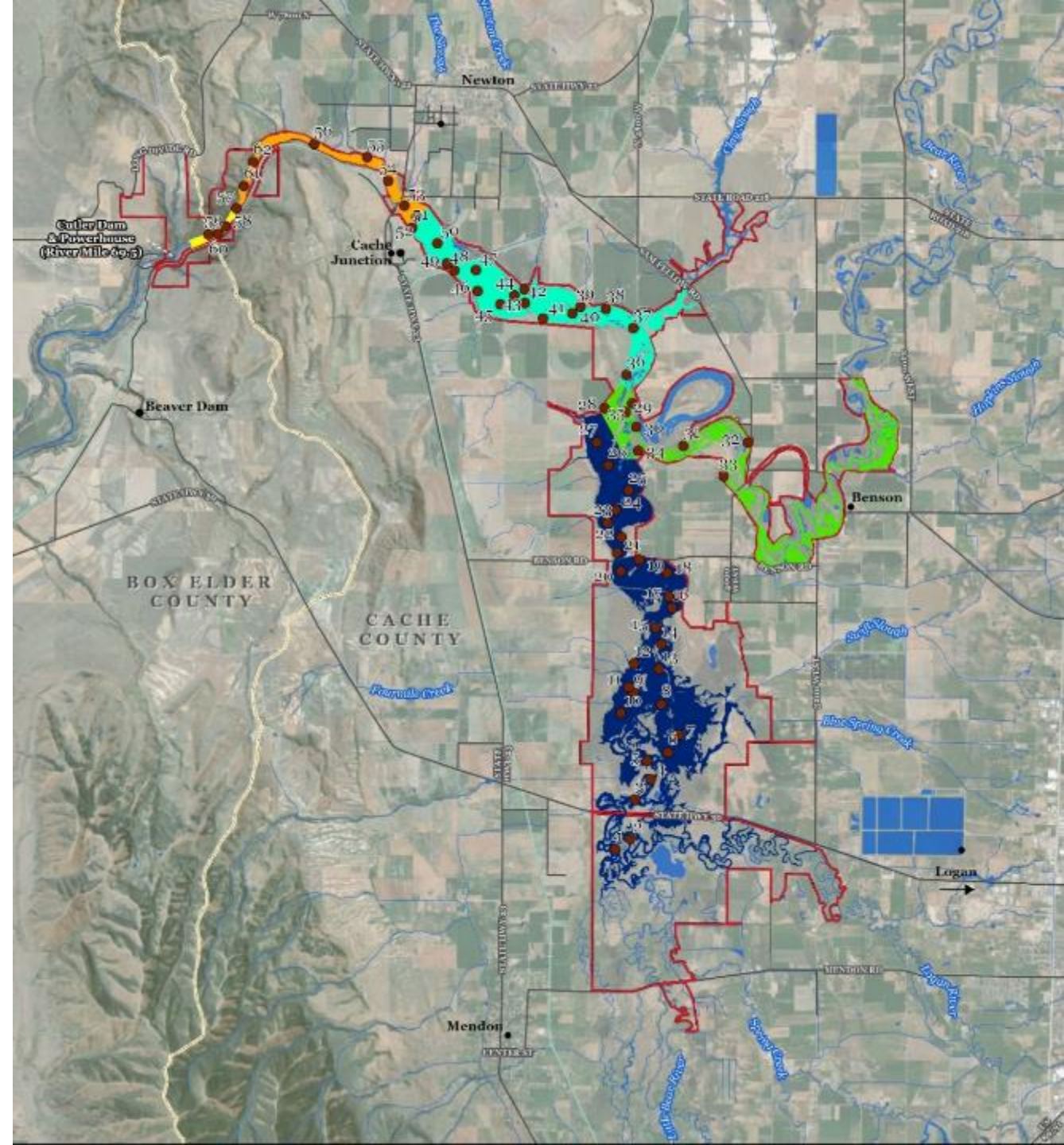


# Sediment Study Objectives

- Define sediment composition to assess role of sediment mobility under proposed future operating conditions.
- Provide data for sediment transport model utilized in the Hydraulics Study Plan.
- Define volume and location of accumulated sediments in reservoir.
- Collect and analyze sediment cores to examine phosphorus and other potential pollutant composition and distribution in the FERC Project Boundary.

# Sediment Composition Core Sampling Sites

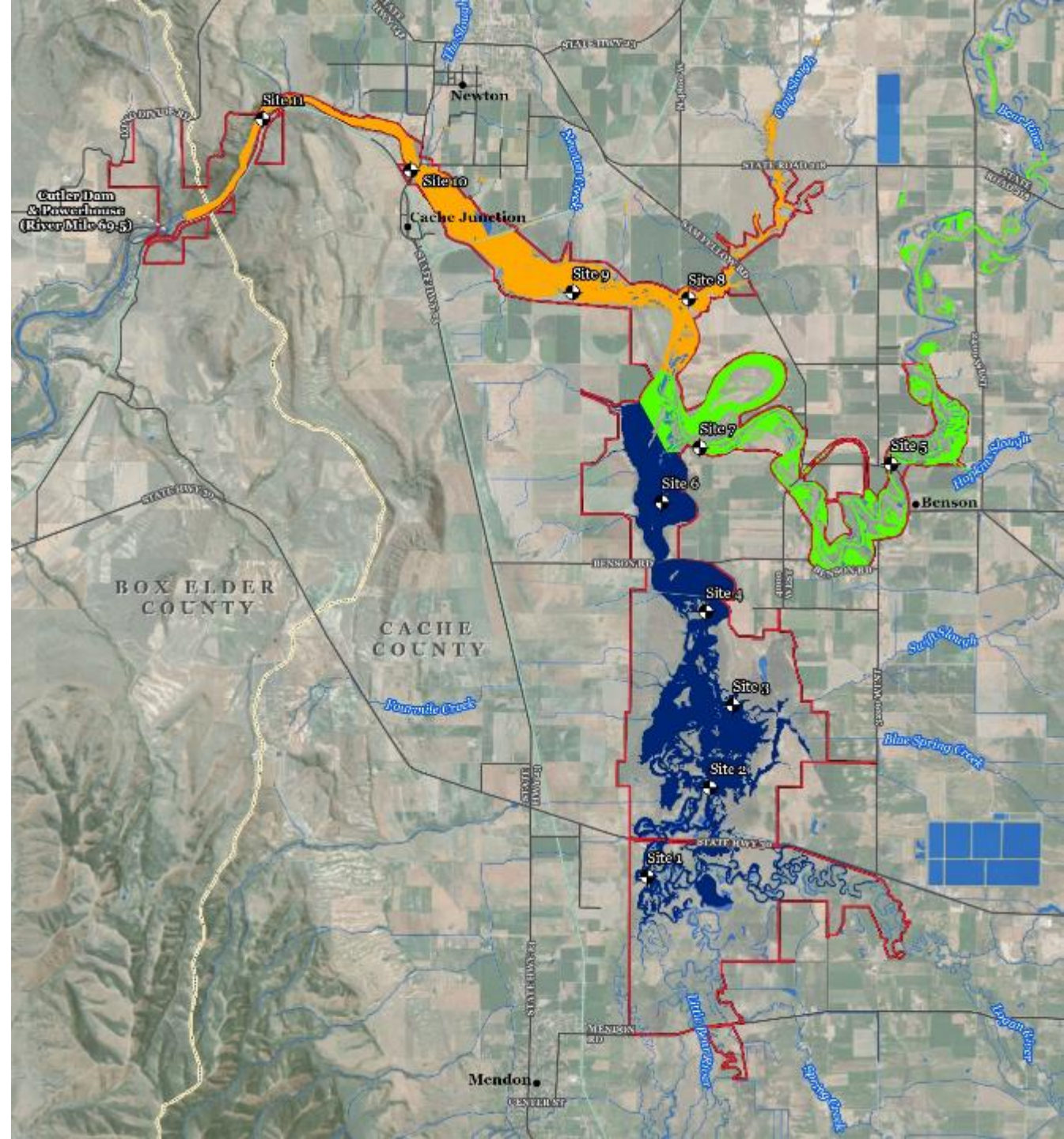
- Wheelon Reach – Cutler Dam to Wheelon Dam
- Canyon Reach – Wheelon Dam to Newton Bridge
- Reservoir Reach – Newton Bridge to Bear River / reservoir confluence
- Bear River Inflow Reach – upstream to Project Boundary
- North and South Marsh Reach – Benson Marina south to Logan River





# Sediment Nutrient Study Locations

- North and South Marsh Units: Samples were placed to identify movement and potential sources of phosphorus.
- Bear River Unit: Samples identify changes occurring throughout the river area in the reservoir.
- Canyon and Reservoir Unit: Samples develop an understanding of phosphorus movement towards the dam.



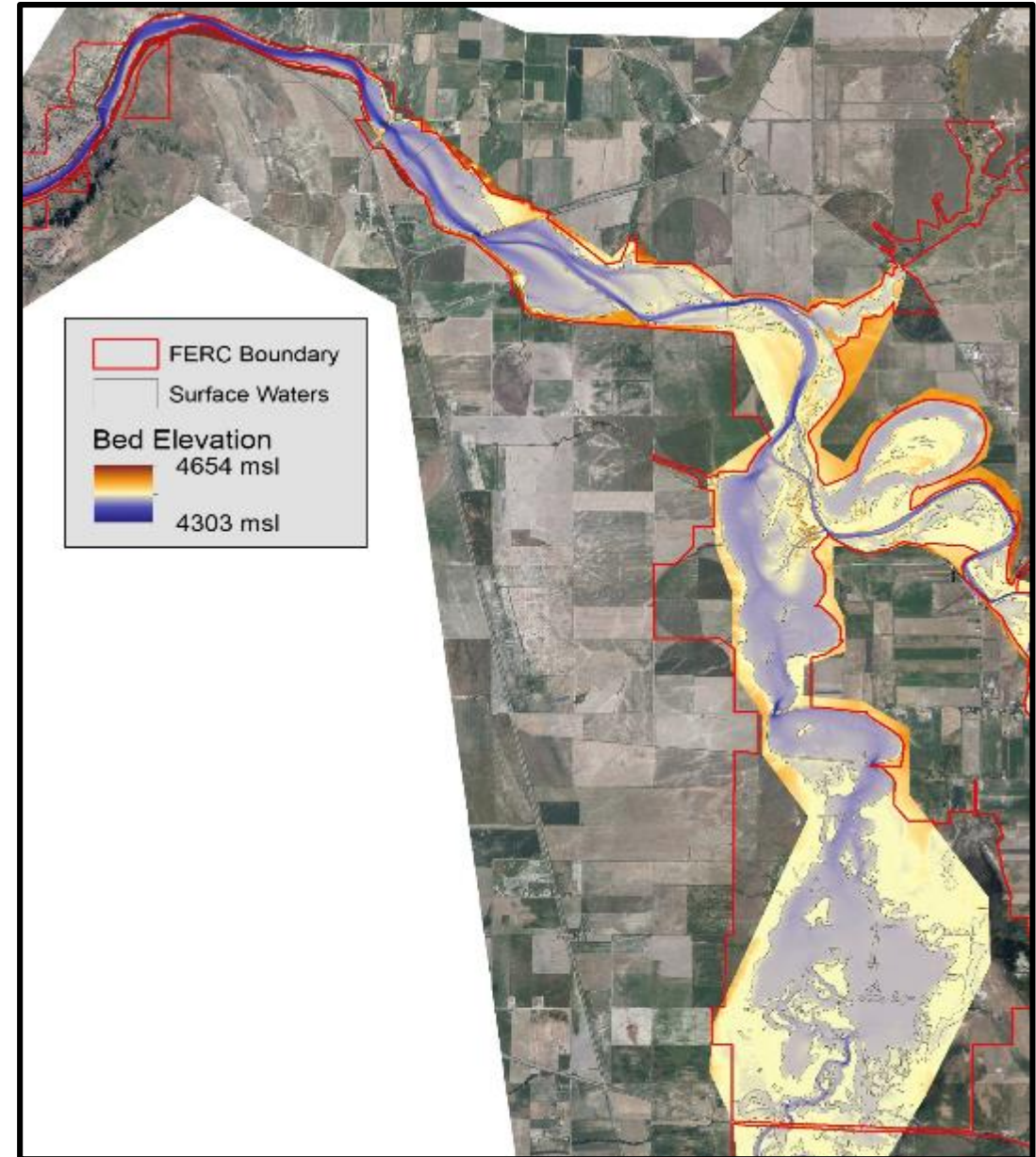
# Methods – Sediment Composition Core Sampling

- Aerial photographs used to identify historic channel
- Larger percentage of samples in channel
- Sites outside channel randomly selected
- Vibrating corer utilized for reservoir sample collection (20- to 25-foot depth in clays and silts)
- Reservoir sampling completed for all sites in July 2020
- 29 samples collected for particle size and Unified Soil Classification System
- Gilson shear vane used to test for elasticity or shear strength
- Full elemental scan completed for 10 samples (tested for heavy metals and PCBs)
- Three composite samples tested for range of pesticides (DDT, DDA)



# Methods – Distribution of Sediment

- Low frequency echosounder used to map distribution and depth of sediments (October 5–18, 2019)
- Soundings collected perpendicular to direction of flow with spacing of 100 feet
- Bathymetry output files used with LiDAR data from November 2019 to create raster map of reservoir bed



Current Bed Elevation Raster

# Methods – Distribution of Nutrients in Sediment



- Eleven sample locations associated with previous USU sampling locations
- Collected seasonally in March, June, September, and November 2020
- Sampled from boat when possible to minimize disturbance
- Radial sampling pattern
- Each sample included 4 vertical integrated samples separated into layers
- Reservoir water column samples were analyzed for TP, OP, and DTP
- Sediment core samples analyzed for TP and DTP

# Study Modifications

- Modifications to core sample site locations
  - Changed from stratified random sampling technique in order to increase number of core samples in channel
- Modifications to phosphorus sampling distribution
  - Decreased tube diameter from 4 to 3 inches
  - Composited sample collection (4 at each site) instead of single sampling



# Results – Sediment Composition Core Sampling

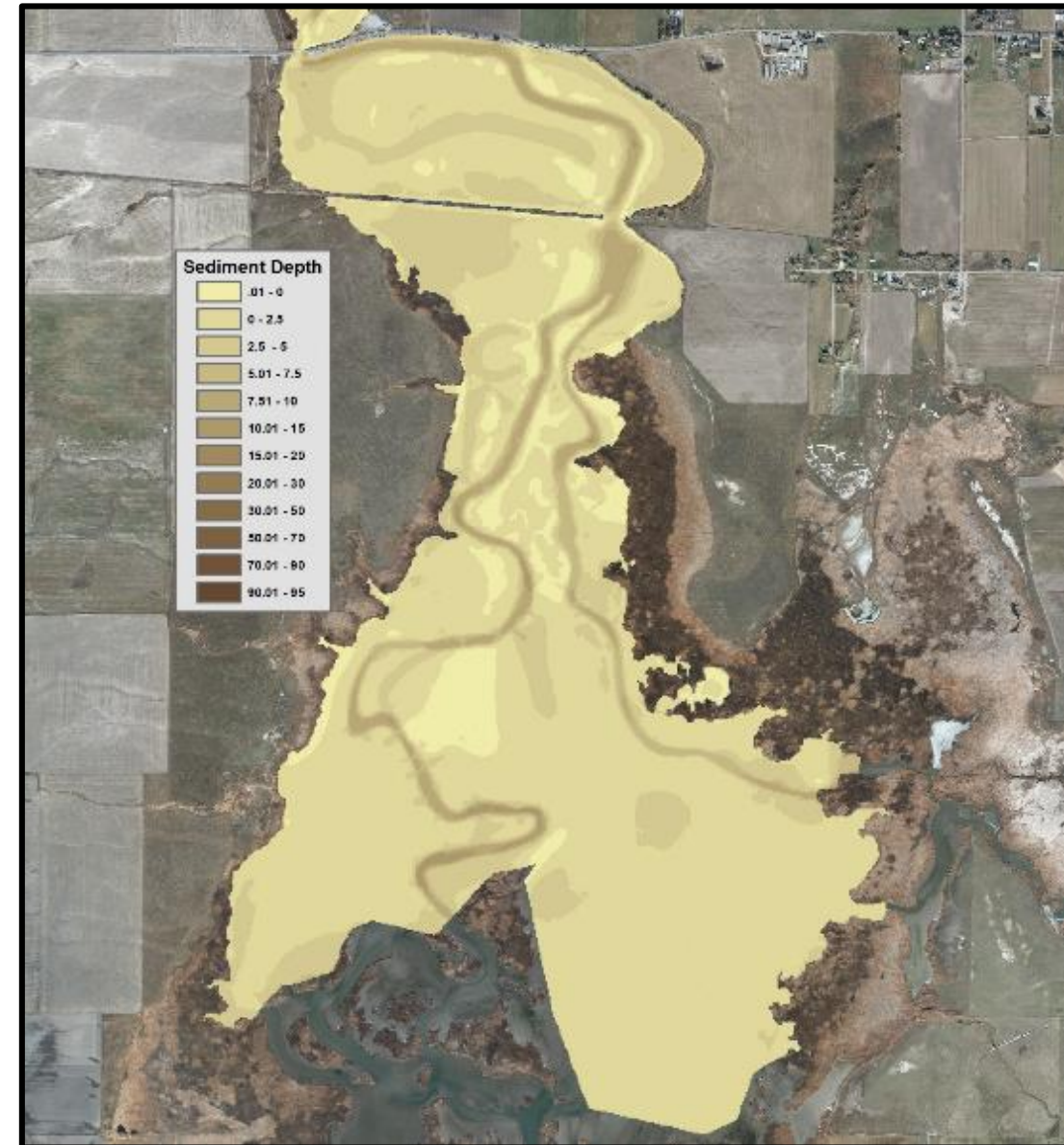


- 62 core samples collected in reservoir
- Larger sand particles prevalent in deeper sediments and along thalweg of historic inundated river channels and areas closer to dam
- Surface sediment unconsolidated in shallower areas of reservoir
- Little mobilization will occur in shallower areas
- Samples tested for RCRA metals, pesticides, and PCB (Cutler is generally non-toxic)
- Little contamination present in sediment



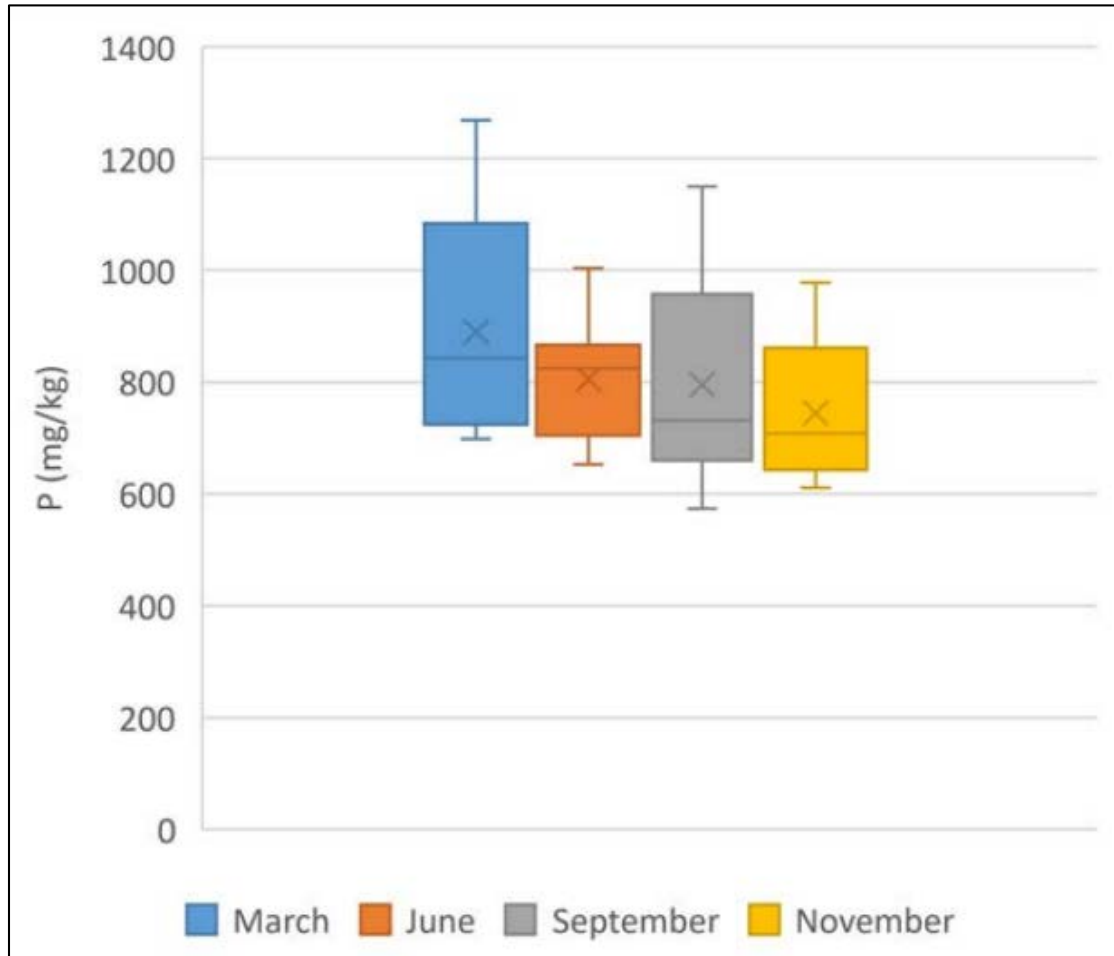
# Results – Distribution of Sediment

- Distribution highly variable (depths ranging from zero to greater than 90 feet)
- Historic channels of Bear and Logan / Little Bear Rivers entirely filled in some areas, and bars and islands created in others
- Areas with little deposition generally found at constriction points
- Open-water portions of reservoir are controlling features
- River bench upstream of Newton Bridge is hydraulic control of water surface elevation between Clay Slough and Newton Bridge
- River bench upstream of Clay Slough is hydraulic control of water surface elevation for Benson Marina, North Marsh, and South Marsh
- Cutler Canyon has maintained original channel form
- Wheelon Dam influences deposition upstream of site (as little as 46 inches of deposition to the original bed in some areas)
- Sediment deposition is greatest between Wheelon and Cutler Dam – see Sediment report for detailed description



Sediment Deposition in Marsh Areas South of Benson Marina

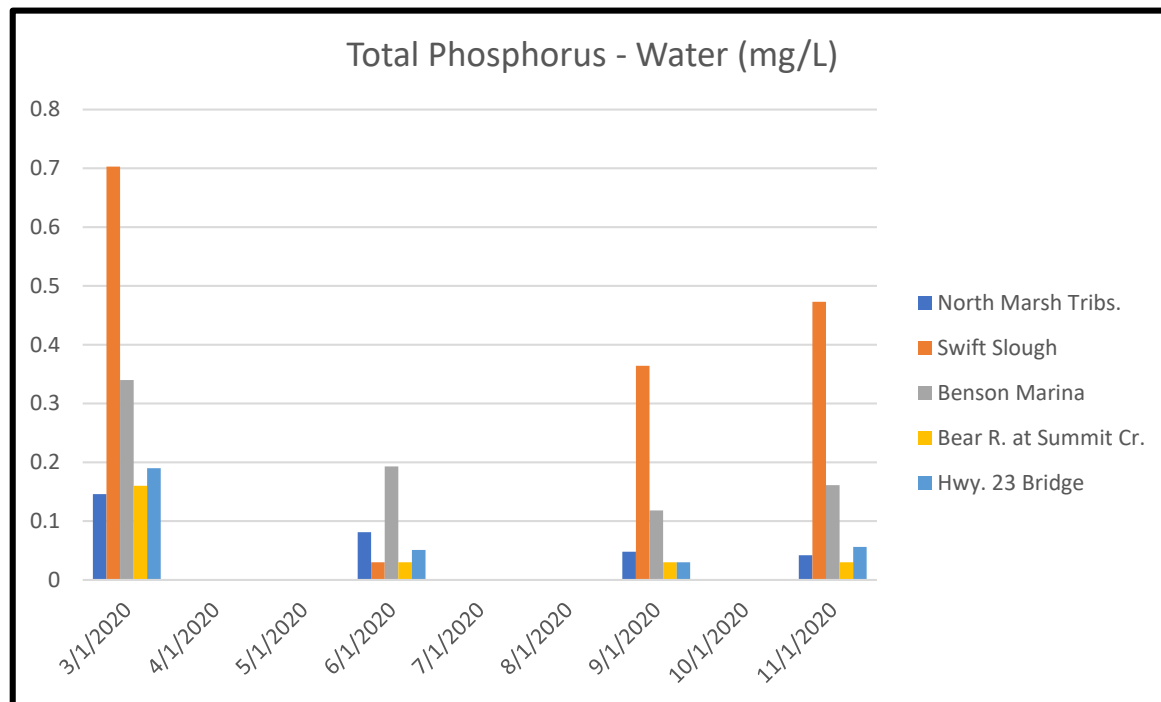
# Results – Phosphorus Distribution in Sediments



mg/kg = milligram per kilogram dry weight

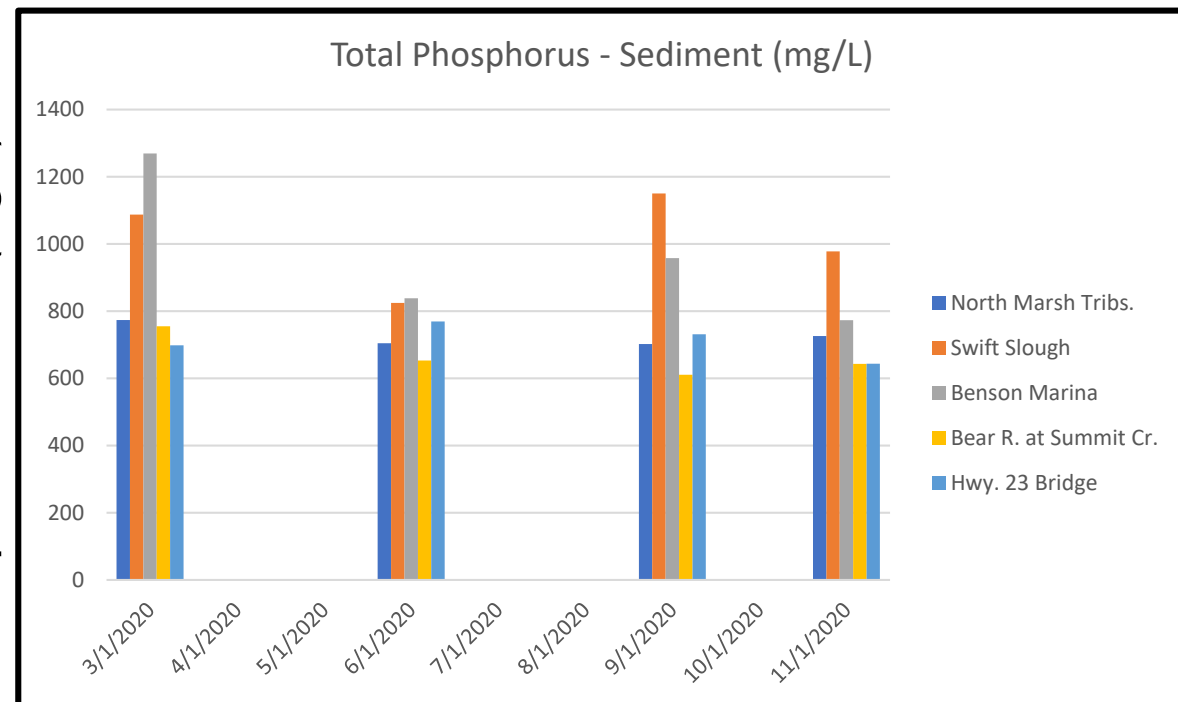
- Sediment TP concentrations follow a similar pattern to TP observed in the water column.
- Variability across sites is substantial—high at Site 6 (1,150 mg/kg) low at Site 9 (574.4 mg/kg).

Phosphorus Level (mg/L)



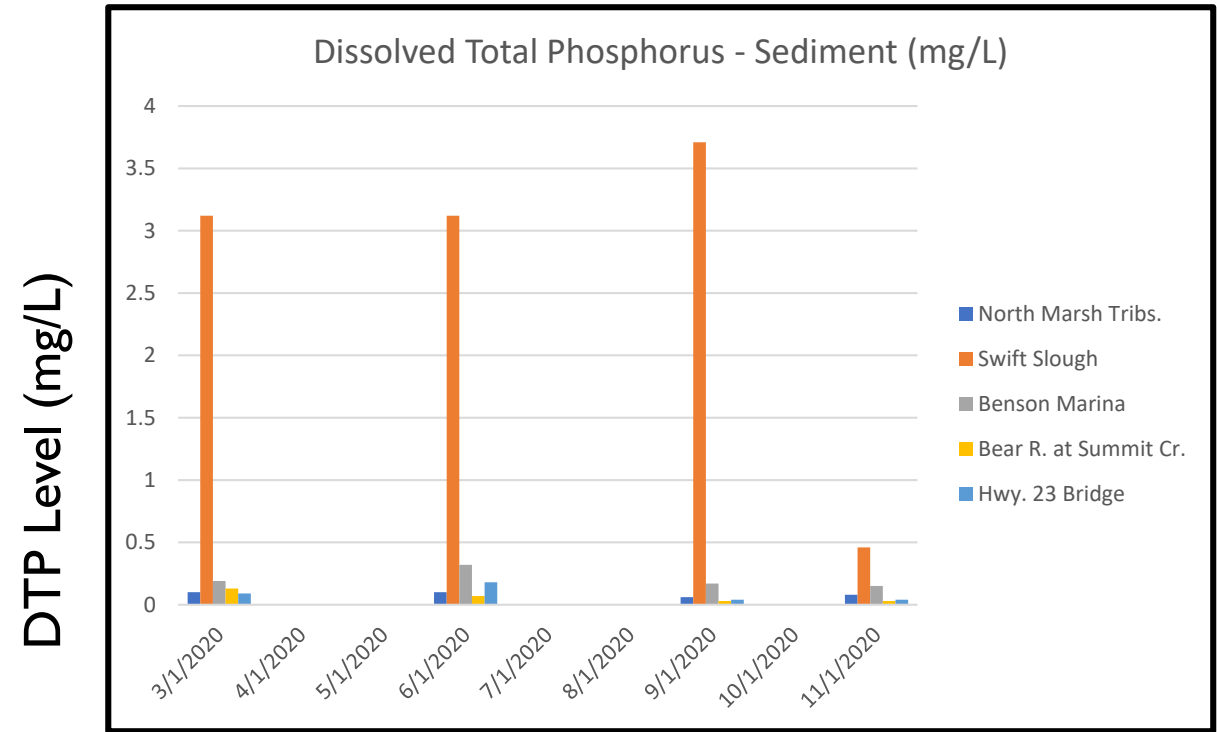
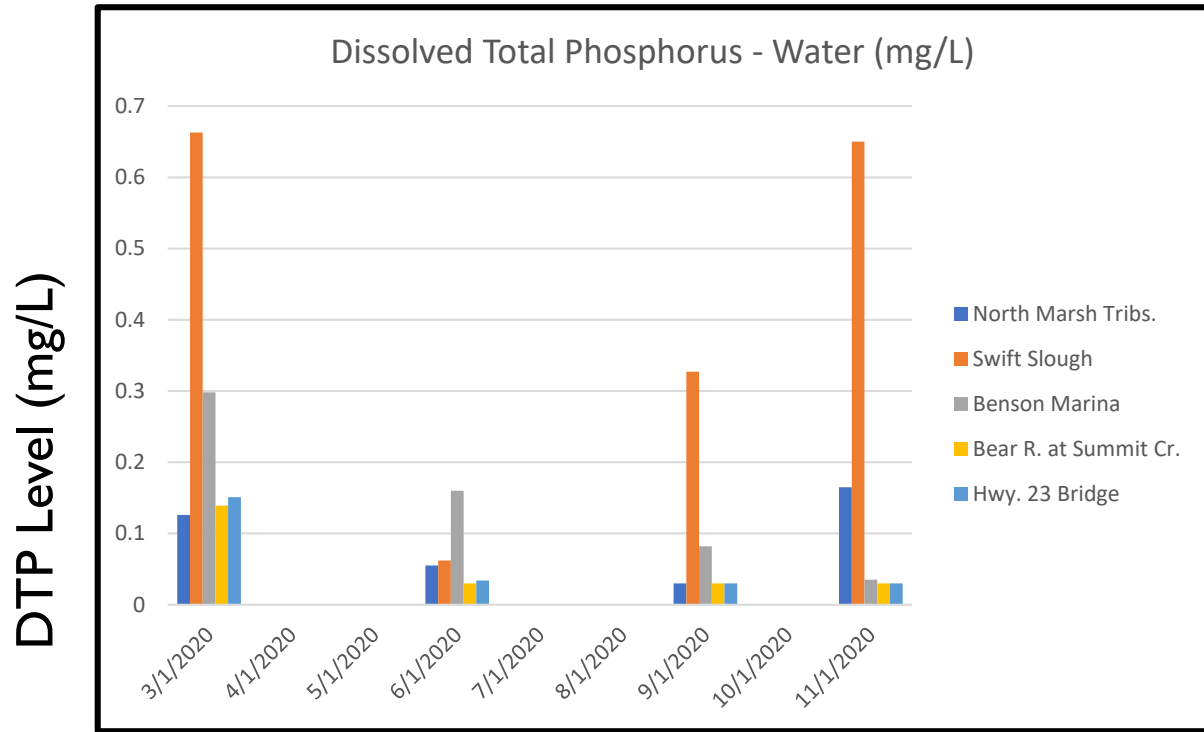
mg/L = milligrams per liter

Phosphorus Level (mg/L)



## Total Phosphorus in Water Column and in Sediment Core





mg/L = milligrams per liter

## Dissolved TP in Water Column and Sediment Interstitial Voids

# Summary — Sediment Study

Study Objectives	Study Objectives Satisfied?
<b>Study Objective 1:</b> Define sediment composition to assess role of sediment mobility under potential future operating conditions.	Yes
<b>Study Objective 2:</b> Provide data for sediment transport model utilized in the Hydraulics Study Plan.	Yes
<b>Study Objective 3:</b> Define volume and location of accumulated sediments in reservoir.	Yes
<b>Study Objective 4:</b> Collect and analyze sediment cores to examine phosphorus and other potential pollutant distribution in the FERC Project Boundary.	Yes

## Summary — Sediment Study (cont.)




- Study fulfills the study objectives and methods approved in FERC's Study Plan Determination
- Fills data gaps for reservoir sediment composition and distribution issues identified by FERC in Scoping Documents 1 and 2
- Provides assessment of sediment composition, distribution, and depth
- Provides information on phosphorus concentrations and dynamics in sediment
- Provides sufficient input for analysis of potential effects of future Project operations
- No additional or future studies warranted

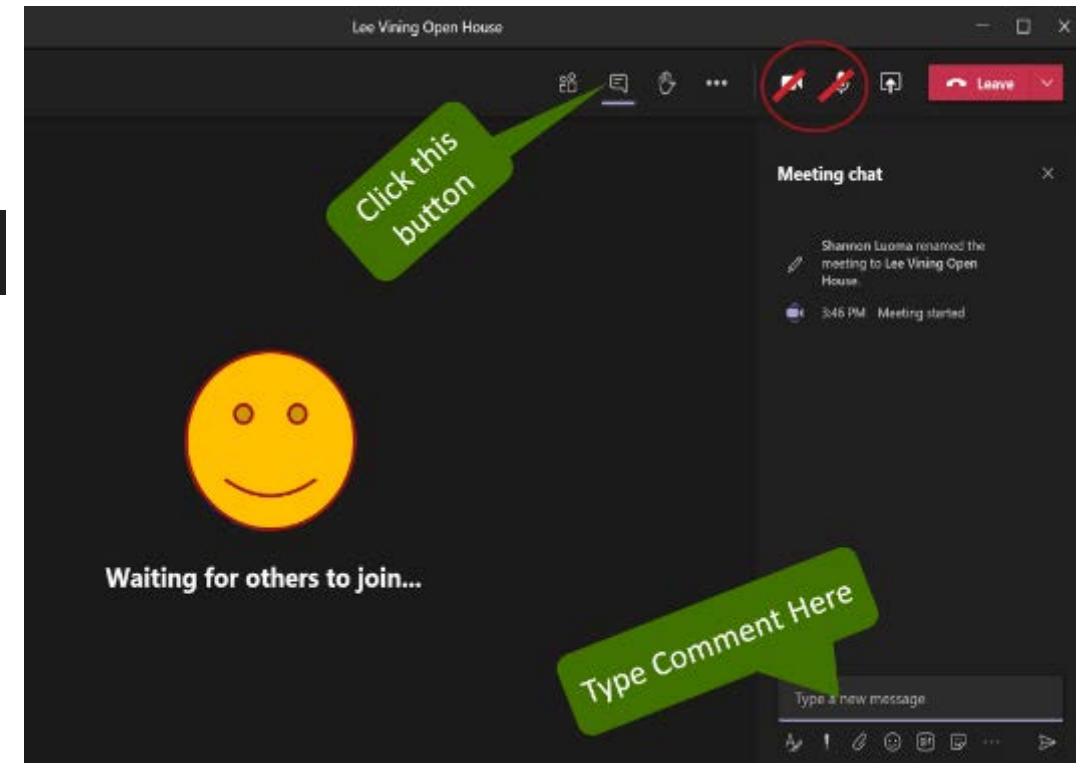




# Cutler Hydroelectric Project

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# Shoreline Habitat Characterization Study





# Shoreline Habitat Study Goals and Objectives

1. Quantify changes in littoral habitat.
2. Characterize emergent and adjacent wetland and upland vegetation.
3. Map invasive species.
4. Assess the effect of proposed operational changes on littoral habitats and invasive species distribution and associated effects on terrestrial and amphibian wildlife.
5. Assess the effects of WVSE changes, including potential effects on the following:
  - a. Riparian and wetland habitat and associated wildlife
  - b. Upland habitat and associated wildlife
  - c. Introduction and spread of invasive plant species within the FERC Project Boundary



# Shoreline Habitat Characterization Study Area



- Lies within and surrounding the ordinary high water zone, roughly the upper 6 inches of the current reservoir elevation range
- Includes all shoreline and littoral habitat (although habitat mapping was completed throughout the entire Project Boundary)
- Upland islands and peninsulas that might support breeding shorebirds, amphibians, and terrestrial wildlife dependent on riparian/wetland habitat
- The invasive plant component includes some uplands beyond the littoral zone

# Methods Overview



## Phase I of Shoreline Habitat Study

- Existing data and literature review
- Vegetation / habitat classification
- Cutler Reservoir 2019 drawdown field work — investigation of potential land bridge formation
- Analysis and collection of additional data
  - Quantify changes in littoral habitat and potential effects on waterbirds
  - Assess land bridge formation to determine predator access to bird colonies

# Existing Information Review Methods

## **Special Status Species**

- Reviewed special status birds, amphibians, and terrestrial wildlife dependent on open water and riparian/wetland habitat known to be or likely present in the study area and their habitat (155 total)
- Information Sources:
  - Utah Sensitive Species List
  - U.S. Forest Service Intermountain Region Sensitive Species list
  - U.S. Fish and Wildlife Service (USFWS) list of migratory birds
  - USFWS Breeding Bird Survey data
  - Cornell Lab eBird data
  - Audubon Christmas Bird Count data
- 55 species with suitable habitat in the study area potentially subject to changes under future Project operations were carried forward into further analysis (i.e., not Deseret mountain snail)

## **Noxious Weeds Information Sources**

- County Extension lists
- PacifiCorp weed monitoring maps
- Occurrence information from State and adjacent landowners
- Incidental field observations



# Vegetation Classification Methods

- Collected drone imagery and LiDAR terrain data
- Used ENVI Feature Extraction object-oriented classification algorithms to classify the terrain and imagery data into broad habitat type
- Method allowed for the identification of *Phragmites*-dominated areas
- Groundtruthed the classified habitat types to determine model accuracy



# 2019 Drawdown Field Work Methods

- Time-lapse cameras documented potential land bridge formation connecting islands to the shore during the 2019 full drawdown.
- Ten cameras were installed to validate wetted perimeter footprint predicted by the hydraulic model.



# Analysis and Collection of Additional Data — Quantifying Changes in Littoral Habitat

## Methods

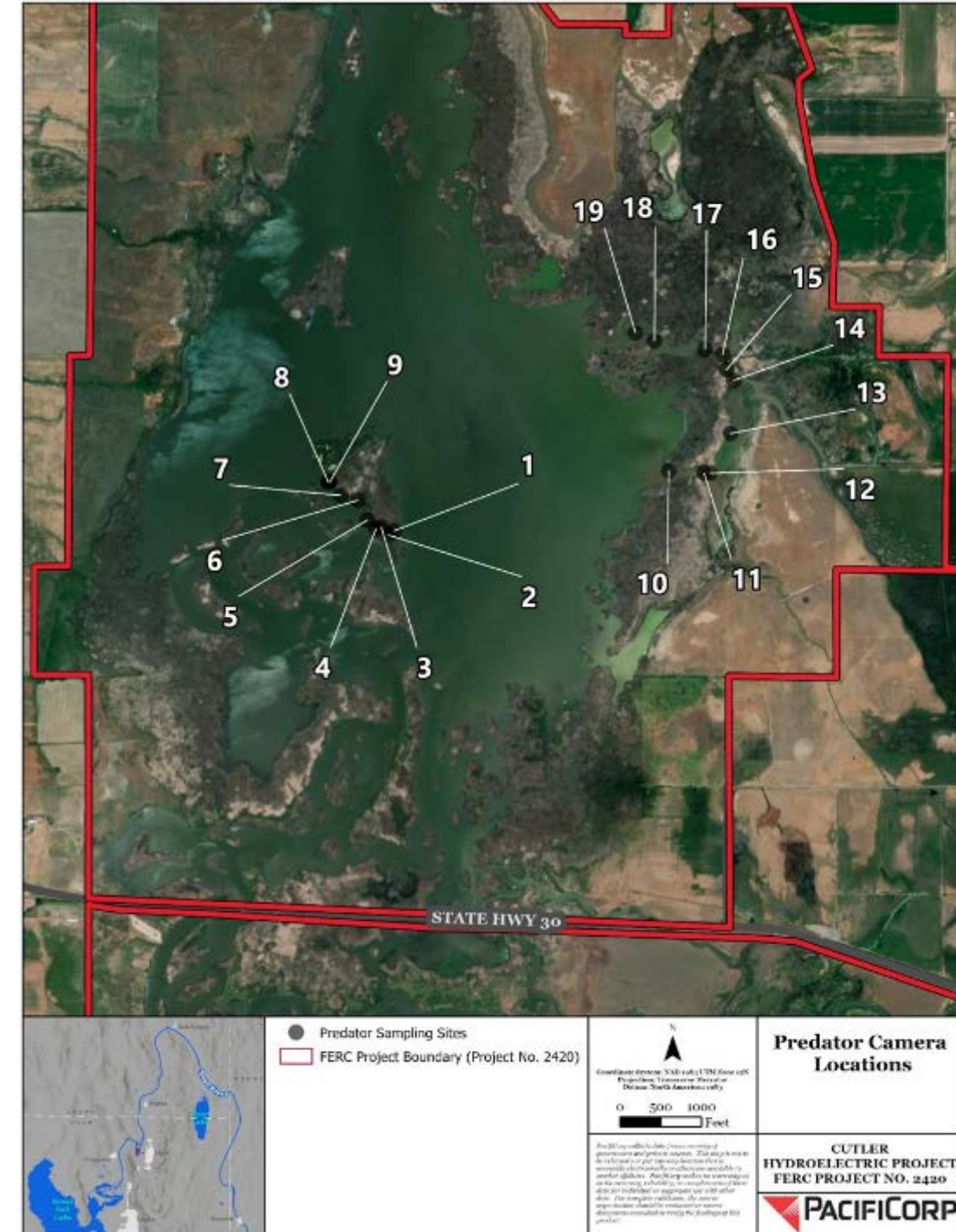
- Used the 2D hydraulic modeling to compare the potential change in the amount of available littoral habitat under the proposed and extended operating ranges.
- Water-depth classes were determined for each potentially affected species based on their reported littoral habitat needs.
- The wetted perimeter of these water depth classes were modeled under the proposed normal and extended operations.
- The area and location of habitat polygons were also compared to calculate the extent of habitat overlap between the normal and extended operating ranges.





# Land Bridge Assessment Methods

- Modified based on February 2020 FERC Study Plan Determination
- Evaluated potential predator access to colonial bird nesting areas during the breeding season (February–July 2020) under current operating conditions in the absence of land bridges
- Installed 19 motion and heat-sensitive cameras



# Study Modifications

## Vegetation Classification

- A total of 942 acres (10%) of the study area was not covered by drone imagery. In these areas, imagery from the National Agricultural Imagery Program (NAIP) was used in place of drone imagery.
- Areas of the lower-resolution NAIP imagery were processed manually, rather than by remote sensing, using the groundtruthing data.
- This modified method did not allow for the following:
  - The identification of *Phragmites*-dominated areas (but the areas where NAIP imagery was used were primarily uplands and not *Phragmites* areas)
  - The differentiation between cattail and rush-dominated areas (which are functionally similar with regards to wildlife)

# Shoreline Habitat Characterization Study Results





# Existing Information — Sensitive Species

- Developed list of special-status species with potential habitat and documented occurrences in the study area.
- Refined list to include only species present during the proposed extended drawdown (winter) by removing any species that 1) utilize upland rather than littoral habitat or 2) migrate out of the area or hibernate in upland habitat during winter months.
- The final list (55 species) is exclusively migratory birds.
- Population trend data is summarized for each species for the United States overall, Utah, and regionally.

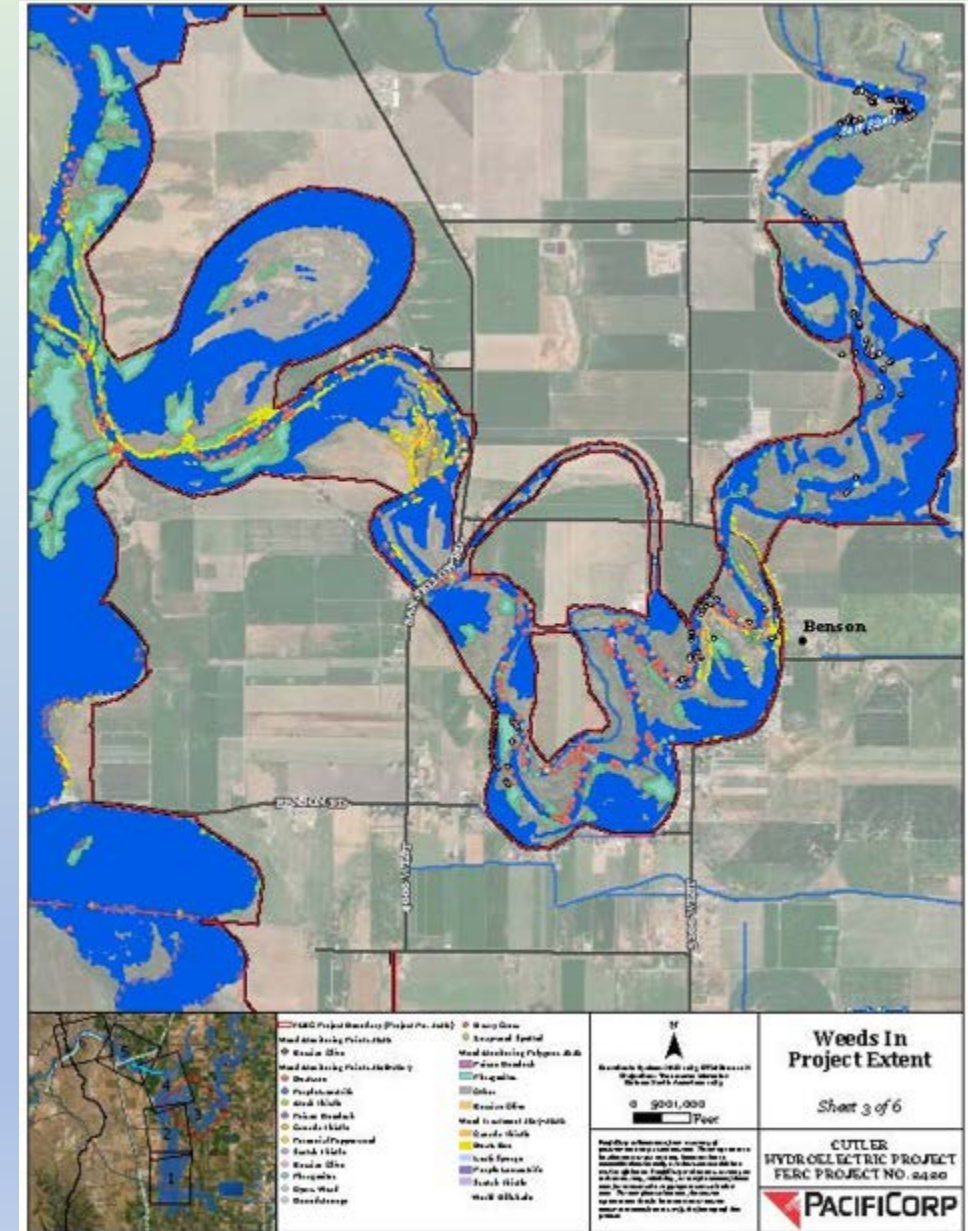
American Avocet	Green-winged Teal
American Coot	Herring Gull
American Pipit	Hooded Merganser
American White Pelican	Horned Grebe
American Wigeon	Killdeer
Bald Eagle	Lesser Scaup
Barrow's Goldeneye	Long-billed Dowitcher
Belted Kingfisher	Mallard
Black-crowned Night-heron	Marsh Wren
Black-necked Stilt	Northern Pintail
Blue-winged Teal	Northern Shoveler
Bonaparte's Gull	Osprey
Bufflehead	Pied-billed Grebe
Cackling Goose	Red-breasted Merganser
California Gull	Red-necked Phalarope
Canada Goose	Redhead
Canvasback	Ring-billed Gull
Cinnamon Teal	Ring-necked Duck
Clark's Grebe	Ross's Goose
Common Goldeneye	Ruddy Duck
Common Loon	Snow Goose
Common Merganser	Trumpeter Swan
Double-crested Cormorant	Tundra Swan
Eared Grebe	Virginia Rail
Franklin's Gull	Western Grebe
Gadwall	Wilson's Snipe
Great Blue Heron	Wood Duck
Greater Yellowlegs	

# Noxious Weeds

- 55 noxious weeds documented in Box Elder and Cache Counties
- 16 of those occur in the study area
- Weed occurrence data compiled and mapped for study area

## Weeds Documented in Study Area

Bermudagrass	Musk Thistle
Canada Thistle	Perennial Pepperweed
Dyer's Woad	<i>Phragmites</i> , Common reed
Field Bindweed	Poison Hemlock
Goatsrue	Purple Loosestrife
Hoary Cress	Quackgrass
Houndstongue	Russian Olive
Jointed Goatgrass	Scotch Thistle





# Vegetation Classification

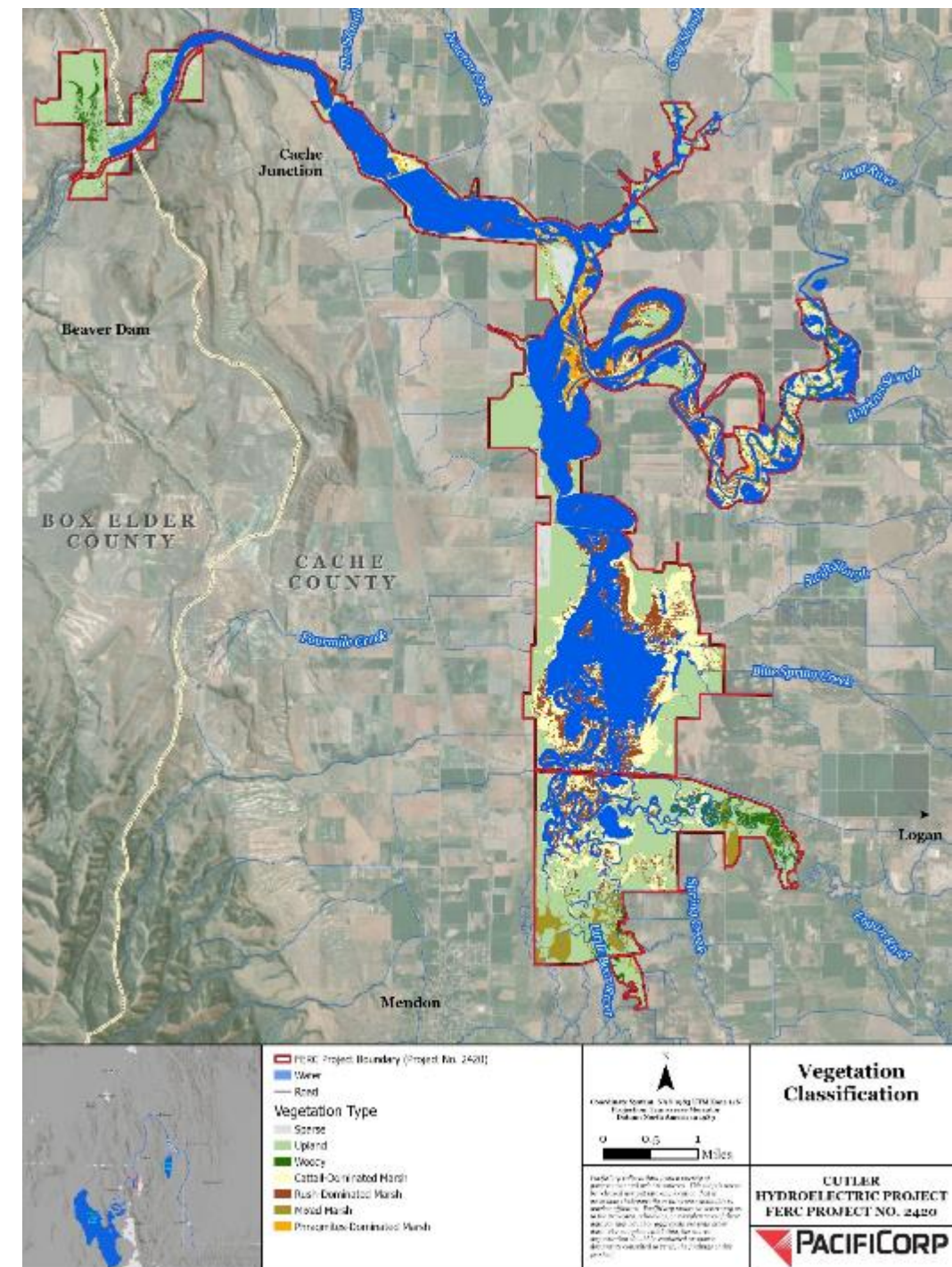


Vegetation Class	Acreage	Percent of Study Area
Sparse	263.5	5.44%
Upland	2,283.5	47.18%
Woody	175.0	3.64%
Cattail-Dominated Marsh	1,171.8	24.22%
Rush-Dominated Marsh	736.3	15.21%
Mixed Marsh	104.1	2.15%
<i>Phragmites</i> -Dominated Marsh	104.8	2.16%
Total	4,839.0	100%



# Vegetation Classification

- Accuracy of the vegetation classification and mapping was assessed by groundtruthing at 577 points, distributed proportionately across the vegetation classes.
- The error in classified versus actual classes for the groundtruthed points was considered acceptable based on the statistical thresholds set for the study.
- Accuracy was not assessed for the areas classified using the NAIP imagery because it was based on manual on-screen digitizing informed by field observations.





# Cutler Drawdown Work – Land Bridge Formation

- During the 2019 drawdown, 10 cameras were installed to validate the predicted wetted perimeter footprint generated by the hydraulic model.
- At all areas sampled, a wetted channel remained after full drawdown (no land bridges were formed).
- The camera images match the modeled wetted perimeter.



# Cutler Drawdown Work – Predator Access to Core Colonial Nesting Bird Areas

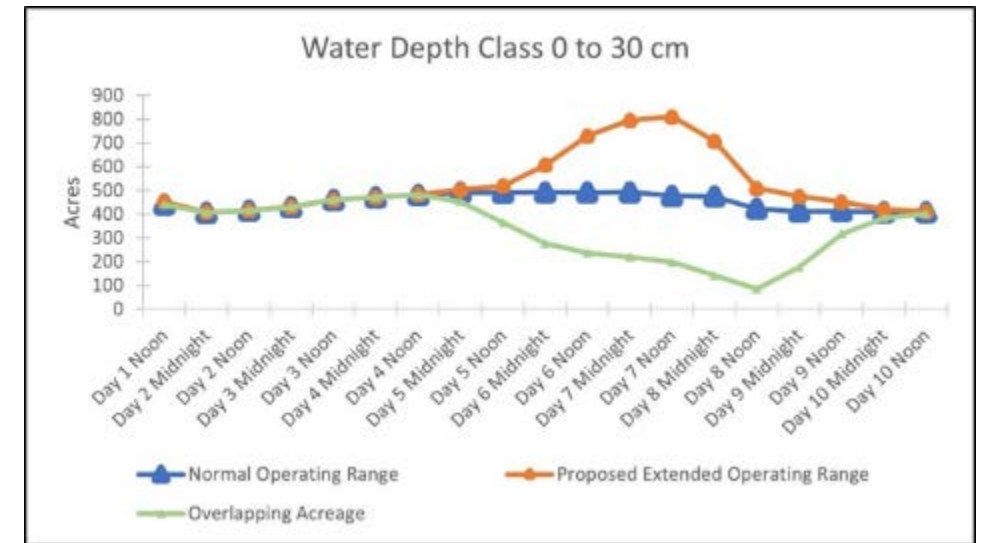
- Purpose was to determine whether predators were accessing colonial nesting bird areas under non-drawdown conditions by swimming, wading, or walking across ice.
- Approximately 503,000 images were collected between February 25 and July 2, 2020 (i.e., post-drawdown, at current normal operating levels) at the 19 remote camera sites.
- A total of 119 images captured predators at 10 of the 19 sites.
- Raccoons were documented at 9 of the sites (swimming and walking on ice); mink was documented at 1 site (walking over ice).



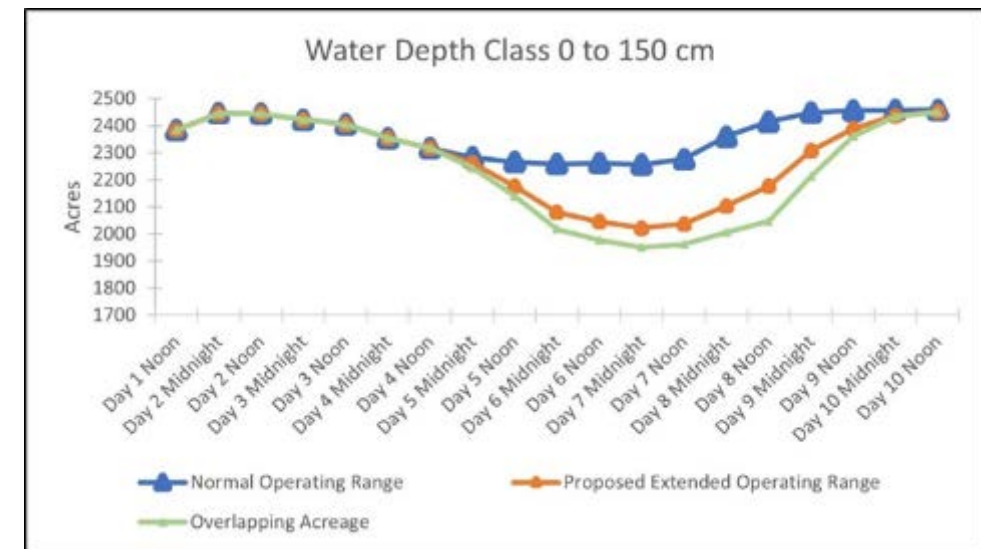


# Quantifying Changes in Littoral Habitat

- A total of 20 water depth classes were extracted from the hydraulic model simulations based on reported foraging habitat requirements for the 55 bird species identified as using study area habitat in winter.
- Water depth classes ranged from zero to 4 centimeters (cm), up to zero to 500 cm, as well as 18 to 40 cm, 50 to 200 cm, and “all available water” (for generalist species using all depths).
- The acreage and location of available habitat under the proposed normal and extended operating scenarios was modeled for each water depth class over the 10-day proposed extended range operating period.



Example: Blue-winged teal, northern pintail, and trumpeter swan



Example: hooded merganser and ring-necked duck

## Phase 2 Bird Survey Study Objectives



Determine the number and species of individual birds in areas where substantial changes in littoral habitat depth availability may occur, based on the results presented in the Phase I littoral habitat quantification study.

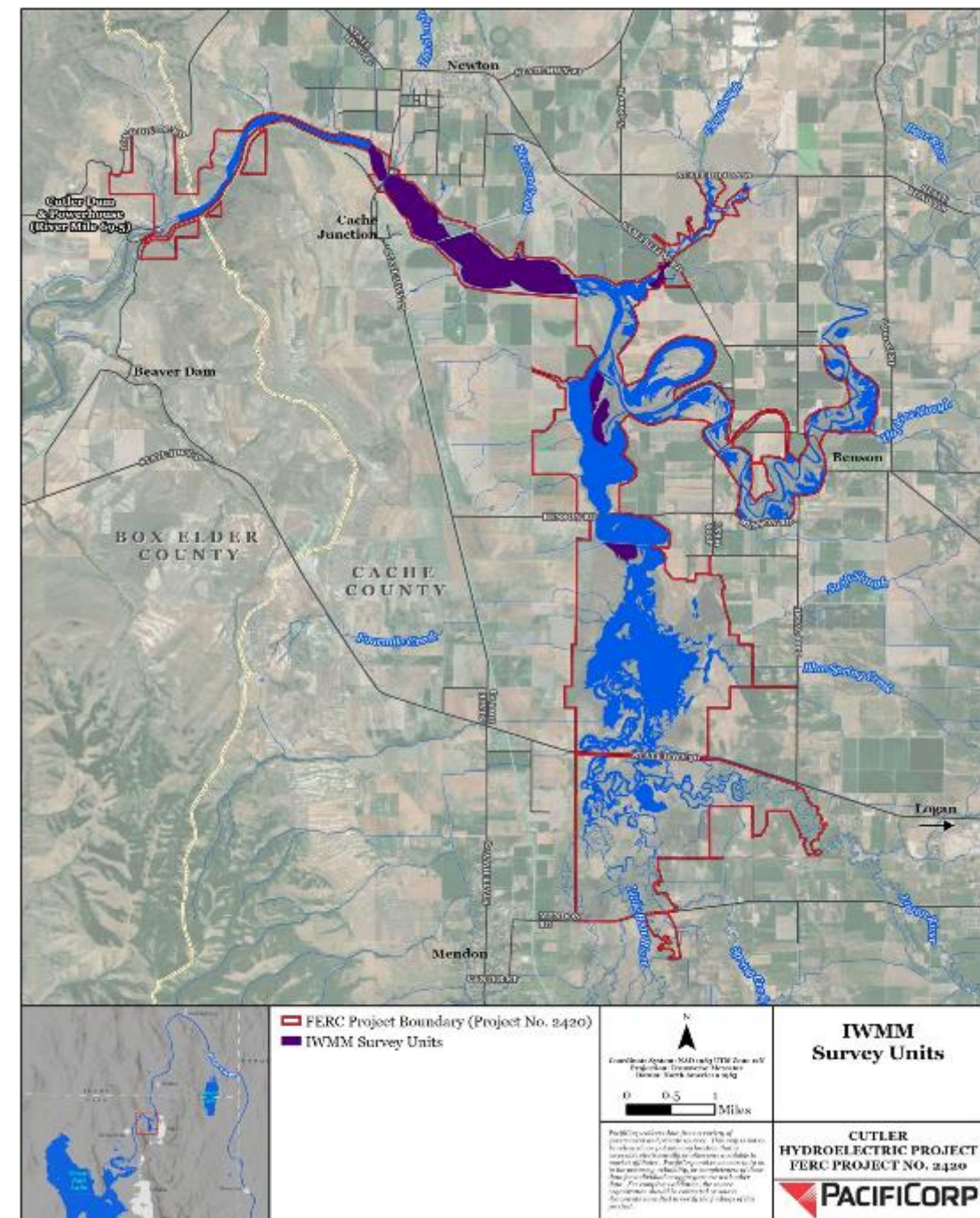




# Phase 2 Bird Survey Study Methods

- In total, 6 bird survey areas were identified as having the greatest potential for change in non-breeding bird habitat.
- Site selection was based on the littoral habitat quantification study and hydraulic modeling, with input from local ecologists and stakeholders.

Survey method “SOP 2: Waterbird and Unit Condition Survey” of the USFWS’s Integrated Waterbird Management & Monitoring 2017 (IWMM) protocol





# Phase 2 Study Schedule



- Phase 2 data collection was conducted November 2020 through March 2021.
- Phase 2 study findings will be reported in the Updated Study Report (to be filed not later than February 2022, but likely summer 2021 given DLA/FLA schedule).

# Summary — Phase I Study Findings

- **Special Status Species:** Identified 55 special-status species (all birds) that could be present during drawdown periods.
- **Noxious Weeds:** Developed maps of the 16 noxious weeds with known occurrence in the study area, including *Phragmites*, goatsrue, and dyer's woad.
- **Habitat Characterization:** Classified vegetation within the FERC Project Boundary.
- **Land Bridge Formation (hydraulic model verification):** Verified accuracy of hydraulic model for use in predicting wetted perimeter — no land bridges formed under full drawdown.
- **Predator Access to Nesting Bird Colonies:** Documented predator access to nesting bird colonies under current operating (non-drawdown) conditions.
- **Littoral Habitat Quantification:** Modeled the acreage and location of various bird foraging habitats (water depths) during proposed and extended drawdown scenarios.
- **Phase 2 Study:** Due to study season and ILP timing, the Phase 2 study (bird population surveys) commenced in November 2020 and will run through March 2021.

# Shoreline Habitat Summary of Study Objectives




Study Objectives	Study Objectives Satisfied?
<b>Study Objective 1:</b> Quantify changes in littoral habitat.	Yes
<b>Study Objective 2:</b> Characterize emergent and adjacent wetland and upland vegetation.	Yes
<b>Study Objective 3:</b> Map invasive species.	Yes
<b>Study Objective 4:</b> Assess the effect of proposed operational changes on littoral habitats and invasive species distribution and associated effects on terrestrial and amphibian wildlife.	Yes Assessed in DLA
<b>Study Objective 5:</b> Assess the effects of WSE changes, including potential effects on 1) riparian and wetland habitat and associated wildlife, 2) upland wildlife habitat and associated wildlife, and 3) introduction and spread of invasive plant species within the Project Boundary.	Yes Assessed in DLA

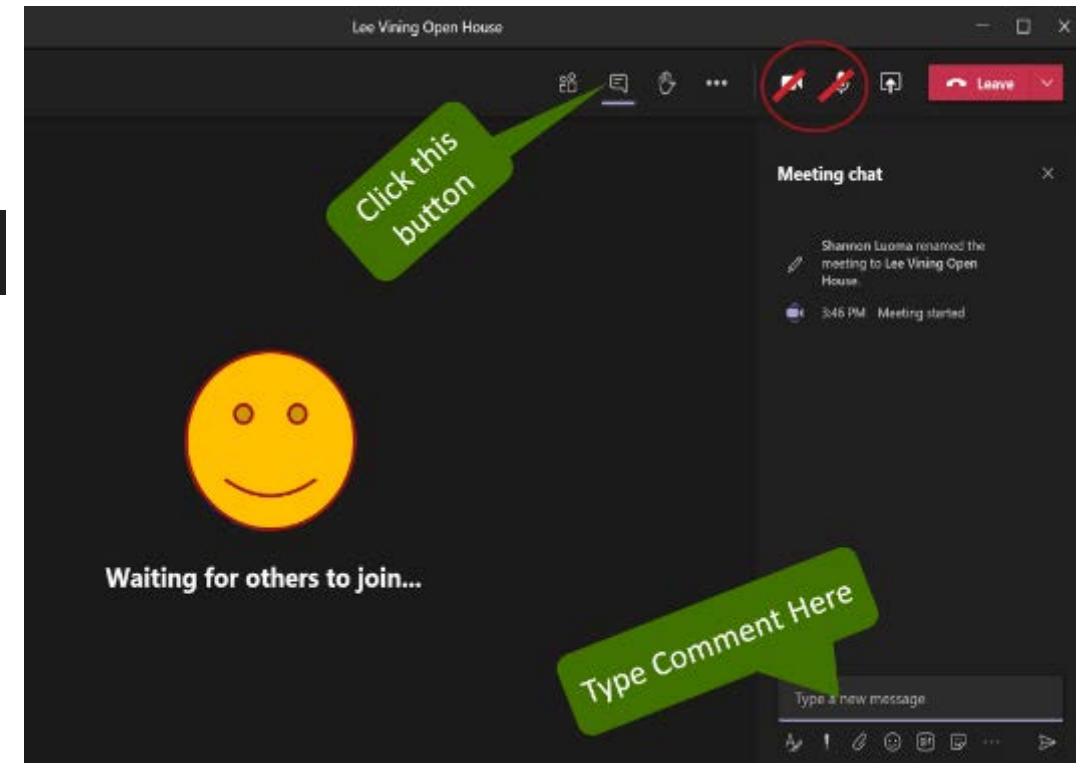




# Cutler Hydroelectric Project

## Questions?

- Please use Chat Box.
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# Land Use Study



# Land Use Study Objectives

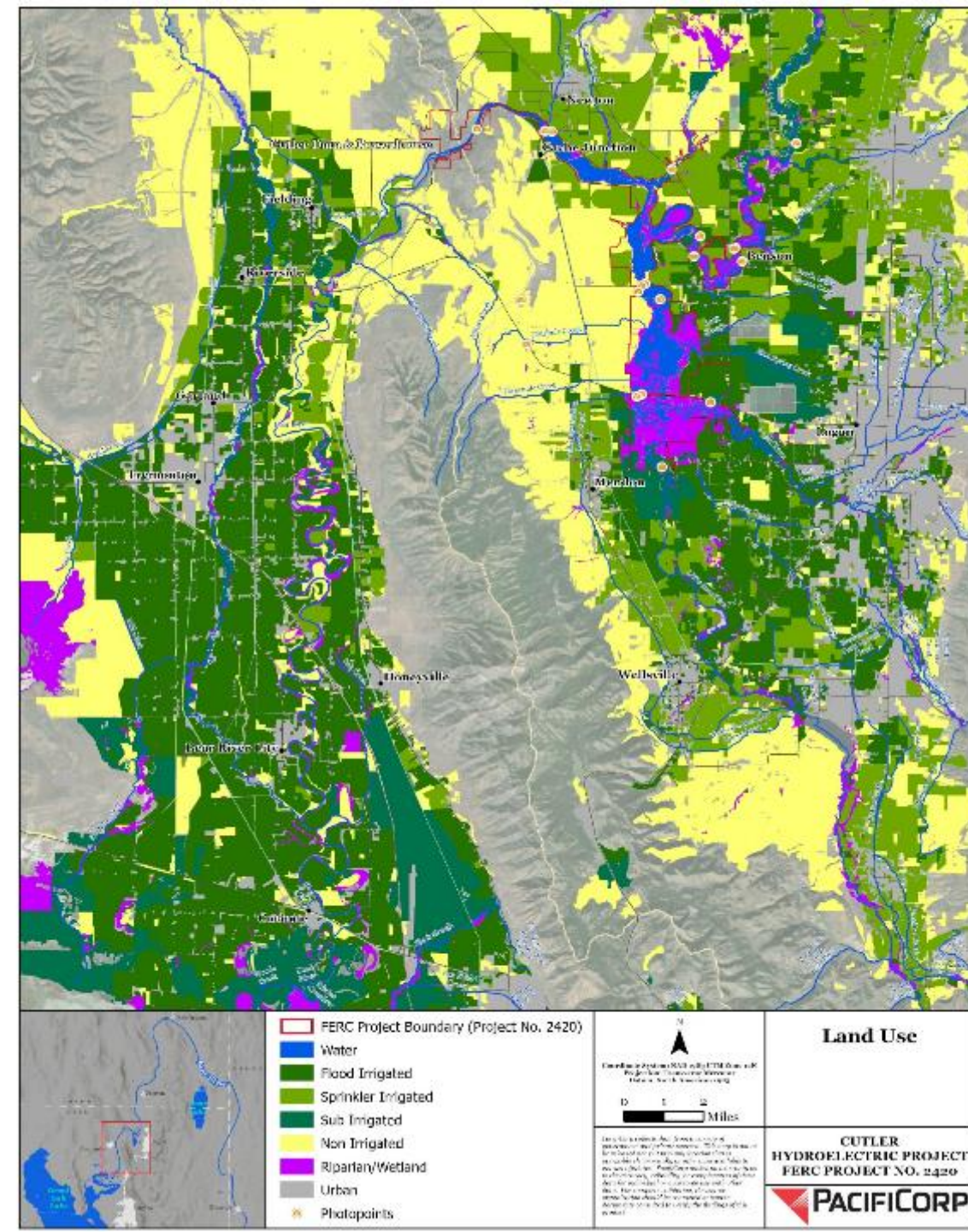
- Characterize the current status of the resources addressed in the Land Use Study and the processes through which Project operations may affect them.
  - Water withdrawal infrastructure (e.g., irrigation diversion structures and pumps)
  - Fences used for livestock management
  - Shoreline erosion features and control structures
  - Large-scale effects on visual aesthetics from key, high-use viewpoints and areas of frequent recreational use
- Evaluate effects of PacifiCorp's potential changes to Project operations on land use and aesthetic resources.



# Land Use Study Area

Primarily the existing FERC Project Boundary, with exceptions/additions noted below:

- Irrigation Water Withdrawal Infrastructure
  - Study area includes all points of withdrawal from Cutler Reservoir or its tributaries within the Project Boundary
- Fences
  - Study area is limited to sites where fences terminate at the water's edge
- Erosion Features and Control Structures
  - Study area includes the entire reservoir shoreline, reservoir tributaries to the existing FERC Project Boundary, and the Bear River from Cutler Dam downstream to Corinne
- Aesthetic Resources
  - Study area includes developed recreational sites and bridges on Cutler Reservoir as well as a viewpoint outside the Project Boundary





# Irrigation Water Withdrawal Infrastructure and Fences Methods

## Withdrawal Infrastructure

- Desktop and field-based assessment
- Inventory of location, condition, and water rights associated with water withdrawal infrastructure



## Fences

- Fences that terminate below the ordinary high water line (OHWL) were inventoried for location and condition



# Erosion Features and Control Structures Methods

- Potential erosion features were identified using aerial imagery; features were field-verified and inventoried for condition.
- Previous bank stabilization projects were inventoried for condition and function.
- Cameras collected time-lapse photos at 5 sites on Cutler Reservoir during the drawdown to document slumping or soil movement.
- Bank erosion was monitored for Project effects during experimental generation cycle flows at 6 locations on the Bear River downstream of Cutler.
- Soil samples were collected from dominant soil types that comprise reservoir and river banks to confirm particle size distribution.
- Shear strength measurements were taken at eroding bank locations.







# Aesthetic Resources Methods

- Visual conditions of the Project were assessed against the landscape value objectives using form, line, color, and texture
- Photo series were collected at baseline (4,407 feet at Cutler Dam) and full drawdown (4,392 feet at the dam) reservoir elevations
- Hydraulic modeling at fluctuation/elevation limits
- Established photopoints where most viewers experience the Project Area landscape (e.g., recreation sites, bridges, Highway 30)
- Used Scenery Management System (SMS) to assess baseline visual conditions and changes associated with the Project

# Study Modifications

*No modifications were made to the Irrigation Water Withdrawal Infrastructure, Fences, or Erosion Features study methods.*

- **Aesthetic Resources**

- Several photo points were added (17 proposed, 26 actual), most additions were at bridges.
- The Revised Study Plan (RSP) planned for a 3-foot drawdown of the reservoir; however, a 3-foot drawdown was not possible at all locations (e.g., Benson Marina's lowest elevation during the drawdown was 2.6 feet below baseline); instead, photos were taken at baseline and full drawdown levels. Photographs captured the range of surface elevations for proposed Project operations.
- The RSP notes that the analysis will define "scenic integrity objectives." However, the summary rating from SMS uses the term "Landscape Value," which incorporates scenic integrity.



# Land Use Study Results






# Review of Existing Information

- The most senior water rights at the Cutler Project belong to Bear River Canal Company (1889–1914). Including the Bear River Canal Company rights, there are 46 water right diversion points in the Project Boundary.
- Logan City Wastewater Treatment Plant (WWTP) discharges into Cutler Reservoir. The upper reservoir elevation would not change, so there would be no changes to current WWTP conditions.
- Erosion of Cutler Reservoir shorelines and Bear River channels has occurred in the past.
- Aesthetics of the shoreline have greatly improved with the implementation of the Project RMP (e.g., removal of hundreds of old car bodies from the banks, buffer establishment, etc.).



A large, dark blue, irregular splash-like shape on the left side of the slide, resembling water or paint splatters. It has a rough, textured edge and contains the title text in white.

# Irrigation Water Withdrawal Infrastructure

- Survey of 45 sites occurred during drawdown to locate lowest elevation of each pipe.
- On the Bear River, with the exception of one pipe, all intake pipes remained submerged during the fall 2019 drawdown at maximum depth.
- In Cutler Reservoir, most intake pipes were exposed at the maximum depth of the fall 2019 drawdown.
- Based on hydraulic modeling results, one irrigation pump intake on the Bear River could potentially be exposed during the proposed normal operating range (no change); all other pump intakes should remain submerged.

# Fences

A total of 35 fence endpoints were identified near or below the Ordinary High Water Line.

Based on hydraulic modeling results:

- 2 of 35 fence endpoints remained submerged through normal (no change from current) and extended operating range
- 32 of 35 fence endpoints were either currently exposed or could be exposed during normal operation range (no change)
- 1 of 35 fence endpoints may be exposed or left less functional during the proposed extended operating range





# Erosion Features and Control Structures

- Time-lapse cameras did not document any movement of Cutler Reservoir banks during the drawdown event.
- The bank stabilization project survey found that projects are in good condition and maintain bank stability.
- In total, 35 soil types were identified in the Project Area's shorelines, with erosion hazard potentials of "slight" or "moderate."
- The mean shear strength for all reservoir shoreline soil samples is well above 150 pounds per square foot.
- The mean slope of reservoir shorelines (i.e., bank slope) is approximately 42 degrees.
- Existing eroding sites on reservoir shoreline are primarily affected by waves made by recreation and wind.
- Bank erosion on Bear River downstream of Cutler Dam results are pending; the field surveys were just completed in January 2021.





# Aesthetic Resources

- The drawdown of Cutler Reservoir showed that surface elevations are not uniform across the reservoir; gradient was most pronounced in high water conditions.
- Changes in water elevation during reservoir operations could change visual aesthetic condition.
  - Bank erosion, loss of vegetation, increase in turbidity
  - Exposure of reservoir beds as mud flats
  - Invasion of mud flat by invasive plants
- As shown through the Hydraulic Modeling Study and Aesthetic (and Recreation) photopoints, visual effects would be progressively less pronounced moving upstream or farther away from the dam.



# Aesthetic Resources (continued)

- Snow and ice coverage would reduce the visual changes of potentially increased bank and/or bed exposure during much of the winter season when the Project could operate in the extended range.
- The current landscape values would not change as a result of the proposed Project operations.
- Recreation decreases substantially in winter; as a result, less viewers would be present during the proposed Project operations in the extended range.



# Year 2 Field Work and Schedule

## **Bank Erosion**

- The study on Bear River downstream of Project restarted in early December 2020
- Completed January 2021
- Results will be included in the Updated Study Report



# Summary — Land Use




Study Objective	Study Objectives Satisfied?
<b>Study Objective 1:</b> Characterize the current status of the resources addressed in the Land Use Study and the processes through which Project operations may affect them.	Yes
<b>Study Objective 2:</b> Evaluate effects of PacifiCorp's potential changes to Project operations on land use and aesthetic resources.	Yes Will be completed in the DLA.

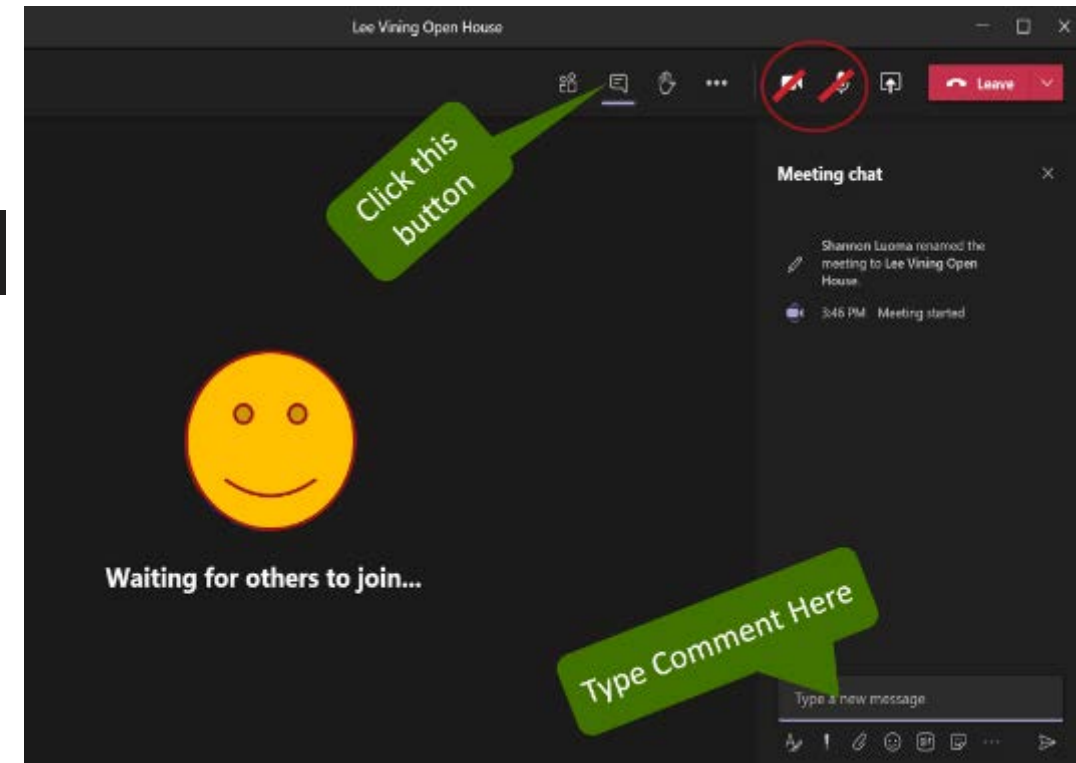
Additional Bear River erosion fieldwork was conducted in December 2020 (early spring onset in March 2020 terminated initial effort) and completed January 2021.



# Cutler Hydroelectric Project

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# Recreation Resources Study





# Recreation Resources Study Goals

- Identify the existing recreation opportunities, facilities, and visitor use that may be affected by the operation of the Project.
- Develop measures that could be implemented to mitigate Project effects and/or enhance recreation activities.

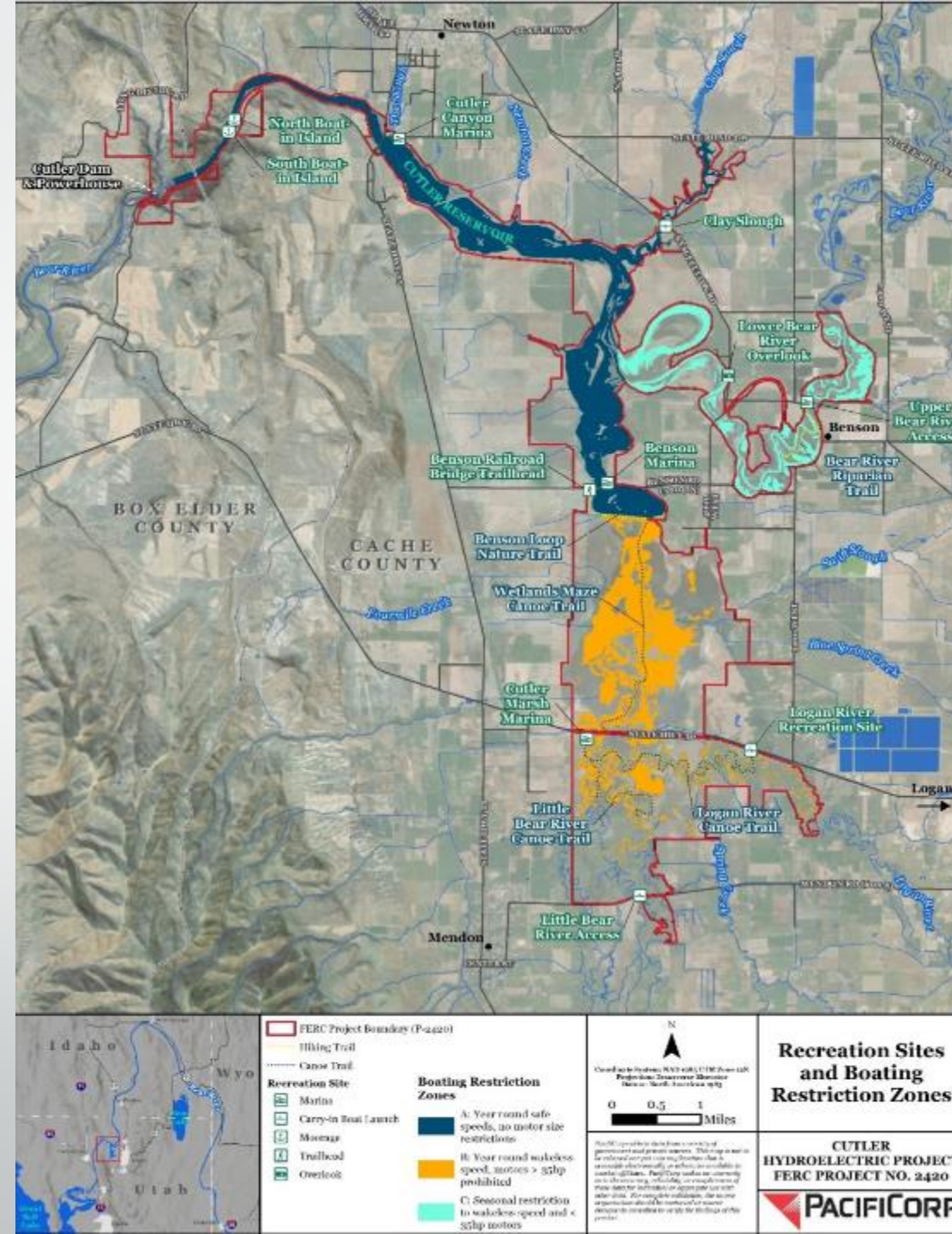
# Recreation Resources Study Objectives

- Describe existing recreation opportunities and facilities within the Project Boundary.
- Quantify visitor use and carrying capacity for Project recreation facilities.
- Evaluate if or how changes in Project operations could affect recreation opportunities, patterns in visitor use, public access to the reservoir, and recreation facility usability.
- Identify current and projected trends in recreation based on recent or newly conducted surveys and interviews and consultation with stakeholders, regional and statewide plans, and other available data
- Evaluate how other proposed ongoing actions may affect existing recreation facilities (i.e., widening State Road 30).





# Recreation Resources Study Area



# Methods

- Desktop Recreation Assessment
  - Identified existing recreation opportunities and facilities in study area.
- Recreation Site Assessment
  - Conducted site visits to document recreation opportunities and facilities identified in the desktop assessment.
  - Evaluated the potential effect of the Project on recreation, completed field datasheets, and analyzed physical capacity of each site.
- Recreation Use Counts
  - Used traffic counters and trail counters to document vehicles and trail use.
- Structured Interviews
  - Interviewed representatives of recreation organizations and individuals with direct knowledge of recreation in the Project Area.
- Visitor Survey
  - Conducted an online visitor survey about recreation use patterns and needs in the Project Boundary.
- Assessment of Proposed Project Operational Changes
  - Used LiDAR, bathymetry, and drone footage to evaluate reservoir access at recreation sites across range of water elevations.



# Study Modifications

- The onset of the COVID-19 pandemic in March 2020 delayed structured interviews:
  - The visitor survey was launched prior to the structured interviews.
  - Study plan relied on information from stakeholders at relicensing meetings, recreation site visits, and informal interviews at recreation sites.
  - Information gathered during structured interviews was used to provide detail in the recreation use assessment.
- Although aesthetic resources were mentioned in the study objectives of the recreation RSP, this resource was completed as part of the Land Use ISR (Appendix D of the ISR).







# Results – Desktop Recreation Assessment

- Recreation Opportunities
  - Motorized and non-motorized boating; swimming; waterskiing; fishing; hunting for waterfowl, upland bird, and big game species; trapping; hiking; wildlife watching; birding; photography; and picnicking
- Developed Recreation Sites
  - PacifiCorp maintains 13 recreation sites with a range of amenities and infrastructure in the Project Boundary.
  - There are also 2 hiking trails and 3 water (blueway) trails in the Project Boundary.
- Restrictions to Recreation
  - No camping; day use only
  - Watercraft motor size, speed, and operation area limits

# Recreation Use Counts

## Vehicle Counters and Visitor Use Estimates

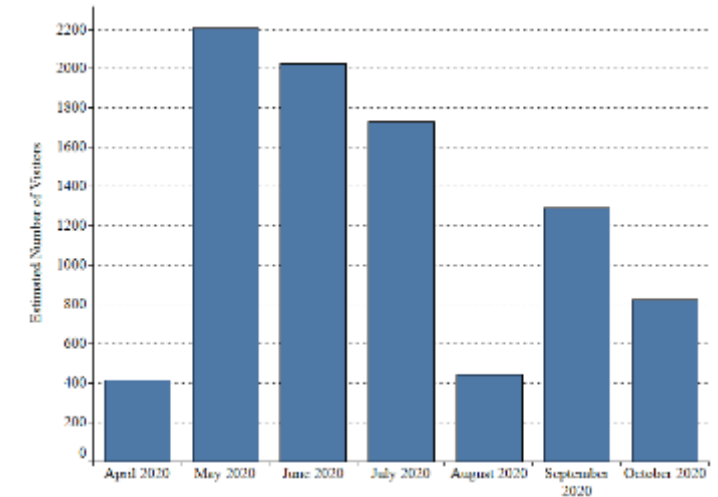
- The Project had 45,145 total vehicles and an estimated 116,962 visitors for the 7 combined recreation sites, with traffic counters from April 23 through November 1.
- Benson Marina had the highest estimated visitation.

## Trail Counters

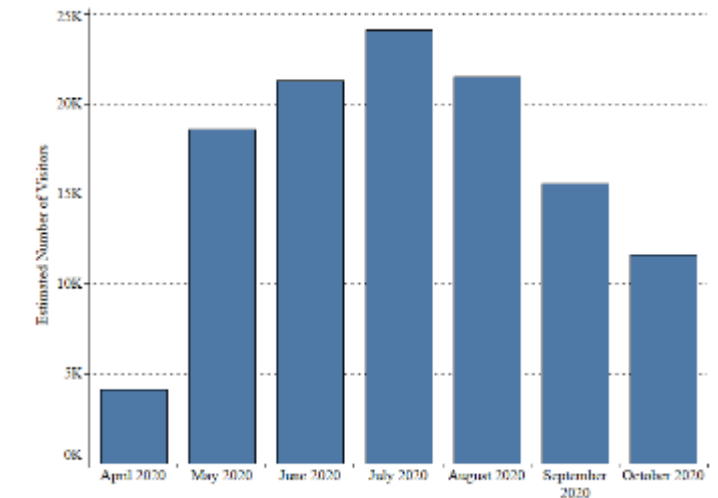
- Benson Railroad Bridge Trail had more use than the Bear River Riparian Trail with 8,260 visitors compared to 680 visitors. Use was highest in May with 2,207 visitors counted.

## Recreation Site Parking Capacity Analysis

- The daily average number of vehicle visits for the 7 sites with vehicle counters (266 during the peak season and 208 during the non-peak season) was less than the 474 total parking capacity of the Project.



Total Visitors on Trail Counters



Total Visitors by Vehicle Counters



# Recreation Site Assessment

## Recreation Site Condition

- Most of the sites evaluated are in good to excellent condition. Cutler Marsh Marina was in the best condition.

## Visitor Use Impacts

- Visitor use impacts were minimal across the recreation sites inventoried.
- Impacts included minor vandalism, small amounts of littering, graffiti, a fire ring, as well as bare ground and loss of vegetation.

## Accessibility Assessment at Recreation Sites

- Conducted inventory/evaluation of handicap accessibility at developed recreation sites.
- Overall, recreation sites provide opportunities for persons with disabilities and generally meet Americans with Disabilities Act of 1990 (ADA) standards.
- Parking, restrooms, and picnic tables designed to comply with ADA.
- Steep topography at some recreation sites limits the ability to provide ADA-compliant access.
- Some improvements were identified, such as the following:
  - More signage designating handicap parking spaces
  - NPS June 2019 inventory identified specific improvements at some sites (railings on docks, concrete lip on walkways, etc.)





# Visitor Survey

- 238 stakeholders notified of survey; 121 individuals completed the survey
- On average, respondents have been visiting the Project for 22 years and most visit multiple times annually
- Most respondents visit the Project between 8 a.m. and noon, with a typical visit lasting 2 to 4 hours
- Why do they visit?
  - 59% to recreate on Cutler Reservoir
  - 50% close proximity to work or home
  - 48% to spend time with family or friends
  - 42% because they like the recreation sites
- The 3 most popular activities at the Project are:
  - birding/wildlife viewing
  - non-motorized boating
  - hiking/walking





# Structured Interviews

- 5 individual structured interviews; interviewees had been using the Project for recreation for 3 to over 35 years
- The number of recreation sites provided by the Project and the amenities available were adequate to support the recreation demands
- Some commented that the developed recreation sites accommodate heavier use than Cutler Reservoir should support
- Increased use in 2020 observed
- Increase in motorized boats over time observed



# Assessment of Proposed Project Operations on Reservoir Access at Recreation Sites

CUTLER RECREATION SITE	LOCATION	RESERVOIR OPERATING RANGE (FEET)		RECREATION SITE FUNCTIONING	
		NORMAL	EXTENDED	NORMAL	EXTENDED
		4407.5 – 4406.5 <sup>B</sup>	4406.5 – 4405.0 <sup>B</sup>	4407.5 – 4406.5 <sup>B</sup>	4406.5 – 4405.0 <sup>B</sup>
Cutler Marsh Marina	Reservoir Sites <sup>C</sup>	4407.5 – 4406.9	4406.9 – 4406.2	Yes	Yes
Benson Marina		4407.5 – 4406.8	4406.8 – 4406.0	Yes	Yes
Clay Slough		4407.5 – 4406.7	4406.7 – 4405.7	Yes	Yes
Cutler Canyon Marina		4407.5 – 4406.5	4406.5 – 4405.1	Yes	Partial
Little Bear River Access	Tributary Sites <sup>C</sup>	4407.5 – 4406.9	4406.9 – 4406.2	Yes	Yes
Logan River Access		4407.5 – 4406.9	4406.9 – 4406.2	Yes	Yes
Upper Bear River Access <sup>A</sup>		4408.3 – 4407.5	4407.5	Yes	Yes

<sup>A</sup> Upper Bear River Access operating range WSE is higher due to its location on the Bear River upstream of Cutler Reservoir.

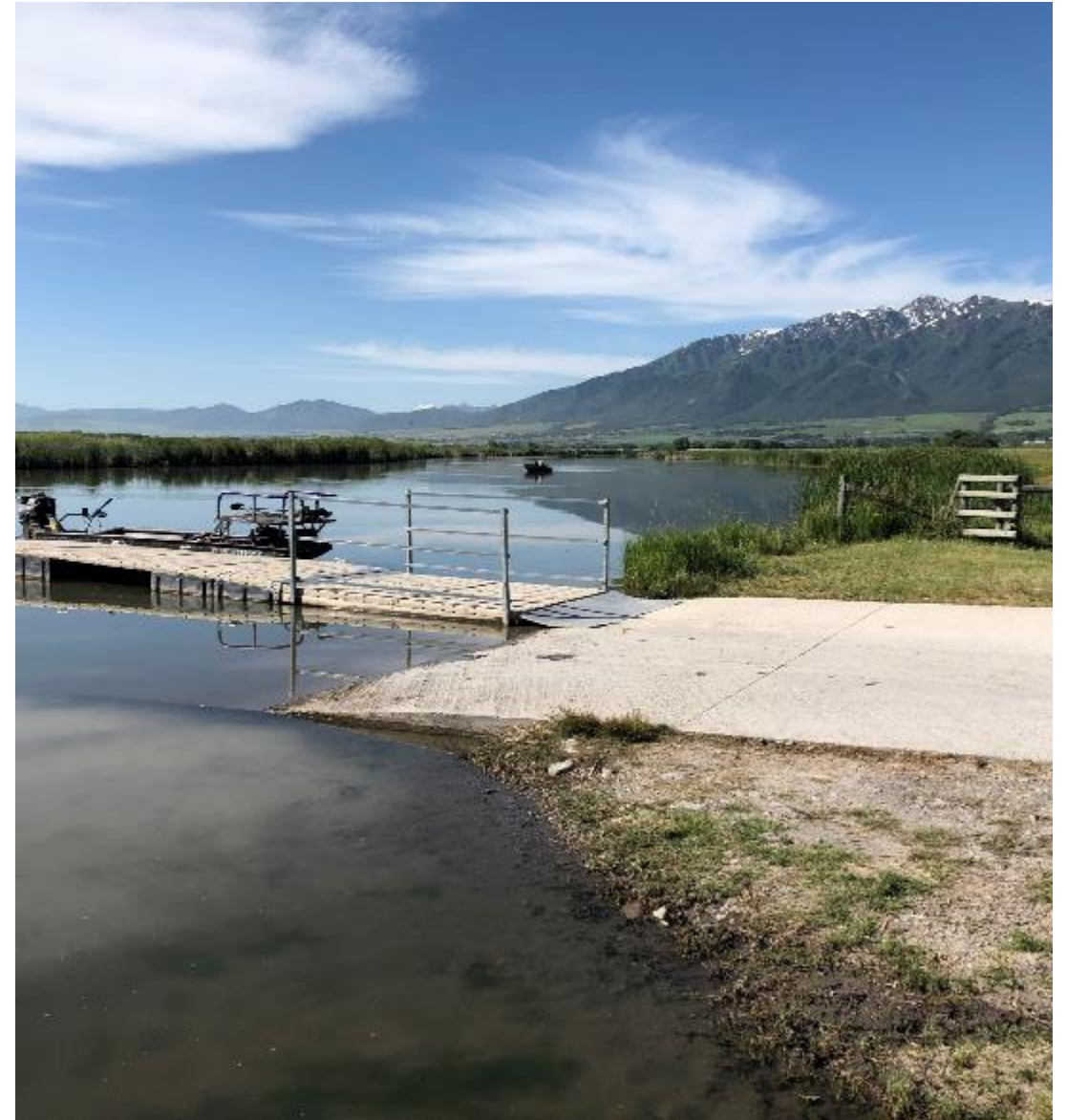
<sup>B</sup> As measured at Cutler Dam

<sup>C</sup> WSE in feet at each site



# Recreation Study Findings

- The COVID-19 pandemic may have altered [increased] visitor use statistics at the Project; however, existing facilities were able to accommodate the greater quantity of visitors.
- The outcome of the recreation study as presented in the ISR satisfies the content and methods approved by FERC's SPD and fills the data gaps for recreation resources identified by FERC in SD1 and SD2.
- Data collected is sufficient to conduct analysis of potential effects of future Project operations on recreation within the Project Boundary.
- No additional or future studies are proposed.






# Summary — Recreation Resources

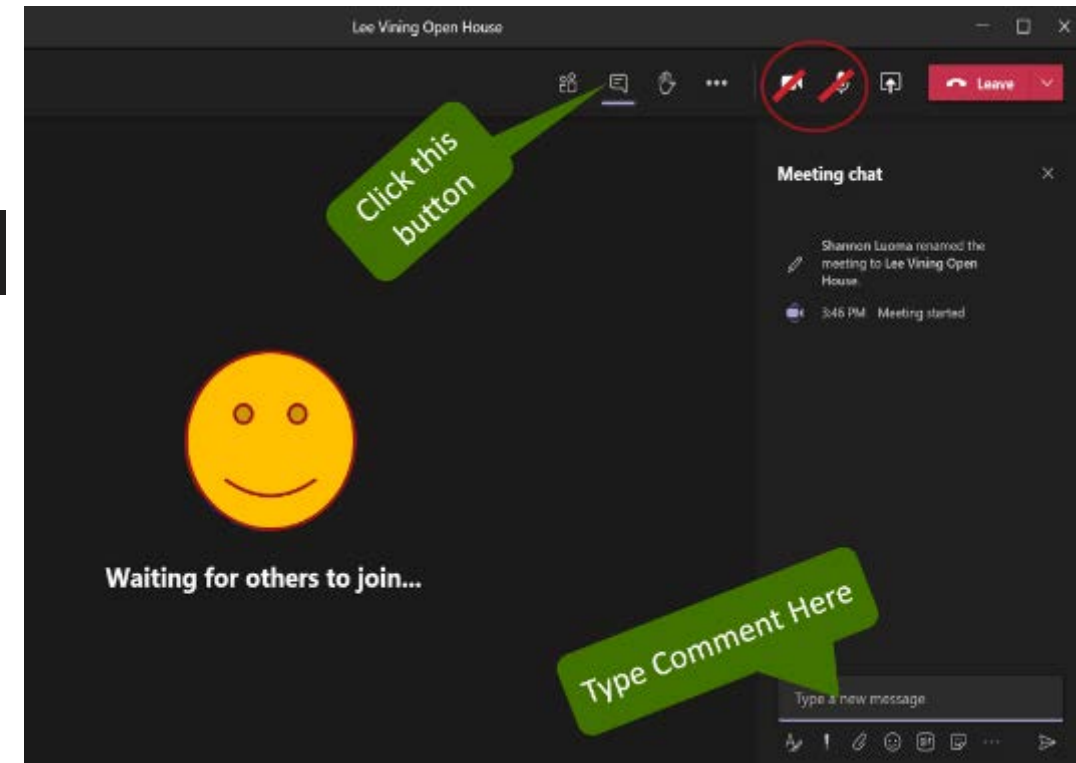
Study Objective	Study Objectives Satisfied?
<b>Study Objective 1:</b> Describe existing recreation opportunities and facilities within the Project Boundary.	Yes
<b>Study Objective 2:</b> Quantify visitor use and carrying capacity for Project recreation facilities.	Yes
<b>Study Objective 3:</b> Evaluate if or how changes in Project operations could affect recreation opportunities, patterns in visitor use, public access to the reservoir, and recreation facility usability.	Yes
<b>Study Objective 4:</b> Identify current and projected trends in recreation based on recent or newly conducted surveys and interviews and consultation with stakeholders, regional and statewide plans, and other available data.	Yes
<b>Study Objective 5:</b> Evaluate how changes in Project operations may affect existing visual resource conditions in the vicinity of the Project.	See Land Use Study
<b>Study Objective 6:</b> Evaluate how other proposed ongoing actions may affect existing recreation facilities (i.e., widening State Road 30).	Will assess in DLA



# Cutler Hydroelectric Project

## Questions?

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# Cutler Hydroelectric Project



## Threatened and Endangered Species





# Threatened and Endangered Species Study Goals & Objectives

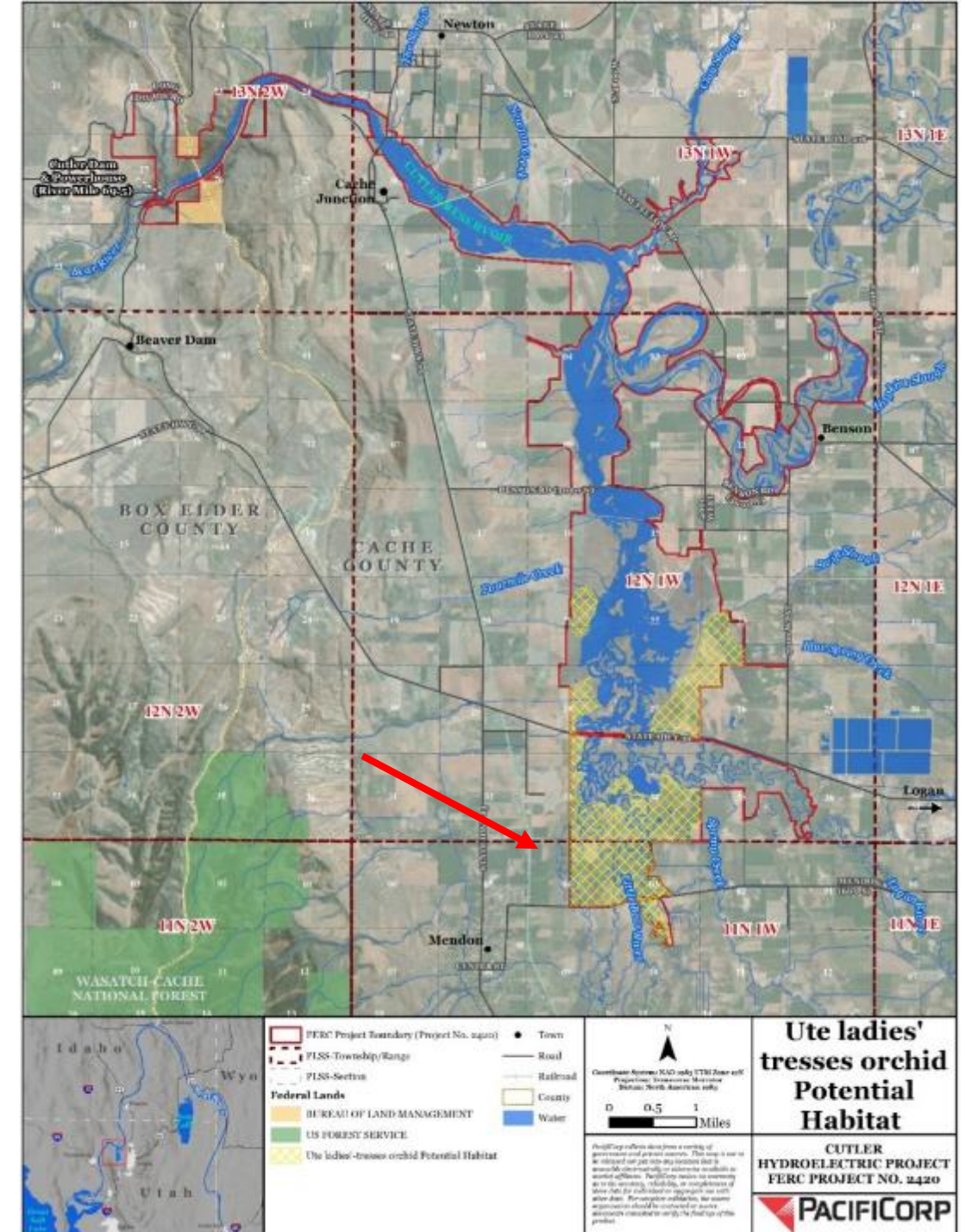
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- Identify federally listed and other rare or protected plant and terrestrial/aquatic wildlife species potentially occurring in the Project Area.
- Systematically estimate the extent and location of occurrences of Ute ladies'-tresses (*Spiranthes diluvialis*) within the Project Area.
- Assess potential effects of PacifiCorp's proposed operations on federally listed species.



# Threatened and Endangered Species Study Area

- The study area was the Project Boundary.
- Surveys focused on potential suitable habitat (wet meadow and shoreline areas), known habitat, and occurrences in the North and South Marsh management units.





# Methods

## Desktop

- Review existing reports and data regarding Ute ladies'-tresses occurrence and habitat within the Project boundary.
- Identify additional potential habitat using aerial imagery.
- Review results of previous PacifiCorp surveys (South Marsh surveys in 2018 and 2019).

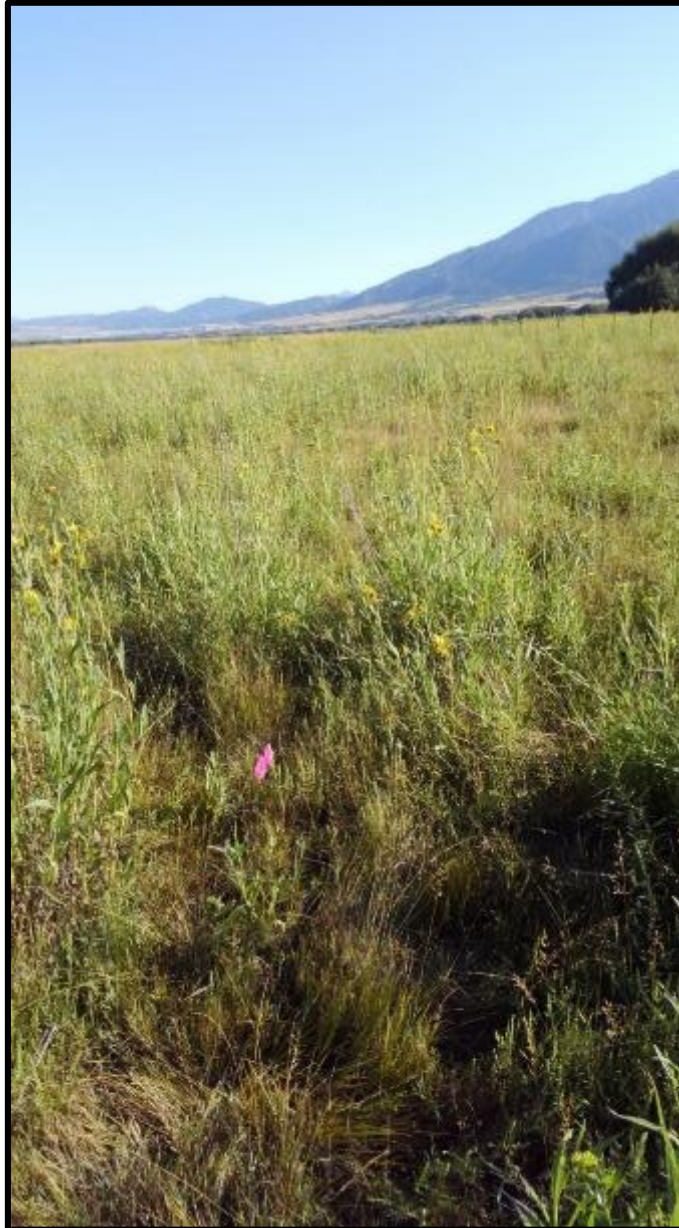
## Field

- Confirm desktop-identified potential habitat (North and South Marsh units); survey Bear River zone for additional potential habitat.
- Confirm flowering time by visiting local known population at nearby Bear River Land Conservancy (BRLC) Mendon Meadow Preserve.
- Conduct preliminary survey in August 2018 and full surveys in August 2019 and 2020.
- Conduct pedestrian survey of all suitable habitat using the USFWS protocol adapted to the study area.

# Study Modifications

No modifications were made to the Revised Study Plan.

# Threatened and Endangered Study Results





# Occupied Habitat

- Ute ladies'-tresses were confirmed only in the South Marsh management unit of the Project
- Found in wet meadow habitat in soils that were seasonally or perennially moist to wet due to sub-irrigation (not found in the surface-irrigated wet meadows)
- All occupied, sub-irrigated habitat was higher than the elevation of Cutler Reservoir and independent of the water levels in the reservoir
- All occupied habitat was in wet meadows west of the Little Bear River





# Occurrences

- In both 2019 and 2020, there were 10 occurrences (clumps), totaling 50 individuals (lower density than found in BRLC Mendon Meadow Preserve)
- Surveys documented that the same individuals were not flowering across the 2018, 2019, and 2020 surveys



# Unoccupied Habitat

- No Ute ladies'-tresses were found in the shoreline habitat along the Cutler Reservoir or the Bear, Little Bear, or the Logan Rivers within the Project Area.
- None were found in cattail or bulrush habitat (assumed too wet and densely vegetated).








# Summary — Threatened and Endangered Species

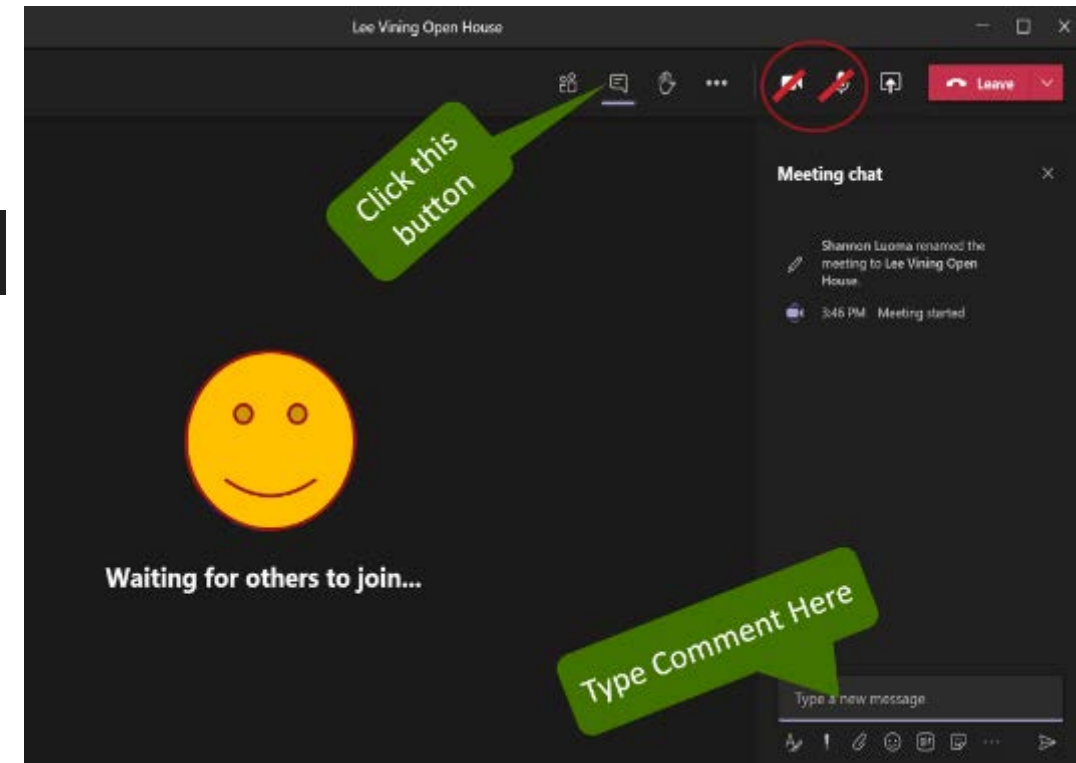
- The study documented the known population of Ute ladies'-tresses in the South Marsh unit of the Cutler Project.
- No other occurrences documented in the Project Boundary.
- Potential effects of proposed Project operations will be analyzed in the DLA.
- No additional studies or surveys are suggested.
- The study met the objectives and the resource needs presented in the FERC Scoping Document.



# Cutler Hydroelectric Project

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## Cutler Hydroelectric Project

# Cultural Resources Study





# Cultural Resources Study Goals & Objectives

- Identify cultural resources potentially subject to effects from Project existence and operations.
- Inform the management actions to be outlined in the future Cutler Historic Properties Management Plan (HPMP).



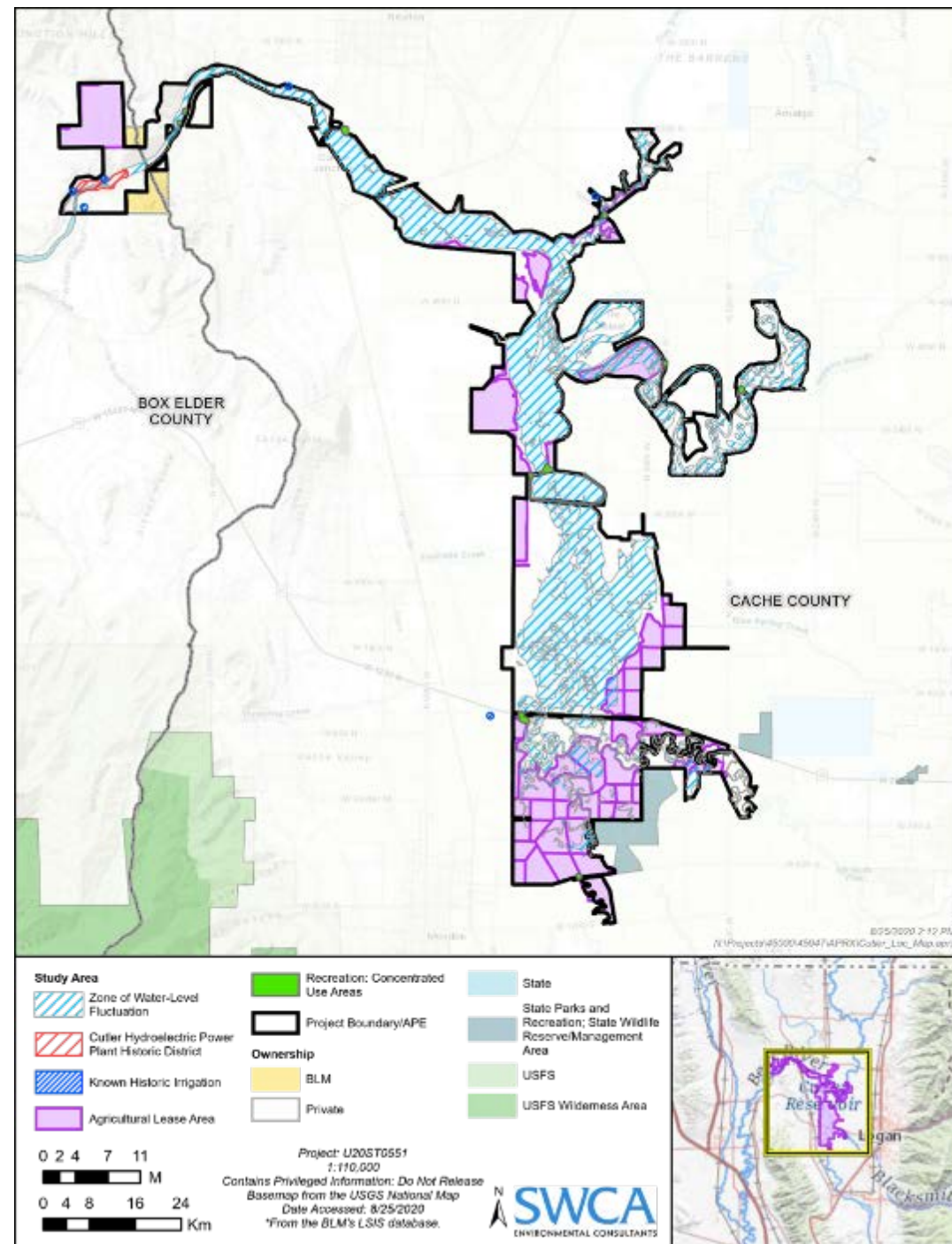
# What are Cultural Resources?

- Cultural Resources are broadly defined as districts, landscapes, sites, buildings, structures, and objects, including artifacts, that were created, used, or altered by humans.
- They are indicators of past human activities.
- Laws and regulations applicable to the Project generally require these resources be at least 50 years old, though some exceptions do exist.
- “Historic Properties” are cultural resources that are eligible for or listed on the National Register of Historic Places (NRHP).





# Cultural Resources Study Area





# Methods

- **Intensive-level Archaeological Inventory:** Archaeologists walking in transects (lines) spaced no more than 15 meters (50 feet) apart during the 2019 drawdown (shorelines and reservoir bed) and at normal operating elevations (upland areas)
- **Historic Architectural Survey of Wheelon Dam:** Conducted during 2019 drawdown
- **National Register Registration Form Amendment for the Cutler Hydroelectric Plant Historic District**
- **Reconnaissance-Level Survey of Agricultural Lease Areas:** Drive-by or boat-by visual inspection
- **Ethnographic Inventory:** Pending request by Native American Tribes







## Study Modifications

No modifications to the study methods or approach to the cultural resource assessment have been made.

# Results

- 21 archaeological sites and 7 isolated cultural resources were identified during the archaeological surveys
- 1 historic district (the existing Cutler Hydroelectric Power Plant District), 1 structural complex (Wheelon Hydroelectric Complex) , and 7 structural properties were documented as a result of the architectural resource surveys
- No ethnographic resources or Traditional Cultural Properties have been identified to-date





# Isolated Occurrences (IO) and Isolated Finds (IF)

*These resources are all considered ineligible for the NRHP and do not need to be actively managed as part of the Project.*



IO/IF #	IO/IF Type
IO-01	Historic artifact – glass insulator
IO-02	Historic artifact – boat remains
IF-01	Historic road
IF-02	Historic car cluster used as erosion control
IF-03	Historic culvert
IF-04	Historic structure – unidentifiable wooden structure
IF-05	Historic earthen berm

# Archaeological Sites

Site #	Site Type or Name	NRHP Eligibility
42BO1182	West Canal	Eligible
42BO1507	Hammond East Bench Canal	Eligible
42CA143	Benson Canal	Eligible but non-contributing
42CA174	Wellsville-Mendon Lower Canal	Eligible
42CA178	Cow Pasture Canal	Not eligible
42CA195	Newton Branch, West Cache Canal	Not eligible
42CA211	Unnamed historic ditch	Not eligible
42CA224	Erosion control feature	Not eligible
42CA225	Wheelon Dam	Eligible
42CA226	Water control feature	Not eligible

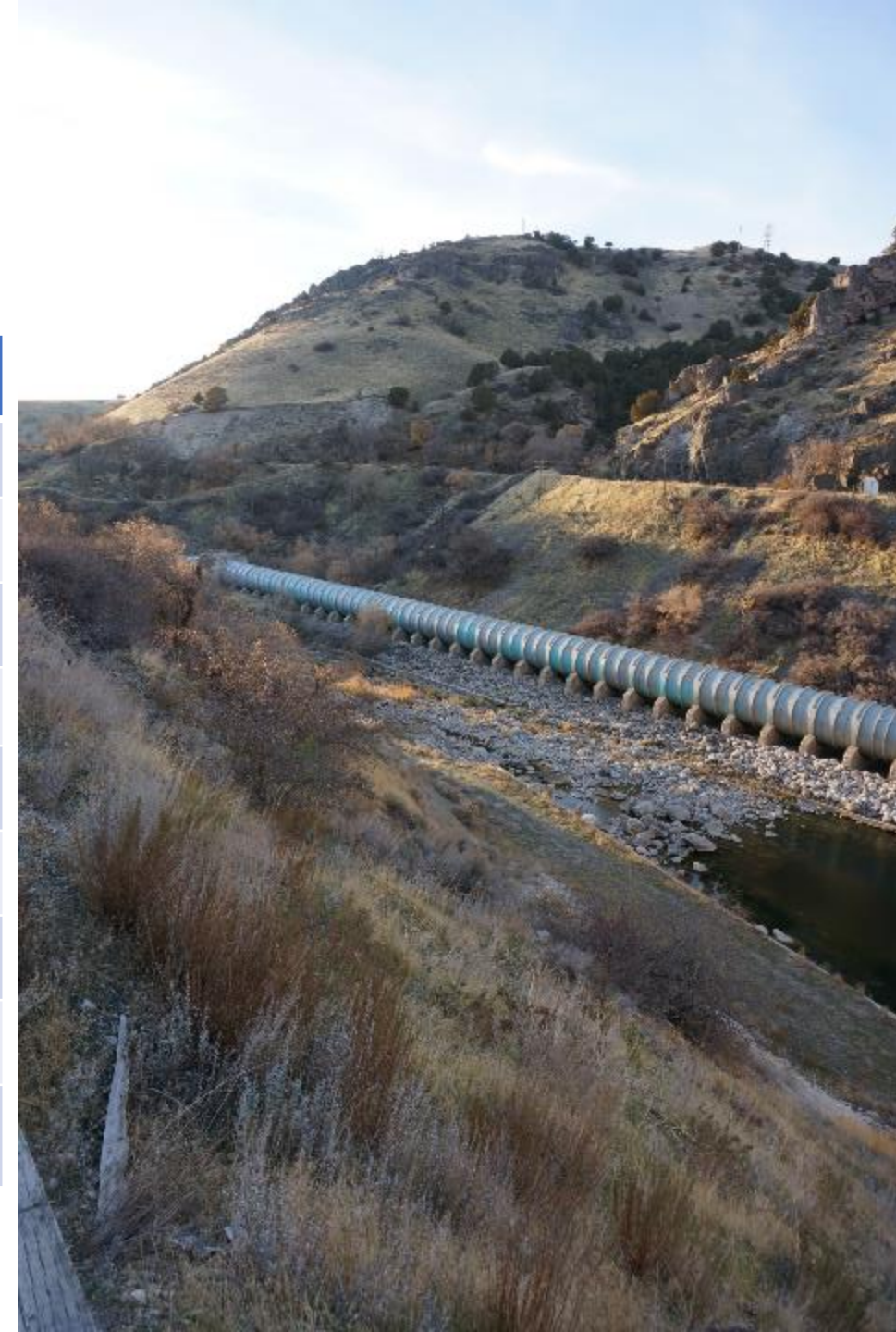
# Archaeological Sites (cont.)

Site #	Site Type or Name	NRHP Eligibility
42CA227	Wheelon Power Poles	Not eligible
42CA228	Wheelon Hydroelectric Facilities	Eligible
42CA229	Mendon Road	Eligible
42CA230	SR-30/SR-69	Eligible
42CA231	Benson Branch OSL Railroad	Not eligible
42CA232	Black Rock Road	Not eligible
42CA233	SR-23	Not eligible
42CA234	Historic foundation & spring	Not eligible
42CA235	Pocatello Mainline OSL Railroad	Eligible
42CA236	Newton to Logan Road	Not eligible
42CA237	Benson–Bear Lake Canal	Not eligible



# Historic Architectural Resources

Resource #	Site Type or Name	NRHP Eligibility
N/A	Cutler Hydro Power Plant District	Eligible/Listed
N/A	Wheelon Hydroelectric Complex	Eligible
11-005-0009	Agricultural structure	Eligible
11-007-0012	Agricultural /Livestock structure	Not eligible
12-004-0004	Residential building	Not eligible
12-003-0005	Agricultural structure	Not eligible
12-027-0009	Agricultural /Livestock structure	Not eligible
12-027-0006	Agricultural /Livestock structure	Not eligible
15-053-0010	Residential building	Not eligible






# Summary — Cultural Resources

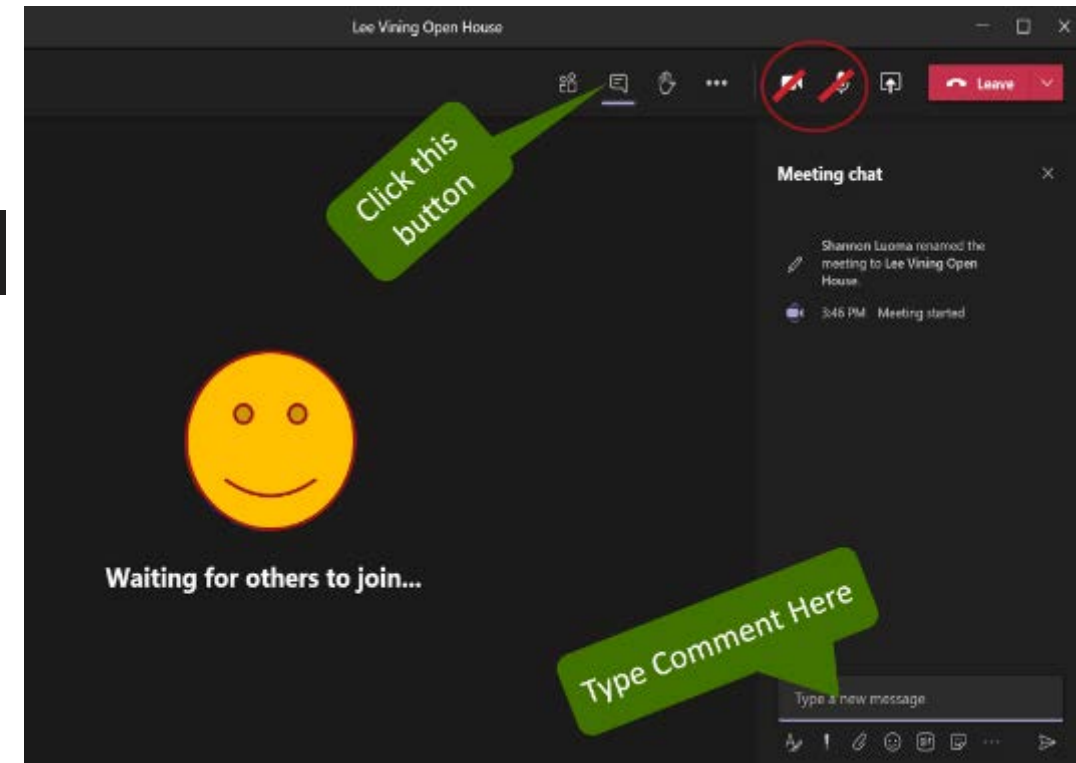
Study Objective	Study Objectives Satisfied?
<b>Study Objective:</b> Identify cultural resources that could be affected by Project operations under the renewed license.	Yes Data are sufficient to conduct impact and effects analysis for the DLA and fulfill Section 106.
<b>Study Objective:</b> Better understand the nature of cultural resources to inform management actions in the HPMP.	Yes Data are sufficient to conduct impact and effects analysis for the DLA and fulfill Section 106.
<b>Study Objective:</b> Identify Traditional Cultural Properties (TCPs) that could be affected by Project operations under new license.	Yes Tribes have been consulted but have not identified any TCPs.



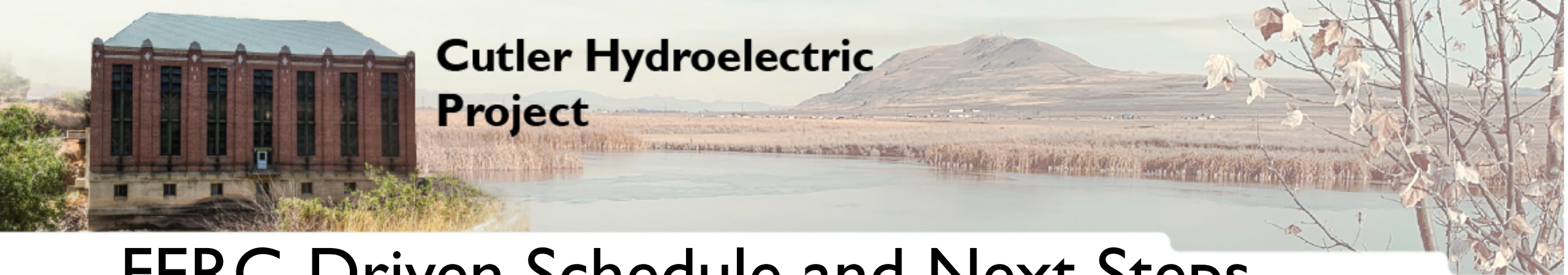
# Cutler Hydroelectric Project

## Questions?

- Please use Chat Box.
- Use the “Raise Hand” button to indicate you would like to ask a question verbally. 
- Please wait to be called on and then unmute your line.  
- State your name/affiliation prior to speaking.
- Please listen, be respectful, and stay on topic.







## Cutler Hydroelectric Project

# FERC-Driven Schedule and Next Steps

- Meeting Summary filed by PacifiCorp no later than 15 days after meeting
- PacifiCorp will alert stakeholders via email when meeting summary is filed
- Stakeholder comments on meeting summary within 30 days
- Dispute resolution pathway if necessary



## Cutler Hydroelectric Project

# FERC Criteria for Studies

- Criteria for modification of approved study — Requestor should demonstrate:
  - Approved studies were not conducted as provided for in the approved study plan; or
  - The study was conducted under anomalous environmental conditions or that environmental conditions have changed in a material way.



## Cutler Hydroelectric Project

# FERC Criteria for Expanding or Adding Studies

- Criteria for new study — requestor should explain:
  - Any material changes in the law or regulations applicable to the information request
  - Why the goals and objectives of any approved study could not be met with the approved study methodology
  - Why the request was not made earlier
  - Significant changes in the Project proposal or that significant new information material to the study objectives has become available
  - Why the new study request satisfies the study criteria in 18 CFR § 5.9(b)





## Cutler Hydroelectric Project




# Action Items / 2021 Project Milestones

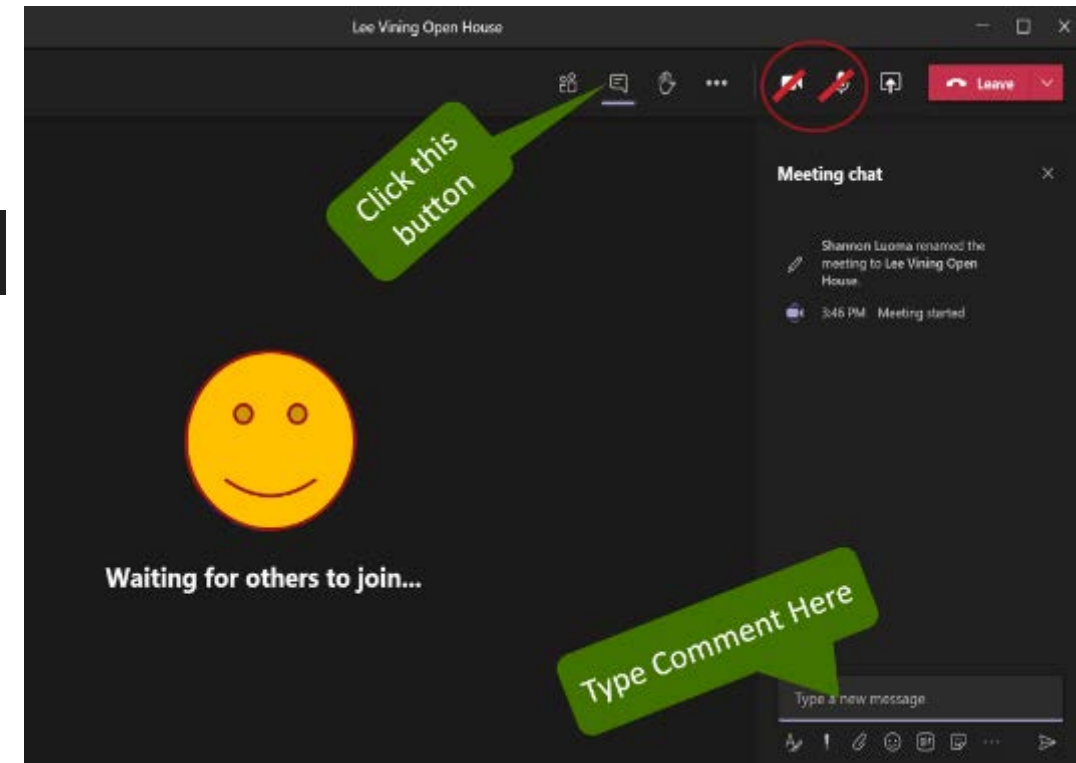
- March 10, 2021 — PacifiCorp files Meeting Summary
- April 9, 2021 — Stakeholders Comment on Meeting Summary, Recommendations for on-going studies, or Request for new studies.
- May 9, 2021 — All File Comments on any Recommendations or Requests for studies
- June 2021 — FERC accepts ISR/Orders additional studies
- July/August 2021 — PacifiCorp files USR and Notifies FERC of upcoming DLA
- November 2021 — PacifiCorp files DLA
- November 2021 through January 2022 — Cutler relicensing stakeholders review/file comments on the DLA



# Cutler Hydroelectric Project

## How to Ask a Question

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## Cutler Hydroelectric Project

# Meeting Adjourned

Thank you for participating

To access meeting materials, please go to:

<https://www.pacificorp.com/energy/hydro/cutler.html>

You can email questions or comments to PacifiCorp:

[Cutlerlicense@gmail.com](mailto:Cutlerlicense@gmail.com)